TÉR – GAZDASÁG – EMBER

TÉR – GAZDASÁG – EMBER

Győr, 2017

The Academic Journal of
Széchenyi István University
Kautz Gyula Faculty of Economics

Published every March, June, September and December (the final edition in English)

December 2017. Vol. V. No. 4.

Editorial room
9026 Győr, Egyetem tér 1.
Administration Building, VI. floor, room 603
Editor in chief: Tamás Dusek
E-mail | tgeszerkesztoseg@sze.hu

Publisher | Manager of Universitas-Győr Non-profit Kft.
Distributor | Universitas-Győr Non-profit Kft.
Address | 9026 Győr, Egyetem tér 1.
Print works | Palatia Nyomda

ISSN | 2064-1176

CONTENTS

VALÉRIA LIMPÓK

Searching for "The missing part" - Where are the hidden tax bases?-

Valéria Limpók: Associate professor, Széchenyi István University, Győr,
(limpok@sze.hu)

Abstract

In this study the pervasive economic crisis from 2008 will be presented from the aspects of the strengthening of international cooperation in the field of taxation, tax evasion, and the intense combat against tax fraud. The current events suggest that the problem of the future sustainability of the tax system is getting into focus, which will be a substantial issue in the work of tax authorities, who have also become participants in the competition. The analytical framework takes national and international events into consideration and approaches the problem from two sides: competitiveness and fiscal sustainability. Also an overview will be given about the Hungarian responses to these challenges and with the help of a survey I try to analyze the reactions of the economic actors.

Keywords: Fiscal sustainability, international tax cooperation, Hungary

1. INTRODUCTION

1. *Overview and analyze the current efforts of the European Union* (hereinafter EU) *and the United States of America on getting back their missing tax revenues.* This includes the identification of the European Union trials to improve the fiscal position of the member states, hereby the whole Community. United States' Foreign Account Tax Compliance Act will be reviewed as well.
2. *Highlight some important Hungarian tax changes from the last years in the direction of cleaning the shadow economy and increasing tax revenues.* I will present the basic characteristics of some part of Hungarian tax law, their modifications during the last years and some opinions about them.
3. *Answer the detailed hypotheses below.*

The hypotheses are listed as follows:

- H1 The impact of the international efforts for getting back missing tax revenues can be seen in the Hungarian taxation policy.
- H2 In the domestic tax legislation value added tax is the major field where "best practices" against tax fraud can be found.

2. FRAMEWORK FOR THE ANALYSIS – THE ECONOMIC BACKGROUND AND LITERATURE

From 2009 to present a series of steps were taken at national and international levels, aimed to detect money hidden in tax havens and explore institutions of banking and tax secrecy in connection with tax avoidance transactions.

In 2013 the European Union published a vividly descriptive *video called "The missing part"*.

Figure 1. "The missing part"

Source: European Commission (2013): "The missing part"

This short film emphasizes with the help of everyday life examples that one fifth of public money in the EU is lost to tax fraud and tax evasion. The European Union seems to have a common interest since years to take action to get back this missing part. In the European Union there is an *automatic exchange of information* on savings. The exchange of information between national tax authorities is lively concerning value added tax (hereinafter VAT).

In connection with the global economic crisis, the demand of exploring absorbed tax bases came alive related also to countries with aggressive tax-strategy. Beyond the possibilities in the EU, in 2012, the Commission Recommendation on „measures intended to encourage third countries to apply *minimum standards of good governance in tax matters*" was adopted. The document stresses the need for transparency and exchange of information and defines potentially harmful tax measures (Európai Bizottság, 2012a). At the same time, the European Commission adopted a recommendation in connection with the aggressive tax

planning, which defined the concept and named some aggressive tax planning method (Európai Bizottság, 2012b). Also this year, an action plan was published, which proposed correction for the member states on their ineffective, "double no taxation" enabling conventions on double taxation (Európai Bizottság, 2012c). In the spring of 2013 the European Commission found the situation so alarming, that it aimed to prevent the income concealment in the Community, and - as a part of the Directive 2011/16/EU of the administrative cooperation in the field of taxation (hereinafter Directive 2011/16/EU) - it proposed automatic exchange of data on all sources of income (Európai Bizottság, 2013a). Austria and Luxembourg got under EU pressure again because until this meeting they did not adopt the directive on savings to their own domestic legal system. Since it became clear that they could not evade the long time cooperation, first Luxembourg, then Austria declared its readiness for change.

In spring 2014, the EU finally decided to amend the directive on savings. The member states' financial institutions - beyond the current practice - are obliged not only to transmit the individual bank account holders' information to the tax authorities, but the data of the owners behind offshore companies too, which are later sent to the concerned business owners' tax authorities. Modifications were required to be transposed into the national legal systems by 1st January 2016, and the regulations will come into force from 2017. The 2014/48/EU directive lists the categories of organizations and arrangements, with the remark "trust or other similar legal arrangement governed by foreign law" for Hungary.

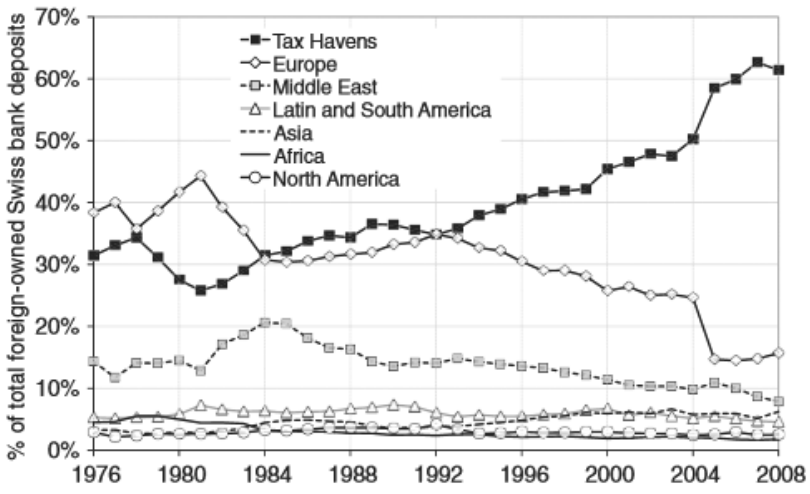
In October 2014 the European Council agreed on amending the Directive 2011/16/EU (European Commission, 2014). Based on the *Organisation for Economic Co-operation and Development* (hereinafter OECD) *2014 Common Reporting Standard* a first automatic exchange of information among EU tax administrations happened in 2017, except that in Austria the first reporting will take place in 2018.

In December 2014 directive 2014/107/EU was adopted which entered into force on 1 January 2016. This legal instrument widened the scope of that exchange in order to include interest, dividends and other types of income (European Council, 2015).

Due to the fiscal reasons Swiss bank secrecy came to the forefront as well.[1] Bank secrecy was enacted in 1934[2] in Switzerland which created the world's major tax haven. Despite the high share of deposits assigned to tax havens most Swiss accounts probably are owned by Europeans.[3]

[1] See e.g. Limpók (2014)
[2] Bundesgesetz über die Banken und Sparkassen vom 8. November 1934 in der Schweiz
[3] See Zucman (2013), p. 1333

Figure 2. Most Swiss accounts probably belong to Europeans



Source: Zucman, G., 2013, 1333

According to the Boston Consulting Group Switzerland remains the largest offshore center, with about 25% of total offshore wealth by the end of 2017, compared with 26% in 2012 (Boston Consulting Group, 2013). On 27th May, 2015 the *EU and Switzerland signed tax transparency agreement* which was described as „historic" by the European Commission. The agreement will came into effect from 2018 onwards and both sides will on an annual basis automatically exchange information on the financial accounts of each other's residents. Information exchange includes the names, addresses, tax identification numbers and dates of birth of the residents, as well as other financial and account balance information (European Commission, 2015). The agreement fits to the 2014 global standards of the OECD[4] and it is expected to improve the ability of member states to fight against tax evasion and tax avoidance. In 2015 and 2016 similar tax transparency agreements were signed between EU and tax havens Andorra, Liechtenstein, Monaco and San Marino.

Exchange of information is an excellent opportunity if it is used effectively. The numbers speak for themselves: from 2003, on the basis of mutual assistance in tax collection, more than tenfold of the amount of cross-border taxes were collected in the EU member states.[5]

The *United States of America* also belongs to the top fighters for tax information exchange. *Foreign Account Tax Compliance Act* (hereinafter FATCA) is a

[4] OECD (2014): Standard for Automatic Exchange of Financial Account Information in Tax Matters
[5] Európai Bizottság (2013b): Küzdelem az adócsalás és az adókikerülés ellen - A Bizottság hozzájárulása a 2013. május 22-i Európai Tanács számára

special legal instrument enacted by the U.S. government in 2010. This "global tax act" aims struggling tax evasion. U.S. citizens and tax residents are required to report their worldwide income to the American tax authority, namely Internal Revenue Service, whether they live in the United States or foreign land. If foreign financial institutions do not cooperate, their U.S.-based investment transactions are taxed with 30% withholding tax. According to the Joint Committee on Taxation, FATCA is expected to raise tax revenues of approximately 800 million USD per year for the U.S..[6] From 2014 FATCA regulations began to legislate in the foreign lands. In the next chapter I am going to certify this with data on Hungary.

It can be stated, that the overwhelming crisis from 2008 increases in parallel with the pursuit of international exchange of information in tax matters, and the fight against tax evasion and tax fraud were established. It is interesting to observe that there are more countries offering favorable tax treatment of foreign-owned companies.[7]

The "top offshore scandal" from 2016 is the so called "Panama Papers", the leak of 11,5 million files from the database of the world's fourth biggest offshore firm, namely Mossack Fonseca. Among others the international giant banks, politicians, sports stars and celebrities are taking an active part in offshore business.[8]

The offshore supply increases and demand for offshore facilities is unbroken. When one site becomes "dangerous", there will be always another attractive option.

3. SEARCHING FOR THE "MISSING PART" OF THE HUNGARIAN TAX REVENUES

In this section I will shortly describe some points of tax changes in the Hungarian tax law of the last few years focusing on state's searching for the missing tax revenues. Interviews were made on taxation among companies, tax officers and individuals in Hungary with the purpose of collecting responses about the presented tax changes.

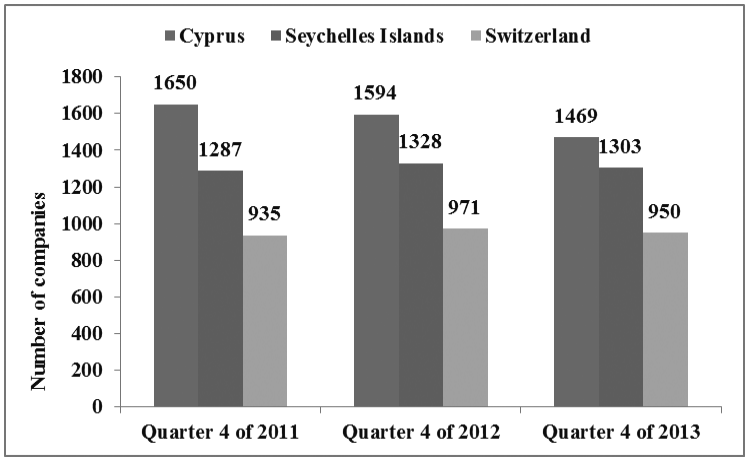
The black economy appears everywhere, but on different degrees. Its share in Hungary is above the European average, more than 22% (Schneider, 2013). According to the Central Statistical Office in 2014 the gross domestic product at current prices amounted to 32,179.666 billion HUF. On this ground, *the extent of the black economy in our country can exceed 7,079.53 billion HUF.*

[6] U.S. Joint Committee on Taxation (2010): JCX-6-10
[7] UNCTAD (2013): World Investment Report, p. ix
[8] See e.g. ICIJ (2016): The Panama Papers

3.1. OFFSHORE AND TAX HAVENS

A number of studies came to the conclusion that tax and social security contributions are one of the main reasons for the black economy's existence (Schneider, 2012). Currently, it is also a problem in Hungary that a portion of the generated income land in tax havens through offshore businesses. According to a 2014 survey (Bisnode.hu, 2014) thousands of company owners are also active in tax havens. (See Figure 3.) In 2016 the 15 most popular offshore locations amongst Hungarian companies are the following: 1. Cyprus (1038 companies), 2. Seychelles-Islands (845 companies), 3. Switzerland (825 companies), 4. Luxembourg (486 companies), 5. Belize (402 companies), 6. Panama (398 companies), 7. Liechtenstein (363 companies), 8. Hong Kong (170 companies), 9. Marshall-Islands (145 companies), 10. Ireland (101 companies), 11. Malta (97 companies), 12. Gibraltar (69 companies), 13. Dominican Republic (62 companies), 14. Singapore (53 companies), 15. United Arab Emirates (52 companies) (Várkonyi, 2016).

Figure 3. The number of Hungarian companies owned by a firm operating in offshore country 2011-2013



Source: Bisnode.hu 2014

It can be concluded that the use of offshore companies in Hungary is ever-popular. In 2013 the hundred highest dividends that were allocated outside Hungary landed in 25 different locations around the world, including 12 places that are typically or mostly used for tax relief (Logisztikama.hu, 2014). In the first quarter of 2015 brokerage scandals filled the headlines in Hungary. Among others many Hungarian small investor were affected by the bankruptcies of Hungarian brokerage firms Buda-Cash, Hungária Securities and Quaestor. For a little while offshore and tax havens became a priority topic because the concerned companies used these tax planning opportunities as well.

Responding individuals, the "average people" were neither thinking about the potential offshore background of their financial institution nor they were aware of the consequences of financing by offshore and tax havens. It could be stated that offshore and tax havens were a "mysterious business" that they cannot follow.

3.2. EXCHANGE OF INFORMATION

Within the Hungarian tax audits there is an increasing proportion of those checks which are based on the request of foreign tax authorities, concerning the taxation of companies and individuals. As mentioned before, in the European Union there exists an automatic exchange of information on savings. According to the National Tax and Customs Authority of Hungary (hereinafter NTCA) – while the European Union member states provided data for the NTCA on the ground of the directive on savings – 16,000 Hungarian citizens had a bank account in 2012. The state tax authority has launched 620 investigations and a 173 million HUF tax deficiency was revealed, which requires more than a billion HUF non-tax revenues according to the legislation (Portfolio.hu, 2014).

To *enforce FATCA, Hungary and the United States of America signed a bilateral agreement in 2014, ratified with Act 19 of 2014* (hereinafter FATCA Act). For all Hungarian financial institutions is obligatory the execution of the FATCA Act. The financial institutions have to register with the U.S. tax authority and then they receive the Global Intermediary Identification Number. 30th June 2015 is the date of the first FATCA reporting to the National Tax and Customs Authority of Hungary. The NTCA is transferring the required data to the Internal Revenue Service.

3.3. VAT, IN PARTICULAR THE ELECTRONIC TRADE AND TRANSPORT CONTROL SYSTEM

In Hungary the tax fraud connected to value added taxation is a very common issue. It is a fact that Hungary has the highest standard rate of value added tax in the European Union with 27%.[9] VAT fraud "may be motivated" by this high standard rate, however, our decreasing, but still high public debt can be an obstacle of lowering the standard rate.

In 2012 preventing value added tax fraud the Hungarian government made a decision that about 400 thousand cash registers would be fitted with a device that would establish a direct online connection with the NTCA (Kormany.hu, 2012). According to the data of the Hungarian Central Statistical Office the revenue effects of the *online cash registers* were positive, so the regulation has helped to whiten the economy. Motivated by the success, in 2015 the government decided to *involve new actors from the commercial sector.* Since September 2016 among

[9] European Commission (2016): VAT Rates Applied in the Member states of the European Union

others automotive and motorcycle repair shops, discotheque operators and plastic surgeons have been required to be connected to NTCA through the online cash register system. From 1 January 2017 taxi drivers and currency exchange providers were obligatory to use electronic tills as well.[10]

Not only businesses but also individuals emphasized in their opinion that they were sure the mechanism will help to clean the shadow economy. They think the sectors newly concerned are also risky from VAT point of view; consequently the regulation might be a positive effect on VAT revenue. Businesses gave positive feedback about the expected financial support from state to the exchange of machines.

In 2006 the Hungarian tax law established the application of *reverse charge taxation* as an anti-fraud measure in the field of value added tax.[11] The method has proved successful in several fields, e.g., certain services relating to immovable property and agriculture. In May 2015 the Austrian, Bulgarian, Czech, Slovak and Hungarian ministers of finance had a meeting in Vienna where they discussed *joint action* against VAT fraud, such as the extension of the reverse charge mechanism. They would like to get the green light from the authorities in Brussels to the common use of the method.

In Hungary, the loss in fiscal revenues due to the so-called "carousel-fraud" in VAT is estimated by 1.5-2 billion EUR annually (Kormany.hu, 2015). In "carousel-fraud" fraudulent companies are interposed in a supply chain trading within the EU in order to disappear with VAT on the transactions. Over the past years several networks involving VAT fraud were eliminated. In 2015 a new goods delivery control system, namely *Electronic Trade and Transport Control System* (hereinafter EKAER) entered into force pursuant to the Act XCII of 2003 on the rules of taxation. The purpose of the system is minimizing VAT fraud in the road transport. Goods moving within Hungary and also goods transported on public roads between Hungary and the member states of the EU are checked. Defined data related to transport have to be registered in a central electronic system before starting the transport and the arrival has to be registered as well. The potentially risky products are listed which includes, e.g., foodstuff, clothing, gravel and chippings.

From the aspect of competitiveness, administrative burden on businesses is also an important factor taken into consideration by investment decisions. EKAER increases this business burden. However, from the aspect of whitening the economy the initiation of the method might be inevitable. The system - despite all of the weaknesses of the regulation - was very welcomed among tax officers working on monitoring.

On the basis of the reviewed economic situation, tax regulations and the answers of the Hungarian respondents, hypothesis, 1 and 2 are confirmed.

[10] Regulation of the Ministry for National Economy 9/2016. (III. 25.)
[11] See VAT Act

CONCLUSIONS

The 2008 financial and economic crisis played strong impact on tax policies worldwide, in the EU beside the tax competition the tax harmonization as well. Some member states, as Hungary are still facing budgetary consolidation needs. Certain tax changes are aimed at reducing the public deficits.

However *in the last few years tax competition got a new dimension.* Tax revenue has chance to grow if economy grows too. *Tax revenue has chance to grow if tax fraud will be suppressed.* Countries around the world are struggling for tax base. Hungary's strategy seems to be suitable, since 2011 the tax revenues are increasing. (See Table 1.) Any possible complex implementation of the automatic exchange of information poses new challenges for the Hungarian system.

Table 1. Tax revenues collected by the NTCA of Hungary (2011-2015)

	2011	2012	2013	2014	2015
Tax revenues (HUF billion)	9.323,8	10.218	10.722,6	11.486,7	12.337,8

Source: Nemzeti Adó- *és* Vámhivatal 2011, 2012, 2013, 2014, 2015

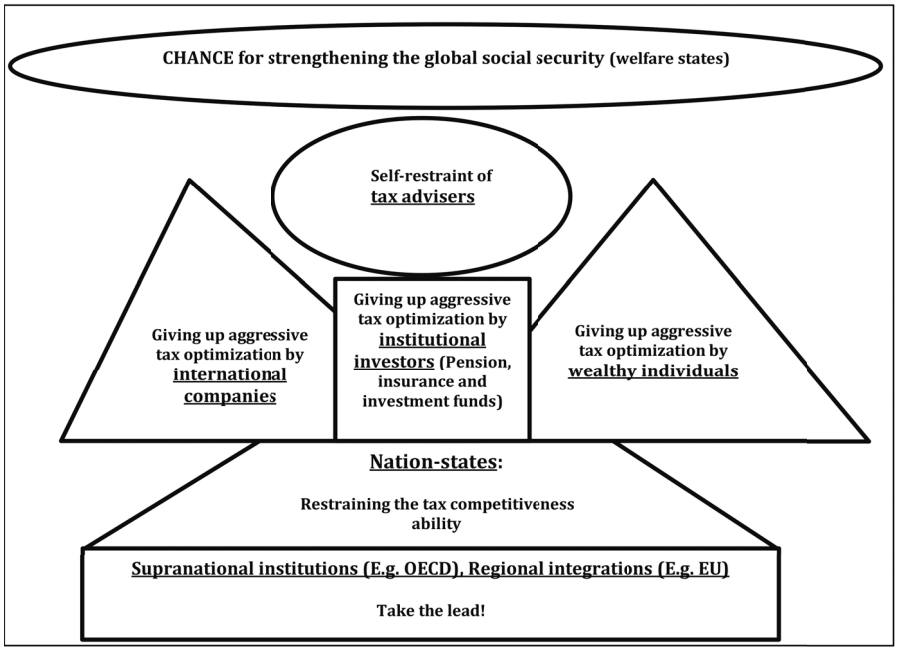
Besides encouraging foreign direct investments *the fight against tax fraud and tax evasion became a common issue with more and more joint actions.*

What is certain is that Europe's welfare systems cannot be kept up financially on a long run under the same public-financial circumstances. This can be justified by a number of factors, including demographic problems, but I believe that the biggest nail in the welfare state's coffin is the existence and flourishing of tax haven-like locations. Europe must not only find the answers to its own problems. An influx of refugees is waiting for a better fate in many countries of the continent.

One of the principles of taxation is utility, which means everyone should be taxed in proportion to the consumption of public goods. Many tax avoiders consume the public goods in developed countries that operate with higher tax rates, but shirk from paying tax burdens for their production. In a relatively short period of time, I would require huge changes in the world economy's legislative approach to deliver the results of the international goals that were formulated on international levels in the past years.

To bring forward changes setting up value sequence, realigning interests and self-restraint would be necessary on every level, which tax policy aspect I illustrate with an "angel model". (See Figure 4. and read more about the model in Limpók, 2014, 108-111.)

Figure 4. The „angel" of tax policy changes at the beginning of the 21th century



Source: Limpók, 2014

We face a future full of challenges, and today a *sustainable tax policy* – defined by the author years ago – would be an essential element of the often mentioned sustainable development. Sustainable tax policy

- *takes solidarity into account between generations.* The duty of solving the subsequently manifesting problems in public finance, society and social status caused by today's inconvenient tax policy, is passed to the future generations by today's men, which contradicts the principle of solidarity between generations.
- On the other hand, *it takes intra-generational solidarity into account.* The world's problems can be traced back to many tax avoidance reasons, for example the tax payments of the self-employed are reducing in many countries. The mindset of the society must be changed, and awareness must be raised, that financing public needs and maintaining the social system cannot be a burden only of the "wage earners". Improving the quality of public services can also increase the willingness to pay taxes.
- Third, it *takes solidarity into account between countries.* The well-being of offshore areas depends on the favorable tax policy, but this undermines the tax base of other states. Finding the balance in the future is a global-level task.
- Creating this sustainable tax policy may seem like a utopia, but as consumers of public goods, it is all of our interest, and we cannot leave it behind.

REFERENCES

- Bisnode.hu (2014) Még mindig Ciprus a magyar offshore paradicsom, 2014.02.06., Available at: http://www.bisnode.hu/rolunk-es-kapcsolat/sajto/101/meg-mindig-ciprus-a-magyar-offshore-paradicsom, last accessed 12.09.2016
- Boston Consulting Group (2013) *Global Wealth 2013, Maintaining momentum in a complex world,* Available at http://www.bcg.de/documents/file135355.pdf, last accessed 20.09.2016
- Bundesgesetz über die Banken und Sparkassen vom 8. November 1934 in der Schweiz
- Council of the European Union (2014) Council Directive 2014/48/EU, Available at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0048&from=EN, last accessed 20.09.2016
- Európai Bizottság (2012a): A Bizottság ajánlása a jó adóügyi kormányzásra vonatkozó minimumkövetelmények harmadik országok általi teljesítésének ösztönzésére irányuló intézkedésekről (2012/771/EU), Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:338:0037:0040:HU:PDF, last accessed 28.08.2016
- Európai Bizottság (2012b) A Bizottság ajánlása az agresszív adótervezésről (2012/772/EU), Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:338:0041:0043:HU:PDF, last accessed 28.08.2016
- Európai Bizottság (2012c) A bizottság közleménye az Európai Parlamentnek és a Tanácsnak, Cselekvési terv az adócsalás és az adókikerülés elleni küzdelem megerősítésére, Available at http://eur-lex.europa.eu/legal-content/HU/TXT/?uri=CELEX%3A52012DC0722, last accessed 20.09.2016
- Európai Bizottság (2013a) Javaslat A TANÁCS IRÁNYELVE a 2011/16/EU irányelvnek az adózás területére vonatkozó kötelező automatikus információcsere tekintetében történő módosításáról, http://eur-lex.europa.eu/legal-content/HU/TXT/?uri=CELEX%3A52013PC0348, last accessed 12.09.2016
- Európai Bizottság (2013b) Küzdelem az adócsalás és az adókikerülés ellen - A Bizottság hozzájárulása a 2013. május 22-i Európai Tanács számára, Available at http://ec.europa.eu/europe2020/pdf/tax_hu.pdf, last accessed 28.07.2016
- European Commission (2013): "The Missing part", Available at https://ec.europa.eu/taxation_customs/fight-against-tax-fraud-tax-evasion/missing-part_en, last accessed 02.07.2016
- European Commission (2014) Enhanced administrative cooperation in the field of (direct) taxation, Available at http://ec.europa.eu/taxation_customs/taxation/tax_cooperation/mutual_assistance/direct_tax_directive/index_en.htm, last accessed 15.09.2016
- European Commission (2015) Fighting tax evasion: EU and Switzerland sign historic tax transparency agreement, 27 May 2015, Available at http://europa.eu/rapid/press-release_IP-15-5043_en.htm, last accessed 18.07.2016
- European Commission (2016): VAT Rates Applied in the Member states of the European Union, Available at https://ec.europa.eu/taxation_customs/sites/taxation/files/docs/body/vat_rates_en.pdf, last accessed 19.09.2016
- European Council (2015): Savings taxation directive repealed, 10.11.2015, Available at http://www.consilium.europa.eu/en/press/press-releases/2015/11/10-savings-taxation-directive-repealed/, last accessed 20.09.2016

• Hungary's Act 19 of 2014 on announcing the agreement between the government of Hungary and the government of the United States of America to improve international tax compliance and to implement FATCA and the amendment of specific related acts
• Hungary's Act XCII of 2003 on the rules of taxation
• Hungary's Act CXXVII of 2007 on value added tax
• International Consortium of Investigative Journalists (2016) The Panama Papers, Available at https://panamapapers.icij.org/, last accessed 20.09.2016
• Kormany.hu (2012): Minister Matolcsy announces new fiscal package, October 5, 2012, Available at http://2010-2014.kormany.hu/en/prime-minister-s-office/news/minister-matolcsy-announces-new-fiscal-package, last accessed 19.09.2016
• Kormany.hu (2015): Az áfacsalások elleni közös fellépést szorgalmaz Kelet-Közép-Európa öt országa, Available at http://www.kormany.hu/hu/nemzetgazdasagi-miniszterium/hirek/az-afacsalasok-elleni-kozos-fellepest-szorgalmaz-kelet-kozep-europa-ot-orszaga, last accessed 21.06.2016
• Központi Statisztikai Hivatal (2016a) A központi költségvetés bevételei, Available at http://www.ksh.hu/docs/hun/xstadat/xstadat_evkozi/e_qse006g.html, last accessed 24.07.2016
• Központi Statisztikai Hivatal (2016b) GDP
• Limpók, V. (2014) *Adópolitikai útkeresés a 21. század elején: Működőtőke, versenyképesség, válságkezelés,* IDResearch Kft.- Publikon Kiadó - SZE Regionális- és Gazdaságtudományi Doktori Iskola, Pécs; Győr
• Logisztikama.hu (2014) Jersey-re talicskázták ki a legtöbb pénzt Magyarországról, 2014.05.28., Available at http://www.logisztikama.hu/2014/05/jersey-re-talicskaztak-ki-a-legtobb-penzt-magyarorszagrol/, last accessed 12.05.2015
• Nemzeti Adó- és Vámhivatal (2011, 2012, 2013, 2014, 2015) *Nemzeti Adó- és Vámhivatal 2011, 2012, 2013, 2014, 2015 Periodicals,* Available at http://www.nav.gov.hu/nav/kiadvanyok/NAV_kiadvanyok, last accessed 02.09.2016
• OECD (2014) *Standard for Automatic Exchange of Financial Account Information in Tax Matters,* Available at http://www.keepeek.com/Digital-Asset-Management/oecd/taxation/standard-for-automatic-exchange-of-financial-account-information-for-tax-matters_9789264216525-en#page1, last accessed 03.08.2016
• Portfolio.hu (2014) 16 ezer külföldi számláról biztosan tud a NAV, 2014. május 29., Available at http://www.portfolio.hu/vallalatok/privat_bank/16_ezer_kulfoldi_szamlarol_biztosan_tud_a_nav.4.199499.html, last accessed 01.06.2015
• Regulation of the Ministry for National Economy/Hungary/, *9/2016.* (III. 25.)
• Schneider, F. (2012) The Shadow Economy and Work in the Shadow: What Do We (Not) Know?, *Institute for the Study of Labor DP* No. 6423, Available at http://ftp.iza.org/dp5769.pdf, last accessed 05.09.2016
• Schneider, F. (2013) Size and Development of the Shadow Economy of 31 European and 5 other OECD Countries from 2003 to 2013: A Further Decline, Available at http://www.econ.jku.at/members/Schneider/files/publications/2013/ShadEcEurope31_Jan2013.pdf, last accessed 24.07.2016
• UNCTAD (2013) *World Investment Report,* Available at http://unctad.org/en/PublicationsLibrary/wir2013_en.pdf, last accessed 10.08.2016

• U.S. Joint Committee on Taxation (2010): JCX-6-10, Available at https://www.jct.gov/publications.html?func=startdown&id=3650, last accessed 03.09.2016
• Vg.hu/Várkonyi, I. (2016) Offshore-botrány: Vége a paradicsomi állapotnak, Available at http://www.vg.hu/kozelet/kozeleti-hirek/offshore-botrany-vege-a-paradicsomi-allapotnak-468553, 13.04.2016, last accessed 18.09.2016
• Zucman, G. (2013) The Missing Wealth of Nations: Are Europe and the U.S. net Debtors or net Creditors? *The Quarterly Journal of Economics,* 128 (3) 1321-1364.

ADRIENN REISINGER

What does an active citizen do and how does become active? Theoretical and empirical findings[1]

Dr. habil Adrienn Reisinger: associate professor, Széchenyi István University, Economic Analyses Department (radrienn@sze.hu)

Abstract

Active citizens are in the heart of this study: those people who do something more besides their everyday life. E.g. they participate in community acting, do something useful for the community or they help for each other. Some questions arise: Who is an active citizen? What should a citizen do to call him/her active? What kind of competences does an active citizen need? Where can they learn these competences from? The study answers these questions based on theoretical and empirical aspects built on a questionnaire and an interview survey in Győr, Hungary, in 2017.

Keywords: active citizenship, civic competences, activities, trust, responsibility

INTRODUCTION

A good working democracy needs such people who are active in their community in favour of living in a better society. Active citizens do activities which are more than just being a citizen, they can do voluntary work, they can donate, they can get information from media, etc. Some questions arise: Who is an active citizen? What should a citizen do to call him active? What kind of competences does an active citizen need? Where can they learn these competences from?

In the first part of the study I will write about concept of active citizenship and about the civic competences. I will show the definitions of active citizens and those competences which people need to be active. I provide a list of activities and civic competences based on own experience and literature. I collected also the forms of learning of skills, knowledge and competences of activity. The second part of my study presents some research findings from two surveys: in April 2017 I conducted a questionnaire research in

[1] „ Supported BY the ÚNKP-17-4 New National Excellence Program of the Ministry of Human Capacities”

Győr, Hungary; in October 2017 I made 15 personal interviews about the active citizenship in Győr.

My goal is to complete the literature with empirical findings and to give some additional information about the topic for citizens, educators and also for policy makers.

CONCEPT OF ACTIVE CITIZENSHIP

There are a wide range of approaches about the active citizenship, so it has no general definition.

Mainly the word citizenship refers to our role in the state and it is interpreted as a legal status of a citizen (Gáti, 2010). So people have rights and obligations in the society as well. Our rights can be the followings (Marshall–Bottomore, 1992; Lister, 2003 – cited by Children as active... 2008, 3): "Civil rights and individual freedoms (freedom of movement, right to privacy, freedom of speech, thought and religion, right to information, right to justice and treatment); political rights (right to vote and stand for political office); social rights (right to education, security and health); economic rights (right to own property, to conclude valid contracts and to minimum of economic welfare)."

Being active in the society means more than just rights. Active citizenship can be interpreted from economic and from social aspects. Economically people are active if they have a job and work. In a social aspect active citizenship means participation in the community in a very different way. "A core element of active citizenship is now seen as engagement in civil society through membership in or support of organisations, involvement in political debates and public consultation processes, participation in demonstrations or protests, volunteering, and awareness of topical issues." (Policy Paper on Citizenship Education 2013, 3) Based on Nelson and Kerr (2006, 11) active citizenship means nowadays:

- „engagement and participation in society
- participation in both civil and civic society
- lifelong and life wide learning
- knowledge, skills and behaviours picked up through experience of participation in a range of contexts."

In my reading citizens are active when they are interested in everyday life beyond their families and friendship, e.g. in other people, communities, social and economic processes, and when they act for a better society whether through lot of kind of activities or just through few of them but regularly.

A report about the active citizenship (Report of the... 2007, 2) provides a definition with a wide range of activities which takes us to the next chapter where I show the feasible activities of the active citizens. "Active Citizenship is about engagement, participation in society and valuing contributions made by individuals, whether they are employed or outside the traditional workforce. In practical

terms, this engagement and participation may mean membership of a resident's association or political party or lobby group, or volunteering to help out in a local sports club, or caring for a family member or neighbour, or simply being active and caring about the local neighbourhood, the environment as well as larger global and national issues."

WHAT COULD ACTIVE CITIZENS DO?

As we can read in the previous chapter there is no general definition of the active citizenship, so many authors so many approaches. Therefore there is no general list of activities which active citizens can do. I believe that there are a wide range of activities, but if a researcher would like to analyse activities he/she has to determine those ones which are used for a survey. In my paper I offer a list with 33 activities which cover all of the activity fields (Reisinger 2017).

A) activities related to civil/nonprofit organisations or good cases

donating to civil or nonprofit organisations
donating to local/national issues
being a member in civil or nonprofit organisations
being a leader in civil or nonprofit organisations
working at civil or nonprofit organisations
volunteer activity in civil organisations
volunteer activity in non-civil organisations
collecting litters
1% donation
giving blood

B) activity concerned with local governments

participation on consultation hours of local representatives
participating in public hearings
giving own ideas in public hearings
participating in local forums
giving own ideas in local forums

C) activities from home

writing blogs
joining to internet groups (e.g. Facebook, etc.)
writing letters to local representatives
writing comments on on-line contents

D) personal responsibility

health-conscious eating
participation on self-development training

E) monitoring and/or intervention in local/national issues

monitoring the local issues
monitoring the national issues
monitoring the international issues
getting information from local media
getting information from national media
signing up petition
protesting
establishing firms

F) political participation

organising petition
voting in referendum
voting in EU election
voting in local/national election

The question arises how many activities should do an active citizen? How often do they have to do these kind of activities? It is a very complex topic and not easy to answer them. One more question can have an important role. Do only the activities determine the level of activity of citizens or are there any other components? There were many surveys in the past two decades which tried to measure the activity level of active citizens, some of them identified activities, too (Reisinger–Nárai, 2017). But none of them gave clear answer to the above-mentioned questions. I believe that no one can give a factual answer because there are so many aspects of the topic. Can we say that a person who e.g. does volunteer work every month is an active citizen? I think, yes. Can we say that a person is an active citizen, if this person does e.g. volunteer work only once a year but he/she frequents the local forums a couple of times? I think, yes. Or can be a person an active citizen who sits at home and transfers money regularly to civil organisations and follows the local media to become well informed about local issues? I think, yes. Based on these examples it can be seen that there are so many faces of activities and there is no exact answer to the question: How many activities should an active citizen do? It depends on the type of the activity, on the frequency of the activity and also on the personality of the citizens. Activities can be classified in many ways, here are two of them (Reisinger–Kovács, 2018):

- formal or informal activities
- personal or community activities

Table 1 shows an additional grouping with activities taken from home or beyond home. In recent years home activities have widespread because of the quick spreading of information technologies. These kind of activities give the opportunity to citizens to be active also from home. The debates can focus on this phenomena: are they real activities? I believe, yes. But it depends, how people

use these activities. For example sitting at home and writing offending comments is not the sign of the active citizenship, but discussing regularly current issues with other people by using the Internet can be active action. It is important to emphasize that being active only from home is not good for social life. Sometimes or often it is worth to appear in the real life, too, because personal interactions are the highest level of connection with other people which is very important in our everyday life.

Table 1 Activities taken from and beyond home

Activities taken also from home	Activities taken beyond home
donating to civil or nonprofit organisations	donating to civil or nonprofit organisations
donating to local/national issues	donating to local/national issues
volunteer activity in non-civil organisations	being a member in civil or nonprofit organisations
1% donation	being a leader in civil or nonprofit organisations
writing blogs	working at civil or nonprofit organisations
joining to internet groups (e.g. Facebook, etc.)	volunteer activity in civil and non-civil organisations
writing letters to local representatives	collecting litters
writing comments on on-line contents	giving blood
health-conscious eating	participation on consultation hours of local representatives
monitoring the local, national and international issues	participating in public hearings or local forums
getting information from local and national media	giving own ideas in public hearings or local forums
	participation on self-development training
	signing up petition
	protesting
	establishing firms
	organising petition
	referendum
	voting in EU election
	voting in local/national election

Source: own table

I would like to point out that not everybody needs to be an active citizen. There are people who are not able to do and do not want to do such activities, but thinking openly for the society can be important for them, too. It is worth, because there are lot of advantages of the active citizenship. It is proved that those societies which have a high level of participation in this field are better communities.

So why active citizenship is useful? It

- „helps to address more effectively many social and economic problems, as individuals and civic organisations are involved in finding and implementing solutions
- creates real economic and social benefits as high levels of interpersonal trust reduce the costs associated with extensive rules, contracts, litigation and bureaucracy
- generates networks of support and connection, both within social groups and across groups
- benefits the individuals who participate in voluntary activities and community organisations
- strengthens the quality of decision-making through the democratic process and the sense of belonging of individuals and communities lead to a healthy and varied range of voluntary and community organisations which is good for democracy." (Report of the ... 2007, 3)

In the empirical part I will present some results related to this topic based on interviews.

WHAT DO WE NEED TO BE AN ACTIVE CITIZEN?

No one is born with the ability of being active, but I believe we can learn it. But how and what kind of competences, skills and features do people have to have to be able to be an active citizen? Scientific literature labelled these kind of attributes as civic competences. Hoskins et al. (2008, 21) proposed the following elements of civic competences:

- "Knowledge: human rights and responsibilities, political literacy, historical knowledge, current affairs, diversity, cultural heritage, legal matters and how to influence policy and society;
- Skills: conflict resolution, intercultural competence, informed decision-making, creativity, ability to influence society and policy, research capability, advocacy, autonomy/agency, critical reflection, communication, debating skills, active listening, problem solving, coping with ambiguity, working with others, assessing risk;
- Attitudes: political interest, political efficacy, autonomy and independence, resilience, cultural appreciation, respect for other cultures, openness to change/difference of opinion, responsibility and openness to involvement as active citizens, influencing society and policy;
- Values: human rights, democracy, gender equality, sustainability, peace/non-violence, fairness and equity, valuing involvement as active citizens;
- Identity: sense of personal identity, sense of community identity, sense of national identity, sense of global identity."

There are a wide range of other approaches of civic competences, but neither of them mention an important one, the trust. I believe that *trust* can be a very important factor in all social and economic processes as well, that's why I think it can be an important value in active citizenship, too. I think that also the *personal and social responsibility* is a crucial component.

Based on my experience and literature I collected those civic competences which can be necessary to be active (Table 2). Of course there are no people who possesses all of them, and nobody needs to have all of them, but people who would like to do things for their environment in some kind of way, they sure need to have some competences which make them enable to act in an active way. People with good self-knowledge will know which knowledge, skills and values do they need to be active in theirs way.

Table 2 Civic competences

civic-related	**intercultural**
information processing personal responsibility	accepting cultural differences
social	**self-knowledge**
trust in politics trust in institutions trust in other people knowledge of civil rights ability of thinking at community level political knowledge social responsibility respect	knowledge about on-line sphere economic responsibility creativity self-dependence self-knowledge thinking in shames flexibility sense of personal identity
communication	
thoughtfulness ability of decision-making cooperation with other people cooperation with institutions ability of interpretation foreign language knowledge ability of making initiatives conflict management problem solving conscious thinking ability of arguing	

Source: Reisinger, 2017

Above I mentioned two important components of civic competences: *trust and responsibility.* Hereinafter I explain these ones more detailed. The Cambridge Dictionary says that trust is „to believe that someone is good and honest and will not harm you, or that something is safe and reliable."(https://dictionary.cambridge.org/dictionary/english/trust) Russel Hardin (2002, 3) stated that trust is relational. It means that it depends on the two parties. As he wrote (Hardin,

2002, 4): "I trust you because I think it is in your interest to attend to my interest in the relevant matter. This is not merely to say that you and I have the same interests. Rather, it is to say have an interest in attending to my interests because, typically, you want our relationship to continue." Hardin also said that trust is grounded on expectations, but not generalized, rather particular and it is context-sensitive. Trust can exist between people, between people and institutions, between people and systems and we can trust in ourselves, too. I think that a certain level of trust needs to be active, because those people who do not trust in each other will not get together and will not do things together. Putnam (2000) said that in those countries where the level of trust is high the society will be more balanced.

Responsibility is also an important factor. The first level is the individual responsibility, it means that people take responsibility for their own life. The next level is the social responsibility of the citizens. "This means that citizens are involved in the life of the community where they live. It means that people solve problems together, look after the environment (for example they do not litter, etc.) and care about not just their own lives, but also about the community." (Reisinger 2013, 78) Why does responsibility matter? I believe that only those people can be active who are aware that they are the only one who can take actions for their own life herby they can be responsible for the happenings in the society, too. They will be able to see other people, communities, public affairs, etc. and they will be able to make steps in a conscious way.

It is a very important question that from where can people learn these kind of competences? There are a wide range of learning methods, based on literature the followings can be the form of learning civic competences (e.g. Breen–Rees, 2009; Delanty, 2007; Gáti, 2010):

- family,
- formal learning (in school system),
- non-formal learning (organised learning but not in the formal system),
- informal learning (during everyday life and in the communities where people live).

Everybody learns the first things about the life from *family.* Our parents show us patterns and models for life, so parents can have an effect with their behaviour to the attitude for active citizenship to their children. If parents believe in social participation, in community life and/or they act accordingly, it can be a good example for the children, too. Also the education system (*formal learning*) can have an important role in teaching civic competences. Opinions are divided according to the usefulness of the formal learning, but a two decades research proved that a community acting and membership in youth organisations can have an effect even decades later in adult community and participatory life (Youniss et al., 1997 – referred Kinyó, 2009). Formal education can have a wide range of methods and technics, but showing these ones would exceed the topic of this study. „*Non-formal* education involves learners voluntarily opting to engage in

self-directed learning from an organised body of knowledge, directed by a designated teacher. *Informal* education or training is more incidental and spontaneous." (Breen and Rees, 2009, 16–17)

Based on the above-mentioned forms of learning I can highlight that this process is very complex and there are no one good form of learning, mix of them can be an effective way. Besides I agree with Gollob and Weidinger (2010, 9) who suggest that the best way can be the learning by doing method: "Active citizenship is best learned by doing, not through being told about it – individuals need to be given opportunities to explore issues of democratic citizenship and human rights for themselves, not to be told how they must think or behave. Education for active citizenship is not just about the absorption of factual knowledge, but about practical understanding, skills and aptitudes, values and characters."

RESEARCH FINDINGS

METHODOLOGY

Based on questionnaire and interview surveys this study answers the following questions:

- When can we say that a citizen is active?
- From where can people learn civic competences?
- What kind of knowledge, skills, etc. do people need to be active in the society?

An on-line and off-line *questionnaire* survey was conducted in April 2017 among citizens in Győr, Hungary. The topic was the active citizenship. I asked people about the definition of active citizenship, about the type of activities, civic competences and measurement of the activity. A total of 254 people filled out the questionnaire. Women (64,3%) and the university graduates (50%) were overrepresented in the sample, therefore I will not generalize my conclusions.

In October 2017 I made personal *interviews* with active citizens in Győr. Fifteen citizens answered my questions about the concept of active citizenship, the different activity forms and competences. The selection of my interviewees based on the following method: I found people from my acquaintanceship and some of my interviewees suggested further citizens to be worth to ask. My goal was to interview active people, because I was curious about their opinion and motivation. I interviewed eleven women and four men, graduate citizens were overrepresented, twelve of them have university degree[2], choosing lot of

[2] My research finding based on the questionnaire research (Reisinger–Kovács 2018) and a former national survey about the social participation (Nárai–Reisinger 2016) proved that people with higher education degree are more active in the society.

people with degree was a conscious decision. Interviewees are mainly between the age of 30 and 45 years. Six of them are members in civil organisations and do voluntary work, four of them are members or volunteers, two of them were active in this relation only in the past and three were neither active in the past nor in the present. These interviews complete the questionnaire researches in the following way: based on the questionnaires I could analyse the activity in a quantitative way, during the interviews I could discuss the activities in details. I could also ask interviewees about their opinion what do they think, who is an active citizen?

I will answer the second and third above mentioned questions based on questionnaires and interviews, only interviews will give the answer to the first question.

5.2. WHEN CAN WE SAY THAT A CITIZEN IS ACTIVE?

It is not easy to answer this question, all of my interviewees agreed with it. Five of them mentioned that political election is a base of the activity, one interviewee said that voting is not a real activity, because it is a so called obligatory activity, it is our right as a citizen. I think that voting is an important activity, but it is not enough to call someone being active, if he or she does only this activity. The other interviewees did not mention the political participation. The other approaches were the followings. Those citizens are active

- who do more than the basic rights in the society.
- who act voluntary and not by pressure.
- who act in a conscious way: they act not because they get into the activity accidentally, but they do things with a certain own goals.
- who can have an impact on their environment, on local issues.
- who do whatever they want, the most important thing that these activities have to be regular.
- who do 1% donation.
- who get a line on local and national issues, who have information what is happening around them in their city or in the world (more than half of the interviewees mentioned this aspect).

The last one is important, because we can tell our opinions, ideas in a proper way if we have enough information about the local happenings and issues. Having enough information makes people to be authentic. Some of my interviewees stressed that nowadays lot of people are characterised by giving opinions without having correct information. This can lead to lot of problems, e.g. without being informed people can give wrong information to other people, and they can get up debates. Without information people cannot manage their public life in a proper way, e.g. they do not know how to arrange things in administrative offices, or how to represent themselves in the community.

Almost all of the interviewees stressed that an active citizen does things regularly, this is the base of being active. Also itself the acting is also very important, e.g. we could say that people who are members in organisations are active, but we can say that only if they really do something as a member. Other important aspect is, that active citizens mainly focus on the local happenings, I think if people know their narrow surroundings they will be able to take actions in favour of regional or national issues. One of my interviewees highlighted that she thinks that only those people become active who do not have strong family tights, because they have more time and they are more fearless because they do not have to reckon with their family members. This interviewee mainly referred to community actions like protesting, signing petitions, etc.

Overall I can say that almost all of my interviewees agree that active citizens do some activities regularly which are not obligatory for them and can be useful for their environment.

5.3. FROM WHERE CAN PEOPLE LEARN CIVIC COMPETENCES?

In the questionnaire survey I asked people to prioritize where we can learn[3] from how to be active. Only 146 from 254 citizen could make a real ranking, more than half of them (82) said that the family is the most important source of learning active citizenship, the less important is the non-formal education (education beyond educational institutions). The formal and informal learning are in the quite same level between the family and non-formal education. There are no differences in the ranking based on degree, so also for non-graduates and graduates the family is the most important source of civic knowledge.

Families are the most important source of civic competence knowledge in interviews, too. Nine of the interviewees said that we can learn the most from our parents and close relatives. One of them said that a child either does the same what he/she sees at home or does the opposite. The formal and informal education were mentioned only by four-four interviewees, the approaches were the followings:

- Activities are infectious: if people see that others do something, they will do, too. One of the interviewees said that she has some friends in France, they are very active and they are good examples for her, and that's why she is very motivated to do something in her environment.
- The compulsory volunteer activity in secondary schools can be useful for the future activity (if the program is well-detailed).
- The formal activity can be an important way of learning, but in Hungary there is no tradition in this relation, the public education is not ready to give enough knowledge related to active citizenship.

[3] The forms of learning are in Chapter "What do we need to be an active citizen?"

- Kindergartens, schools can be the place where children can learn several aspects of active citizenship (e.g. they do such activities there which prove them that it is an important action), so these institution can show them the possibilities of these activity types.
- Maybe direct education is not necessary.

My interviewees mentioned additional ways of learning civic competences, these are the followings:

- Good examples: no matter where we can see them, they can give us a message: it is worth doing things.
- *Learning by doing:* one my interviewees stressed that active citizenship cannot be learned, we can learn from our activity in the real life.
- Itself *life* can be the source of any activities.
- *Media* is also very important, because almost everybody are concerned about it, and it can show good and bad examples, as well. That is why media has a big responsibility because of the topic and content what they transmit to us. Media can show us active people, situations which can teach us.
- *Civil organisations* can highlight the importance of active citizenship, they can be the platforms to show how to use the skills of active citizenship in practice. „One of the most important roles of civil organisations [...] lies in their ability that they can activate people, strengthen their community bonding, and have them connected to the circulation of the society thought informal networks between them and within the organisations." (Nárai 2004, 627)
- *People themselves* can be also a learning form: people will activate themselves if they see such happenings/events around them with them they are not satisfied with.

5.4. WHAT DO WE NEED FOR BEING ACTIVE?

In the questionnaire survey I asked people to give a certain score between 1 and 4 for the 33 civic competences (listed in the Chapter 4). Figure 1 shows the average scores for each competences. The best scores (TOP 5) go to (in brackets the average scores): conscious thinking (3,69); ability of decision-making (3,64); cooperation with other people (3,6); thoughtfulness (3,57); respect (3,52). The less important is the trust in politics (2,45).

Figure 1 Civic competences based on a questionnaire survey

Source: Own table based on a questionnaire survey

In the interviews I asked people about what kind of competences, skills, knowledge do people need to be (more) active in the society? My interviewees did not get any list of competences, so they had to draw them by own words, so interviews enabled to get explanations about the competences. My respondents told me three-four competences, seven of them mentioned the openness, and they think that only those people can be active who are open to other people and happenings around them. Openness means that people take care about what is around them, they take in and admit the other opinions and are able to have own ones without being influenced by the others.

More than one interviewees mentioned the following competences:

- self-dependence: active citizens are able to make decisions alone, and they realize them indeed.
- interest and curiosity: active citizens are interested in local issues and other people.
- responsibility: active citizens feel and know that with their activity they have an effect on their environment , that's why they act.
- cooperation: "lonely warriors" probably will not have success to arrange things, but with cooperation managing local issues could be more effective.

The following competences and skills were referred: self-knowledge, altruism, endurance, EQ, empathy, spirit and courage, belief, good communication, conflict management, self-confidence, stability, trustworthiness. Courage is important, because active people could feel, that the others (as good as relatives, friends) take a poor view of their activity. Courage can help people in these situations to move on and to act what they believe in. Stability means that only those people can do something for the community who are friends with themselves. One of my interviewees highlighted that personal involvement could be crucial, people will act more likely if they have to do with something and it is important in their life what motivate them to make change.

6. CONCLUSION

The goal of my study was to introduce the concept of active citizenship and to answer the following questions: Who is an active citizen? What should a citizen do to call him active? What kind of competences do an active citizen need? Where can they learn these competences from?

To answer these questions, I reviewed the main literature of the topic and presented some empirical research findings based on questionnaire survey and personal interviews. I made these researches in a Hungarian city, Győr.

I provided a list of potential activities and civic competences and gave examples about what kind of forms could the learning skills, knowledge and civic competences have. As I introduced there are a wide range of competences, skills which could be important, I think every situation needs different skills and knowledge, so there is no general recipe what people need to have. It is important that also during activities citizens can learn new skills or can develop the extant ones. I believe that trust and responsibility are major competences, that's why I presented some aspects of them.

Based on interviews and questionnaires I can say that family is the most important source of knowledge about civic competence, after this come the formal and informal learning methods. My interviewees also mentioned other forms like the media, civil organisations and the learning by doing. I think there is no general

solution, how to learn these kind of competences, everybody needs to find the best for her/him; families could be the base of these processes.

With my paper I would have liked to contribute to the literature of the active citizenship and to give some research findings about Győr which can be useful for citizens, researchers and also for local governments.

REFERENCES

- Breen, M. – Rees, N. (2009) *Learning How to be an Active Citizen in Dublin's Docklands: The Significance of Informal Processes.* Working Paper 09/08. Combat Poverty Agency.
- *Children as Active Citizens.* Inter-Agency Working Group on Children's Participation (IAWGCP). 2008. https://www.unicef.org/eapro/Children_as_Active_Citizens_A4_book.pdf Downloaded: 10. 06. 2017.
- Delanty, G. (2007) *Citizenship as a Learning Process – Disciplinary citizenship versus cultural citizenship.* www.eurozine.com Downloaded: 01. 03. 2017.
- Gáti A. (2010) *Aktív állampolgárság Magyarországon nemzetközi összehasonlításban.* [Active citizenship in Hungary in international comparison.] TÁRKI-TUDOK. http://ess.tk.mta.hu/wpcontent/uploads/2013/04/Gati_Annamaria_TARKI_TUDOK.pdf Downloaded: 24. 10. 2014.
- Gollob, R. – Weidinger, W. (2010) *Growing up in democracy.* Volume II. Council of Europe.
- Hardin, R. (2002) *Trust and Trustworthiness.* Russel Sage Foundation, New York.
- Hoskins, B. – Villalba, E. – van Nijlen, D. – Barber, C. (2008) *Measuring Civic Competence in Europe.* European Commission.
- Kinyó L. (2009) Nemzetközi és magyarországi állampolgári műveltség kutatások. (International and Hungarian researches about citizenship literacy.) *Magyar Pedagógia,* 4. 399–425. o.
- Lister, R. (2003, 2nd ed.) *Citizenship: Feminist Perspectives.* New York University Press, New York.
- Marshall, T. H. – Bottomore, T. (1992) *Citizenship and Social Class.* Pluto Press, London.
- Nárai M. – Reisinger A. (2016) *Társadalmi felelősségvállalás és részvétel.* (Social responsibility and participation.) Dialóg Campus Kiadó, Pécs–Budapest.
- Nárai M. (2004) A civil szervezetek szerepe és jelentősége az egyének, közösségek, illetve a társadalom számára. (The role and importance of civil organisations for individuals, communities and the society.) *EDUCATIO,* 4. 616–634. o.
- Nelson, J. – Kerr, D. (2006) *Active citizenship in INCA countries: definitions, policies, practices and outcomes.* Final Report. Qualifications and Curriculum Authority, National Foundation for Educational Research.
- *Policy Paper on Citizenship Education.* European Youth Forum. 2013. http://www.youthforum.org/policypaper/policy-paper-on-citizenship-education/ Downloaded: 2. 01. 2017.
- Putnam, R. D. (2000) *Bowling Alone.* Simon and Schuster Paperbacks, New York.
- Reisinger A. (2013) Social responsibility: the case of citizens and civil/nonprofit organisations. *Tér Gazdaság Ember,* 3. 75–87. p.

• Reisinger A. (2017) Az aktív állampolgárság - fogalmi rendszer és kutatási koncepció. (Active citizenship – concept and research method.) – *Új Nemzeti Kiválóság Program 2016/17 Tanulmánykötet.* Széchenyi István Egyetem, Győr. 138–148. p.
• Reisinger A. – Kovács N. (2018) *Active citizenship and civic competences – in a Hungarian urban centre in north-western Transdanubia.* Under publishing.
• Reisinger A. – Nárai M. Az állampolgári aktivitás mérésének módjai. (Measurement of the active citizenship.) *Civil Szemle,* 51. Under publishing.
• *Report of the Taskforce on Active Citizenship.* Secretariat of the Taskforce on Active Citizenship, Dublin. 2007 www.activecitizen.ie Downloaded: 20. 04. 2017.
• Youniss, J. – McLellan, J. A. – Yates, M. (1997) What we know about engendering civic identity. *American Behavioural Scientist,* 5. 620–631. p.
• https://dictionary.cambridge.org/dictionary/english/trust

MONIKA GÁBRIEL, ZOLTÁN SZEGEDI,
GÁBOR NICK, FERENC PONGRÁCZ

Utilization of Green Supply Chain Techniques in the Hungarian Automotive Industry

Dr. Monika Gábriel, PhD: Szent István University (gabriel.monika@gtk.szie.hu)

Prof. Dr. Zoltán Szegedi: Széchenyi István University (szegedi.zoltan@sze.hu)

Gábor Nick: Institute of Computer Science and Controll of the Hungarian Academy of Sciences (nick.gabor@sztaki.mta.hu)

Ferenc Pongrácz: Széchenyi István University, RGDI (ferenc.pongracz@hu.ibm.com)

Abstract

Automotive industry is a dominant sector of the Hungarian economy in terms of export, contribution to GDP and employment. The industry is going through radical changes, and environmental issues are getting increasingly important. This study aims to present the green supply chain management practice of the Hungarian automotive sector. In our empirical research, automotive manufacturer and supplier companies were questioned about their green supply chain management activities.

The results show the popularity of the different green techniques in the fields of product design, purchasing, manufacturing and logistics along the external supply chain. Green design is the less often applied field, since its techniques require large investments and the return is slow compared to the other green activities. The area of green purchasing has a large toolkit, and we've found big differences in the application rate of the individual techniques. The most popular green purchasing techniques are administrative ones, i.e. requiring certain documents from the supplier. Green manufacturing has a high average popularity, since it provides quick and tangible rewards to the company. The most popular techniques in green logistics aim the reduction of the environmental impact of packaging and the increasing efficiency of transportation. We have also found that investment recovery that aims to the increased efficiency of operations - by using less input to the same output - is quite popular, with a remarkable progress potential.

Keywords: supply chain, green supply chain management, automotive industry, Hungary

1 INTRODUCTION

Environmental issues are becoming increasingly important, especially in industries with great environmental impact. The automotive industry is one of these, and in addition, its customers are increasingly environment conscious. The automotive industry is also a good choice for researching supply chain management topics thanks to its outstanding level of supply chain management (SCM) practice.

Green supply chain management (GSCM) is integrating environmental thinking into supply chain management including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers as well as end-of life management of the product after its useful life (*Srivastava 2008*). The aim of this paper is to analyze the green supply chain management practice of Hungarian automotive sector. The article is focused around the question: What kind of techniques are used by Hungarian automotive companies and how developed the separate fields of GSCM are?

2 AUTOMOTIVE INDUSTRY TRENDS

2.1 GENERAL TRENDS

According to Mary Barra, the Chief Executive Officer of General Motors „Car industry is going to go through more changes in the next 10 years, than it had in the last 50 years". Barra emphasizes the following technological trends (*Barra 2016*):

- Electro mobility: Combustion engine cars are a thing of the past
- Connected Car: Cars "communicate with each other" – Continuous, automated data collection and mobile communication
- Autonomous car: Self-driving cars
- Car sharing: Instead of owning vehicles, emergence of as a service based business model.

A study published by McKinsey names the same key trends and lists some additional details behind each of them creating a range between high- and low-disruption scenarios of the Automotive revolution.

Table 1.Overview of the high-disruption vs. the low-disruption scenario

	High	Low
Diverse mobility		
City policies discouraging private vehicles	Intensified	Steady
New, on-demand business models	Prevalent	Limited
Modal shift away from car ownership to shared mobility	Significant	Limited
Autonomous driving		
Regulatory challenges are overcome	Fast	Gradual
Development of safe and reliable technical solutions	Comprehensive	Incomplete
Consumer acceptance and willingness to pay	Enthusiastic	Limited
Electrification		
Battery prices continue to decline	Rapid	Protracted
Regulator-driven emission restrictions	Intensified	Gradual
Consumer demand for electrified powertrains	Widespread	Restrained
Connectivity		
Uptake of car connectivity globally	Vast majority	Partial
Consumers regularly using paid content	Mainstream	Limited

Source: Gao et al. (2016:4)

The study identifies eight so called perspectives, driving forces that will affect the players of the Automotive supply chain. These are as follows. *(Gao et al. 2016)*

Shifting markets and revenue pools

1. Driven by shared mobility, connectivity services, and feature upgrades, new business models could expand automotive revenue pools by ~30 percent, adding up to ~USD 1.5 trillion.
2. Despite a shift towards shared mobility, vehicle unit sales will continue to grow, but likely at a lower rate of ~2 percent p.a.

Changes in mobility behavior

3. Consumer mobility behavior is changing, leading to up to one out of ten cars sold in 2030 potentially being a shared vehicle and the subsequent rise of a market for fit-for-purpose mobility solutions.
4. City type will replace country or region as the most relevant segmentation dimension that determines mobility behavior and, thus, the speed and scope of the automotive revolution.

Diffusion of advanced technology

5. Once technological and regulatory issues have been resolved, up to 15 percent of new cars sold in 2030 could be fully autonomous.
6. Electrified vehicles are becoming viable and competitive; however, the speed of their adoption will vary strongly at the local level.

New competition and cooperation

7. Within a more complex and diversified mobility industry landscape, incumbent players will be forced to simultaneously compete on multiple fronts and cooperate with competitors.
8. New market entrants are expected to initially target only specific, economically attractive segments and activities along the value chain before potentially exploring further fields.

A Deloitte study also indicates major automotive market shifts due to rapidly evolving costumer mobility preferences. According to the study the key drivers are as follows.

- Hyper-urbanization: Approximately 70% of the world population is expected to live in cities by 2050 (90% in North America). More collaborative approaches are emerging like car sharing, driverless cars and improved public transportation.
- Generational views: Beside the traditional vehicle ownership model new generations are showing interest toward alternative access to mobility alternatives that are offering higher flexibility, lower costs and green alternatives
- Connected technology: "Innovations in V2X connectivity, mobile phones, apps, and smart card technology are disrupting the automotive industry. Moreover, automotive consumers will increasingly expect customer experiences that go beyond the sales or service transaction and leverage technology to integrate with their connected lifestyle."
- Convergence of the private and public sectors: "The mass adoption and use of new transportation systems (e.g., public transportation, electric and driverless cars vehicles, supporting infrastructure, etc.) is going to require increased public-private collaborations."
- Sustainability and environmental concern: Emission and fuel efficiency regulations are important drivers of technology development in the area of alternative power trains like electric vehicles, plug.in hybrids and vehicles powered by natural gas. The challenge is even higher given the fact the for instance in the U.S. costumer interest in SUVs and trucks remain high. *(Deloitte 2014:4)*

2.2 ENVIRONMENTAL ISSUES

Environment protection is still low on the customer preference ranking when it comes to individual purchasing decisions. According to the above mentioned study out of seven typical selection criteria (eco-friendliness, low cost, convenience, practicality, luxury, technology, and driving experience) only luxury was less important to the observed customer group in case of both Y generation respondents and other generations as well. This result suggests that currently environment protection is more regulatory than customer demand issue from manufacturers perspective *(Deloitte 2014)*. Limited willingness to pay premium for more environment friendly vehicles was confirmed by multiple additional studies *(PwC 2007, European Commission 2017, Thiel et al. 2017)*.

Despite the fact, that only few customers are ready to pay extra fees for green technology it is widely promoted that transport and manufacturing are one of the key contributors to CO2 emission which creates pressure on the industry from regulatory perspective and also from the direction of public opinion. *(PwC 2007, European Commission 2017, The Society of Motor Manufacturers and Traders 2016)*

2.3 BUSINESS ISSUES

In 2016 worldwide sales reached a record high of 88 million cars and the profit margin of the sector also reached its highest level compared to the past 10 years. Nevertheless, there are other indicators, which say that the industry is in the underperformer segment (versus other segments represented by for instance the S&P 500 or Dow Jones Industrial Average). These indicators are the "shareholder return" and the "return on invested capital". According to a PwC study "These numbers almost outweigh the positive sales and earnings results. They paint a picture of a sector that is a less attractive or less lucrative place to invest than other industries." This low return on investment can also explain the high number of bankruptcies, or near liquidations within the industry. *(Parkin et al. 2017:4)*

3 POSITION OF HUNGARY WITHIN THE GLOBAL AUTOMOTIVE SUPPLY CHAIN

Hungary has been successful in terms of attracting foreign investments especially in the field of automotive manufacturing over the past 10 years. Despite its relatively small population, the country was among the top 20 in terms of the number of jobs created by foreign investment in 2015 (15th), 2014 (18th) and also in 2013 (16th). In terms of estimated jobs created per million inhabitants, the global positon of Hungary is even more remarkable with its global 5th rank in 2015, and 7th over the time period between 2010 and 2014. These investments come traditionally from Germany (followed by the US) and the key target sector of the investments is Automotive *(Spee and Denick 2016)*. As a result, automotive industry is playing a critically important role within the Hungarian economy in terms of export, contribution to GDP and employment. *(Rechnitzer et al. 2017, Deloitte 2016)*.

The automotive sector is not only a dominant sector in Hungary, but at the same time, it is highly concentrated as well. The two key players are Audi Hungaria Motor Kft., with its seat in Győr, and Mercedes-Benz Manufacturing Hungary Kft. operating in Kecskemét. In 2015, Audi Hungaria was the seventh largest company in the region in terms of revenue, with EUR 8.3 billion, while Mercedes was the 23rd in the regional ranking, with EUR 3.4 billion. In 2015, Audi Hungaria employed over 12,000 employees directly, while Mercedes had more than 3,700 employees. *(Coface 2016)*

The main motivation of bringing production functions of the automotive supply chain to Hungary is relatively low labor cost, more accurately good value for money available labor force. *(Rechnitzer et al. 2017, Deloitte 2016)*.

"Stan Shih, Acer's founder introduced the concept called Smiling curve around 1992. In a graph where the vertical axis represents value-added and the horizontal axis the sequential steps in the production value chain, from research and development through manufacturing to marketing activity the resulting curve appears like a smile. This is an easy to remember visualization of the observation, that the beginning and end of the value chain brings considerably higher added value than in the middle of it.

Compared to the nineties, nowadays the smile is becoming wider and increasingly half-sided. It is becoming wider, because on one hand, technological developments and even more sophisticated management methods are resulting in higher cost efficiency and on the other hand, potential locations of production plants are in furious competition for investments. Meanwhile, due to the opportunities created by cloud computing and digitalization, a long list of software-based innovators are transforming whole industries including Automotive.

The smile is becoming half-sided because in the area of social media the traditional marketing tools are proven to be less effective. Consumers are way more informed that they used to be ten or even five years ago, do not accept marketing messages without criticism and rather value design and experienced product/service quality." *(Nick and Pongrácz 2016:67)*

While Hungary is among the countries with the highest industrial contribution versus total GDP, the readiness for new technologies and methods represented by the so-called Industry 4.0 initiative are relatively low, compared to the European competitors. *(Berger 2014)*

4 GREEN SUPPLY CHAIN MANAGEMENT FIELDS AND METHODS – LITERATURE REVIEW

One of the main directions of green supply chain management research is the clarification of its fields of application, and the investigation of the applied management methods and techniques. Regarding this topic, it is important to make a distinction between fields and principles, where fields are the green equivalents of supply chain activities within the company, with a defined set of methods and techniques *(Gábriel 2013)*. The most important ones are general management methods that do not belong to any field of SCM. These are: cooperation with the other members of the supply chain (Dakov and Novkov 2008, Hsu and Hu 2008, Zhu et al. 2008, Eltayeb et al. 2011, Chan et al. 2012, Lin 2013); recycling *(Dakov and Novkov 2008, Hsu and Hu 2008, Lin 2013);* life cycle management (Hsu and Hu 2008); management commitment *(Hsu and Hu 2008, Zhu et al. 2008)* and investment recovery *(Zhu et al. 2008, Chan et al. 2012)*.

When thinking of greening the supply chain, all parts must be taken into account since processes are related and modification in one part of the supply chain can significantly change other parts. GSCM fields are organized parallel to traditional supply chain processes – from the design of the product down to the delivery to the customer.

4.1 GREEN DESIGN

The aim of green design (or eco-design) is the minimization of a product's environmental impact during its whole life cycle without compromising other essential product criteria, such as performance and cost *(Eltayeb et al. 2011)*. In other words, green design means the design of products or services with certain environmental consciousness. The most often cited green design techniques are:

- design of new products for reduced consumption of hazardous materials *(Zhu et al. 2008, Eltayeb et al. 2011, Lin 2011);*
- design of new products for reuse, recycling or remanufacturing *(Zhu et al. 2008, Wooi and Zailani 2010, Eltayeb et al. 2011);*
- design of new products for resource efficiency – including reduced energy consumption, reduced material usage, use of renewable energy and reduction of waste output *(Zhu et al. 2008, Wooi and Zailani 2010, Eltayeb et al. 2011, Lin 2011)*.

4.2 GREEN PURCHASING

The interpretation of green purchasing in the literature is quite uniform. Researchers have similar ideas about the aim and the methodology of green purchasing. The basic idea is decreasing the environmental impact caused by resources used in the products. This can be stated by the selection of appropriate materials and/or suppliers. Methods and techniques include:

- demanding supplier certifications, environmental management systems (ISO14000, OHSAS18000, RoHS) *(Zhu et al. 2008, Ninlawan et al. 2010, Eltayeb et al. 2011, Vörösmarty 2015);*
- supplier environmental auditing *(Zhu et al. 2008, Hsu and Hu 2008, Ninlawan et al. 2010, Eltayeb et al. 2011, Vörösmarty 2015);*
- setting environmental requirements for purchased items *(Garcia Martinez et al. 2006, Chien and Shih 2007, Zhu et al. 2008, Hsu and Hu 2008, Ninlawan et al. 2010, Eltayeb et al. 2011, Chan et al. 2012, Chen et al. 2012, Vörösmarty 2015);*
- demanding environmental information on the purchased item, such as test results, bill of materials, environmental questionnaires and product labelling *(Dakov and Novkov 2008, Hsu and Hu 2008, Eltayeb et al. 2011)*
- finding a more environment-friendly alternative source of input *(Chien and Shih 2007, Ninlawan et al. 2010, Lin 2013, Chen et al. 2012, Vörösmarty 2015)*
- professional and financial support to the supplier to reach environmental objectives *(Dakov and Novkov 2008, Zhu et al. 2008, Eltayeb et al. 2011)*
- evaluation of second-tier suppliers *(Zhu et al. 2008)*
- paperless purchasing processes *(Ninlawan et al. 2010)*.

4.3 GREEN MANUFACTURING

The green manufacturing process shall use inputs with low environmental impact, work with high efficiency and generate the minimal amount of waste and pollution. The methodology of green manufacturing includes:

- decreasing resource utilization *(Srivastava 2008, Chen et al. 2012);*
- hazardous substance control *(Ninlawan et al. 2010, Chen et al. 2012);*
- decreasing energy utilization by energy-efficient technologies and increasing the ratio of green energy *(Ninlawan et al. 2010, Chen et al. 2012);*
- integration of different forms of material reuse into the manufacturing process – disassembly, refurbishment, remanufacturing or recycling *(Srivastava 2008, Ninlawan et al. 2010, Chen et al. 2012)*.

4.4 GREEN LOGISTICS

According to Ninlawan et al. *(2010)* and Chan et al. *(2012)* green distribution consists of green packaging and green transportation. Green packaging involves downsizing of packages, use of „green" packaging materials, cooperating vendors

to standardize packaging, minimizing material uses and time to unpack, adopting returnable package methods, promotion of recycling and reuse programs. Green transportation means deliveries directly to the user's site, usage of alternative fuel vehicles, distribution in great batches and change to modal shift. In my opinion, the concept of logistics involves both packaging and transportation, so I will refer to green packaging and green transportation as green logistics activities.

I also include reverse logistics in the field of green logistics. Two interpretations of reverse logistics can be found in literature. One group of researchers *(e.g. Srivastava 2008, Eltayeb et al. 2011)* view certain types of reuse activities (such as disassembly, refurbishment, remanufacturing and recycling) as part of manufacturing or as a separate set of activities. The other group *(e.g. Beamon 1999, Ninlawan et al. 2010, Lin 2013)* view them as part of reverse logistics. Although both views have arguments, if we interpret conceptions correctly, only real logistics activities should be considered as part of reverse logistics, which are collecting, inspection and sorting, pre-processing and location decisions and network design *(Srivastava 2008)*.

4.5 INVESTMENT RECOVERY

Investment recovery aims the increased efficiency of operations by using less input to the same output. Investment recovery has a positive effect not only on economic performance but also on environmental performance by reducing the amount of waste, material consumption and the disposal of end-of-life equipment *(Zhu et al. 2008, Chan et al. 2012)*. The most often mentioned techniques are:

- sale of excess inventories/material;
- sale of scrap;
- sale of excess equipment.

5 MATERIALS AND METHODS

5.1 RESEARCH OBJECTIVES AND METHODS

The aim of this study is to present a picture of the GSCM fields and techniques applied in the Hungarian automotive industry. The research is based on a questionnaire prepared for investigating the GSCM practice of respondents. In the questionnaire, we surveyed the areas such as:

- Green design (3 techniques)
- Green purchasing (10 techniques)
- Green manufacturing (4 techniques)
- Green logistics (5 techniques)
- Investment recovery (3 techniques)

Respondents were asked to choose the most appropriate answer from the five options below:

1.	*We don't use it and we don't plan to*
2.	*We don't use it but we plan to*
3.	*Under launch/implementation*
4.	*We use it for less than 1 year*
5.	*We use it for more than 1 year.*

The answering options are more detailed than simply Yes or No in order to get a clearer picture on the development of GSCM fields. With this scale future applications and implementations in progress are also possible to be measured.

5.2 SAMPLE OF THE RESEARCH

The subjects of the primary research were automotive manufacturers operating in Hungary and their suppliers. The research questionnaire was sent to 350 companies belonging to the target group between July 2014 and November 2015. We got 75 questionnaires back, out of which 72 were properly filled and appropriate for statistical processing. This accounts for a 20.5% response rate.

66.7% of the respondent companies are Hungarian, while 33.3% are of foreign majority ownership. Regarding number of employees, the sample companies include small, medium and large enterprises: 22 companies (30.6%) employ 50 persons or fewer, 25 companies (34.7%) have a staff of between 51 and 250 employees, and 25 companies (34.7%) are large enterprises with over 250 employees.

Respondents represent the whole supply chain from OEM to Tier4 suppliers. The sample is composed of 4 OEMs, 12 Tier1, 15 Tier2 and 41 Tier3-4 suppliers.

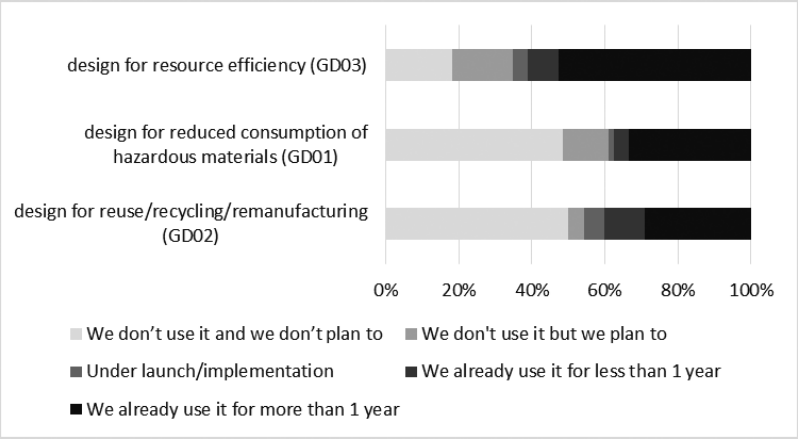
6 RESULTS AND DISCUSSION

We calculated the frequencies of the different answers on the application of each GSCM technique. Figures 1-5 show the results grouped by GSCM field. The techniques are ranked by their frequency.

6.1 FREQUENCY OF APPLICATION – GREEN DESIGN

The techniques of green design are the less common in the sample – only 46% of the respondent companies use it (for more or less than 1 year). The reason for the relatively low level of application can be that green design does not result quick wins. The positive effect appear years after the launch of GD projects. Companies have to take the costs and the risk that makes GD less attractive. Otherwise, there is a reasonable progress potential, shown by answers *„I don't use it but I plan to"* and *„Under launch/implementation"*.

Figure 1. Application rate of green design techniques



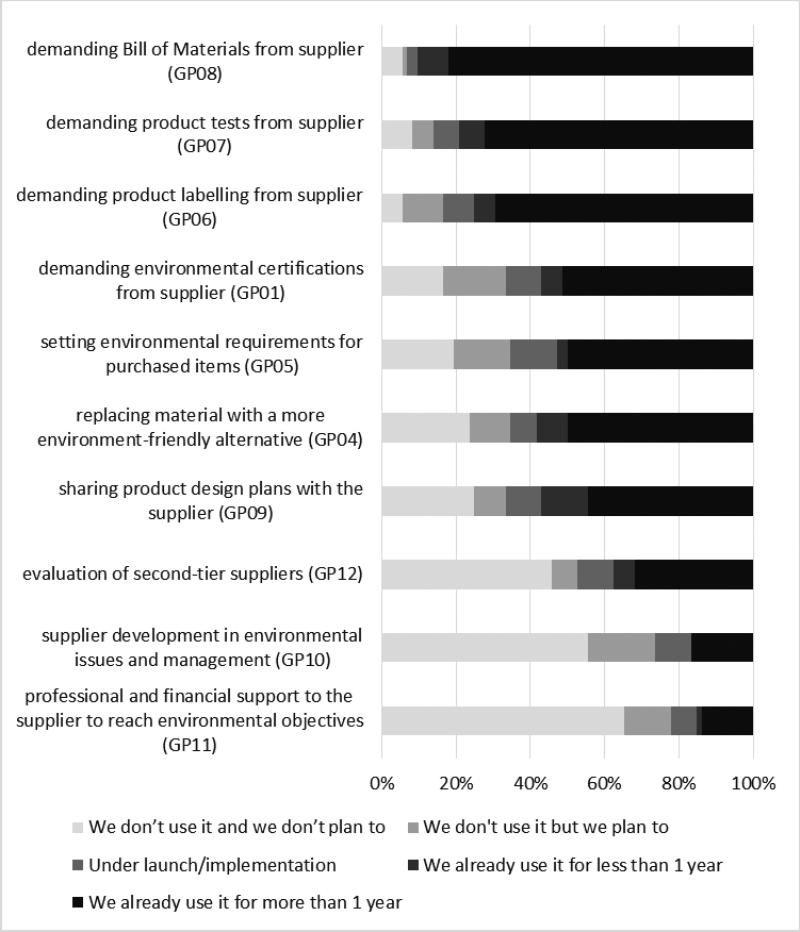
Source: own research

As shown in Figure 1, the most frequently used technique is the design for resource efficiency, which addresses the reduction of material and energy consumption, the use of renewable energy and the reduction of waste. This method not only helps to reduce environmental impact but at the same time it means cost reduction at the same time. The other two methods with no cost reduction possibilities are less popular, their rate of application is around 40%.

6.2 FREQUENCY OF APPLICATION – GREEN PURCHASING

Green purchasing has a large toolkit, and the popularity of the individual techniques is very different. The average application rate is 54%.

Figure 2. Application rate of green purchasing techniques



Source: own research

The application rates of green purchasing techniques are shown in Figure 2. Some of the techniques are "administrative" ones, which require certain documents or certificates from the supplier (techniques GP01, GP06, GP07, and GP08). The application of these techniques does not require big effort from the buyer company, so these are the most popular ones. The least strict methods

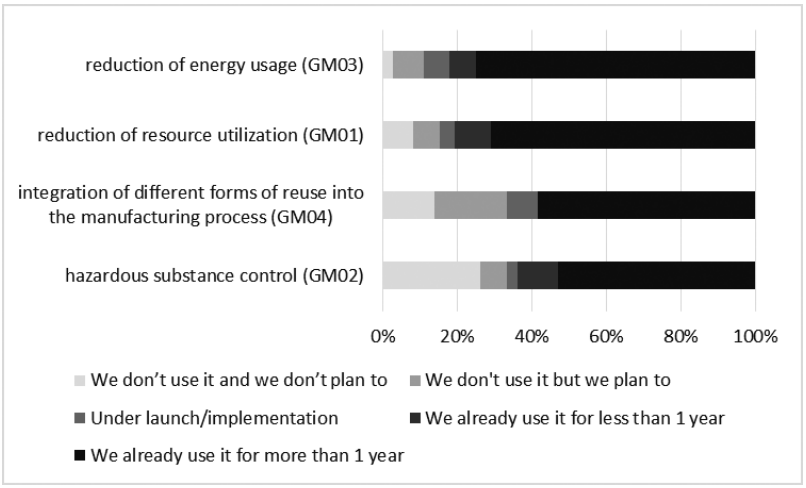
(GP06-07-08) are applied by more than 75% of the respondents, for more than one year, and in case of GP01 there is a big progress under way. Only a small part of the companies (6-17%) do not use or plan these techniques.

Setting environmental requirements for purchased items (GP05) and replacing material with a more environment-friendly alternative (GP04) are more time-consuming, applied by half of the companies for more than 1 year. The progress potential is also relevant here. Sharing product design plans with the supplier (GP09), that requires high level of trust, shows similar patterns.

The least popular techniques aim the development or support of the supplier (GP10, GP11). These methods are very costly and require specific investment to the supplier. This can be the reason for the low application rate by not exceeding 20%. Evaluation of second-tier suppliers (GP12) is also not popular.

6.3 FREQUENCY OF APPLICATION – GREEN MANUFACTURING

Figure 3. Application rate of green manufacturing techniques



Source: own research

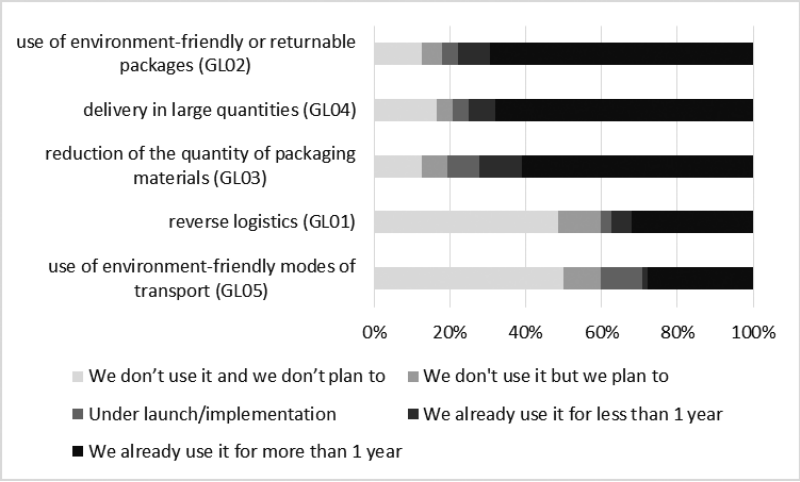
The frequency of the use of green manufacturing methods is high (see Figure 3.). The average application rate is 71%. Techniques aiming the reduction of material or energy usage have the highest application rate (GM01 and GM03, around 80%). Very few companies do not even plan to apply them (3-8%). The reason can be that both techniques have a positive side effect on the costs, and its realization is easy.

Integrating the different forms of reuse into the manufacturing process (GM04) is less popular but the number of planned and underway implementations is remarkable (19%).

6.4 FREQUENCY OF APPLICATION – GREEN LOGISTICS

As Figure 4 shows, green logistics techniques show big differences in the rate of application. The average rate is 58%. The most popular techniques aim the reduction of the environmental impact of packaging (GL02 and GL03) and the increasing efficiency of transportation (GL04). The application rate of these methods is between 72 and 78%, with a remarkable rate of recent introductions.

Figure 4. Application rate of logistics design techniques



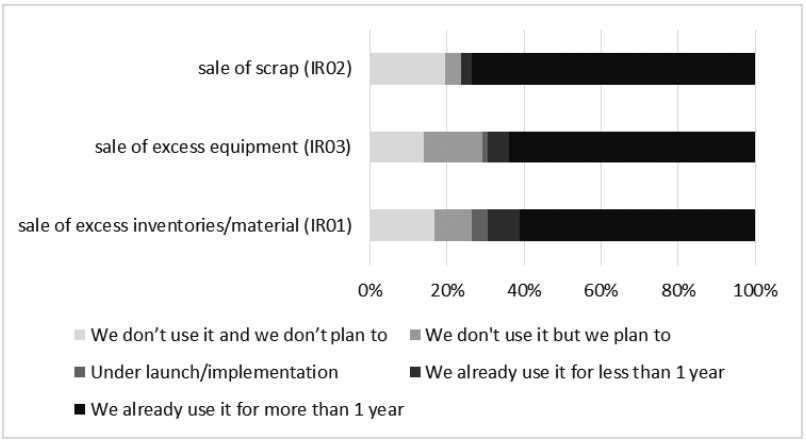
Source: own research

Reverse logistics (GL01) is applied by only one third of the companies and half of the remaining ones do not even plan its introduction. Environment-friendly modes of transport (GL05) are also less popular, but it is not only an environmental consideration: it depends also on the logistics characteristics of the product, on the distances and on the timing of deliveries.

6.5 FREQUENCY OF APPLICATION – INVESTMENT RECOVERY

The techniques of investment recovery and better equipment usage are quite popular; in average 72% of the respondents apply them. The application rates are shown in Figure 5.

Figure 5. Application rate of investment recovery techniques



Source: own research

Most companies sell the scrap material (IR02) but very few other companies plan to do so. Sales of excess equipment and material (IR01 and IR03) is performed by 70% of the sample companies and the potential progress is also high.

6.6 OBSERVATIONS ON POPULARITY AND PROGRESS OF GSCM TECHNIQUES

We prepared an overall popularity ranking of all involved GSCM techniques. The ranking is based on the rate of applications (technique is applied for more or less than 1 year). We did not include techniques under launch or implementation because in these cases the technique is not used in everyday operations, it is not part of company practice, and its effects cannot be measured.

Eight techniques reached 75% application rate, these were the most popular techniques. Their ranking is shown on Table 2. These methods cannot be tied to one field of GSCM, they come from all fields except for green design. The green purchasing techniques that are in the top ten are all administrative ones, i.e. requiring documents (BOM, product tests and product labels) from the supplier that ensure its environmentally conscious operations. The two green manufacturing techniques provide not only environmental but also financial advantages to the company, which explains their attractiveness. Rationalization of packaging and transportation also provide economic benefits besides the environmental ones. In summary, companies are the most willing to apply a GSCM technique, if it

- is easy to implement and the costs are relatively low;
- provides quick wins;
- provides not only environmental but economic benefits.

Table 2. The 8 most popular GSCM techniques

Technique		Application
GP08	Demanding bill of materials from supplier	90%
GM03	Reduction of energy usage through energy-efficient technologies	82%
GM01	Reduction of material usage in existing products	81%
GP07	Demanding product test results from supplier	79%
GL02	Use of environment-friendly or returnable packaging	78%
IR02	Sale of scrap	76%
GP06	Demanding product labelling from supplier	75%
GL04	Transportation in big quantities	75%

Source: own research

The least frequently used techniques can be tied rather to a certain field or type of GSCM activities. Techniques with the lowest application rate aim supplier development (professional and financial support – 15% and supplier development in environmental issues – 17%). We suppose that the low popularity is due to the large dedicated investment required to supplier development activity. These investments (mainly into infrastructure and human resources) are tied to that particular supplier, and in case of a break-up, these investments will be lost. Companies are willing to do such investments, when the risk of losing the supplier is low (such as in the case of a high-quality and stable customer-supplier relationship). In our survey, this applies only to a small part of suppliers, and that explains the low rate of its application.

Green design techniques are also not popular (GD01 – 38% and GD02 – 40%). The return on such investments is slow – the time of return depends on time-to-market, which is significantly longer than the return time of other (e.g. the administrative) GSCM techniques. Other infrequent techniques were the environment-friendly ways of transportation (GL05 – 29%), the collection of used products for reuse (GL01 – 38%) and the evaluation of second-tier suppliers (GP12 – 38%).

We also ranked the GSCM techniques based on their development potential. It is important because it refers to the estimated penetration of these techniques in the near future. We evaluated progress potential by the rate of companies that answered, *„I don't use it but I plan to" „I have it under launch/implementation"* or *„I already use it for less than 1 year"*. Nine methods show a development rate greater than 25%, these are shown in Table 3.

Table 3. The nine most intensively developing GSCM techniques

	Technique	Progress
GP01	Demanding environmental certifications from supplier	32%
GP05	Setting environmental requirements for purchased items	31%
GP09	Sharing product design plans with the supplier	31%
GD03	Design of new products for resource efficiency	29%
GP10	Environmental education of the supplier	28%
GM04	Integrating the different forms of reuse into the manufacturing process	28%
GP04	Replacing material with a more environment-friendly alternative	26%
GL03	Reduction of packaging materials	26%
GP06	Demanding product labelling from supplier	25%

Source: own research

The majority of these techniques belong to the field of green purchasing, showing the importance of supplier management and cooperation.

7 SUMMARY

The analysis of the answers of the questionnaire gave us a picture about the green supply chain management situation in the Hungarian automotive sector. The results show big differences among the "popularity" of GSCM fields, and also among the different techniques of the same field.

Green design is the least intensively applied field of GSCM, since it has only a long-term effect but requires great investment from a company. Only large companies can afford it, mainly OEMs and Tier1 suppliers.

Green purchasing is the most popular field, with the largest toolset and the biggest growth potential. The large number of companies planning or implementing green purchasing techniques show the importance of this trend. The most popular techniques demand different documents and other proofs from the supplier on the environmental characteristics of the given product or process. The larger investment a given technique requires, the less frequently is its usage.

The most popular green manufacturing methods aim towards resource efficient production, and have not only environmental but also economic benefits. In green logistics, the focus is mainly on packaging. "Greening" of transportation and reverse logistics is not widely used yet.

Finally, with this study we have also intended to create a basis for further research, such as using the same questionnaire for international comparison (of the automotive industry) or, for inter-sectoral comparison of green practices.

REFERENCES

- Barra, M. (2016) *The next revolution in the auto industry.* Downloaded on 04/Mar/2017 from: https://www.weforum.org/agenda/2016/01/the-next-revolution-in-the-car-industry/
- Beamon, B. M. (1999) *Designing the green supply chain.* Logistics Information Management 4 (12) 332-342
- Berger, R. (2014) *Industry 4.0 The new industrial revolution How Europe will succeed.* Downloaded on 27/Jun/2017 from https://www.rolandberger.com/publications/publication_pdf/roland_berger_tab_in dustry_4_0_20140403.pdf
- Bühne, J. A. – Gruschwitz, D. – Hölscher (2015) *How to promote electromobility for European car drivers? Obstacles to overcome for a broad market penetration.* J. et al. Eur. Transp. Res. Rev. 7, 30.
- Chan, R. Y. K. – He, H. – Chan, H. K. – Wang, W. Y. C. (2012) *Environmental orientation and corporate performance: The mediation mechanism of green supply chain management and moderating effect of competitive intensity.* Industrial Marketing Management 41, 621-630
- Chen, C. C. – Shih, H. S. – Shyur, H. J. – Wu, K. S. (2012) *A business strategy selection of green supply chain management via an analytic network process.* Computers and Mathematics with Application 64, 2544-2557
- Chien, M. K. – Shih, L. H. (2007) An empirical study of the implementation of green supply chain management practices in the electrical and electronic industry and their relation to organizational performances. International Journal of Environmental Science Technology, 4, 383-394
- Coface Central Europe (2016) *Ranking Coface Cee Top 500 Companies.* Downloaded on 06/Nov/2016 from: http://www.cofacecentraleurope.com/News- Publications/Publications/Coface-CEE-Top-500-Companies-2016-edition
- Dakov, I. – Novkov, S. (2008) *Sustainable Supply chain management – Scope, activities and interrelations with other concepts.* 5th Int. Conf. on Business and Management, Vilnius, Lithuania
- Deloitte (2014) Global Automotive Consumer Study, Downloaded on 25/May/2017 from: https://www2.deloitte.com/content/dam/Deloitte/us/Documents/manufacturing/us-auto-global-automotive-consumer-study-100914.pdf
- Deloitte (2016) *Central Europe as a focal point of the automotive industry study.* Downloaded on 25/May/2017 from: https://www2.deloitte.com/global/en/pages/about-deloitte/articles/CE-automotive-survey-2016.html
- Eltayeb, T. K. – Zailani, S. – Ramayah, T. (2011) *Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: investigating the outcomes.* Resources, Conservation and Recycling 55, 495-506
- European Commission (2017) *Environmental aspects of the automotive industry.* Downloaded on 25/May/2017 from: https://ec.europa.eu/growth/sectors/automotive/environment-protection_en
- Gábriel M. (2013) *Alapkoncepciók és kutatási lehetőségek a zöld ellátási lánc menedzsmentben.* In: Székely Cs. (szerk.) Felelős társadalom, fenntartható gazdaság, NyME Kiadó, 400-417.
- Gao, P. – Kaas, H-W. – Mohr, D. – Wee, D. (2016) *Automotive revolution – perspective towards 2030.* Downloaded on 25/May/2017 from: http://www.mckinsey.com/indus-

tries/automotive-and-assembly/our-insights/disruptive-trends-that-will-transform-the-auto-industry

- Garcia Martinez, M. – Poole, N. – Illés Cs. – Lehota, J. (2006) *Food Safety Performance in European Union Accession Countries: Benchmarking the Fresh Produce Import Sector in Hungary.* Agribusiness: An International Journal, 1 (22) 69-89
- Hsu, C. W. – Hu, A. H. (2008) *Green supply chain management in the electronic industry.* Int. J. Environ. Sci. Tech. Spring, 205-216
- Lin, R-J. (2013) *Using fuzzy DEMATEL to evaluate the green supply chain management practices.* Journal of Cleaner Production 40, 32-39
- McKinsey&Company (2014) *Connected car, automotive value chain unbound,* Downloaded on 25/May/2017 from: https://www.mckinsey.de/files/mck_connected_car_report.pdf
- Nick G. – Pongrácz F. (2016) *How to measure industry 4.0 readiness of cities? 4.0* International Scientific Conference Industry 4.0 Borovets, Bulgaria, *Scientific Technical Union of Mechanical Engineering „industry 4.0" Bulgaria, 64-68.*
- Ninlawan, C. – Seksan, P. – Tossapol, K. – Pilada, W. (2010) *The implementation of green supply chain management practices in electronics industry.* Proceedings of International MultiConference of Engineers and Computer Scientists 2010 Vol III. Hong-Kong
- Papp I. - Szabó Zs. (2015) Fókuszpontok a vezetésben. (Focus-points in Management), Universitas-Győr Nonprofit Kft.
- Parkin, R. – Wilk, R. – Hirsh, E. – Singh, A. (2017) *2017 Automotive Industry Trends.* Downloaded on 25/May/2017 from: https://www.strategyand.pwc.com/trend/2017-automotive-industry-trends
- PwC (2007): *The automotive industry and climate change.* Downloaded on 25/May/2017 from: http://www.pwc.com/th/en/automotive/assets/co2.pdf
- Rechnitzer, J.-Hausmann, R.-Tóth, T (2017) *A Magyar autóipar helyzete nemzetközi tükörben.* Hitelintézeti Szemle, 16/1, 119-142.
- Spee, R. – Denick, J. (2016) *Global Location Trends 2016 Annual Report IBM,* Downloaded on 04/Mar/2017 from: https://public.dhe.ibm.com/common/ssi/ecm/gb/en/gbe03760usen/GBE03760USEN .PDF
- Srivastava, S. K. (2008) *Network design for reverse logistics.* Omega 36, 535-548
- The Society of Motor Manufacturers and Traders (2016): *2016 UK automotive sustainability report.* Downloaded on 25/May/2017 from: https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT-Sustainability-Report-FINAL.pdf
- Thiel, C. – Alemanno, A. – Scarcella, G. – Zubaryeva, A. – Pasaoglu, G. (2012) *Attitude of European car drivers towards electric vehicles: a survey.* European Commission, DG JRC, Institute for Energy and Transport, Petten, the Netherlands 2IPSOS public Affair S.r.l., Milan, Italy. Downloaded on 25/May/2017 from: https://setis.ec.europa.eu/sites/default/files/reports/Attitude_of_European_car_drivers_towards_electric_vehicles-a_survey.pdf
- Vörösmarty Gy. (2015) *A zöldbeszerzés motivációs háttere.* Vezetéstudomány, 12 (46) 13-21.
- Wooi, G. C. – Zailani, S. (2010): *Green supply chain initiatives: investigation on the barriers in the context of SME sin Malaysia.* International Business Management 4 (1) 20-27
- Zhu, Q. – Sarkis, J. – Lai, K (2008) *Green supply chain management implications for "closing the loop".* Transportation Research Part E 44 (2008) 1–18

MATEVŽ OBRECHT, MATJAŽ KNEZ, ZOLTAN SZEGEDI,
GABOR NICK AND ANDREJ LISEC

Review of Industry 4.0 and forecasting its future within trends in logistics and development of legislation[1]

Matevž Obrecht: University of Maribor, Faculty of Logistics (matevz.obrecht@um.si)

Matjaž Knez: University of Maribor, Faculty of Logistics (matjaz.knez@fl.uni-mb.si)

Zoltán Szegedi: Széchenyi István University, Kautz Gyula Faculty of Management, Györ (szegedi.zoltan@sze.hu)

Gábor Nick: Széchenyi István University, Kautz Gyula Faculty of Management, Györ (nick.gabor@sze.hu)

Andrej Lisec: University of Maribor, Faculty of Logistics (andrej.lisec@um.si)

Abstract

The increasing integration of the Internet of Everything into the industrial value chain has built the foundation for the next industrial revolution called Industry 4.0. Industry 4.0 is currently a top priority for many companies, research centres, and universities and is a part of fast changing business environment. Therefore it must be clearly focused on the future trends since fast changing environment forces companies to be flexible and to adapt quickly. New trends in logistics as well as in the field of legislation and demand for greener products and sustainable solutions will undoubtfully shape the future of industry 4.0. This paper is therefore focused on development of industry 4.0 in relation with megatrends in logistics as well as with development of legislation related especially with environmental protection.

Keywords: Industry 4.0, logistics, supply chain, technology forecasting, trends, legislation

[1] This Paper was prepared within the framework of the Hungarian-Slovenian Scientific and Technological Cooperation (Code: TÉT_16_SL)

INTRODUCTION

The industry of 21st century Europe faces significant challenges. The ever-decreasing raw material supply, the rising energy prices and the demographic changes necessitate the modification of the existing model. The intensifying competition, which is mostly driven by the increasing productivity of the Asian industry and innovation makes it clear that the production industry needs solutions with which they can efficiently respond to challenges (Kagermann, 2013).

The manufacturing and production systems have been gradually complemented with information technology support tools in recent decades, as increasingly complex technological solutions, production in often multiple locations and the coordination of supporting logistics processes started to pose a more and more complex challenge. Accordingly, 90% of all production processes are now supported by IT tools. The increasingly dominant role of IT in companies have changed lifestyles and working environments and its significance is unquestionable.

Miniaturization and the development of communication technologies enables the blending of the physical and virtual world and gives way to the so-called CPS – Cyber-Physical System. Industrial production becomes integrated into an intelligent environment that is referred to in reference literature as smart factory. Based on this technological evolution, Germany announced the arrival of Industrie 4.0, also called the fourth industrial revolution. (Kagermann, 2013)

Development of industry 4.0 as well as logistic activities and supply chains is strongly connected with future trends. Thinking about the future and future events is part of human nature; people have always been curious about what lies ahead. This was the basis for the 'success' of the Greek oracles in ancient times when forecasting the future was less about predictions than about shaping politics and present-day decisions. While it is true that the future is unpredictable, some developments can be forecasted to at least prepare for the possible events in the future and attempt to shape it (Cuhls, 2003).

With technological forecasts, high-quality data on future logistics and industry 4.0 development can be obtained that can help shaping companies policy and vision. If forecasts are carried out systematically, professionally and periodically, the shaping of energy policy measures is more effective, can achieve greater positive effects and be more consistent with the overall development paradigm (Obrecht – Denac, 2016). When forecasting includes scenario analysis, measures for the future contingency can be identified already today and consequences can be avoided more effectively.

The need for formal techniques was not felt until the mid-20th century. While we can pinpoint the origins of systematic technological forecasting to around 1950, and its forerunners to 1945, the existence of a more widespread interest in special techniques take place in 1960 (Czaplicka-Kolarz et al, 2009 and Jantsch, 1967). Nowadays almost all companies in the logistics sector use at least some actions related with defining future trends and making their business more effi-

cient. There are more and more changes related to environmental protection. Because of stricter environmental legislation and increasing public awareness on environmental constrains caused by logistics and industry, companies must be prepared on changes and adapt as well as become more environmentally friendly before it is too late and they start to lose their customers. Therefore monitoring legislation and environmental protection acts could also be defined as a part of strategic planning and defining company's future.

The logistic chain must not just focus on environmental protection, but increasingly it must work towards becoming a "sustainable business" (GreenPort, 2010). In last decade, the issue of environmental protection and climate change has turned from a niche issue discussed by a closed circle of learned specialists into one of the most serious concerns of our times. The EU has not only been leading international efforts to combat climate change, it has also developed an integrated climate and energy policy, including a number of headline political targets and a detailed action plan on how to achieve them (Winterstein et al. 2008).

This paper therefore focuses on industry 4.0 in relation with trends in logistics and legislation related with environmental protection.

2. METHODOLOGY

This paper presents a review of current state of industry 4.0, future trends in logistics and direction of legislation development on the field of environmental protection. Collected data consists mainly of secondary data and findings of different researchers. Secondary data was collected with compilation method from various scientific and professional papers, researches and project reports focused on the research topic industry 4.0, logistics trends and stricter environmental legislation related on green logistics development. Gathered data were cross-compared and commented to present basic findings in all three studied areas and to combine all these findings in new perception related on green logistics trends in industry 4.0.

3. RESULTS AND DISSCUSSION

3.1 INDUSTRY 4.0

Automotive industry is among aerospace currently one of most developed. Lean philosophy, as such has been developed in the Toyota production system (TPS) in late 1980' by Taichii Ohno but has dramatically changed over the last years. There have been developed new technics and tolls and also lean inside companies is now perceived as throughout philosophy, in contrast to concept JIT or f. e. 5S. One of modern topical issues is also environment which on first sight does not cooperate with the lean concept.

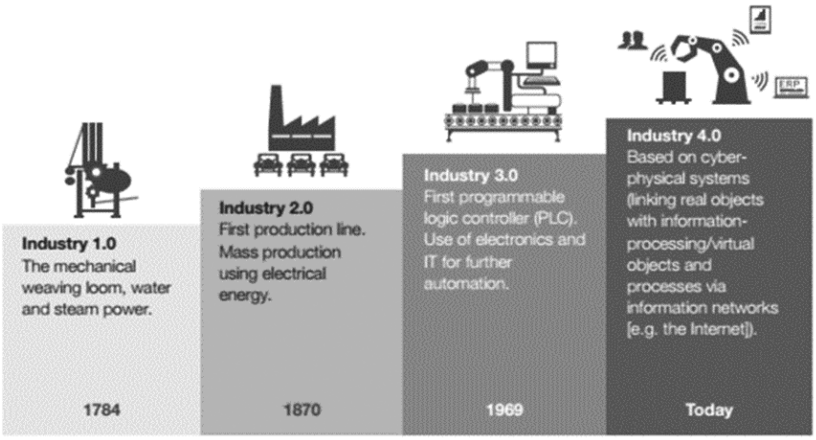
Automotive industry plays an important role in European economy. 6.9% of the EU's entire GDP comes from this industry1. 5.3% of the employees of the EU, approximately 12.9 million people work in this sector. 3 million of them are highly qualified manpower. On an annual basis, 16.2 million vehicles (cars, trucks and buses) are manufactured in the 290 vehicle factories in 25 countries of Europe. Automotive industry is the largest investor in research and development (32 billion EUR). These companies – wherever they are present – have an effect on regional development, and the international corporations directly connect the towns of their sites to the global economy (Enyedi 2012). The series of innovations, developments in information and communication technology (ICT), Cyber-physical systems (CPS) and the introduction of tools and services in the production process are the most important for regional competitiveness.

The increasing integration of the Internet of Everything into the industrial value chain has built the foundation for the next industrial revolution called Industry 4.0. Although Industry 4.0 is currently a top priority for many companies, research centers, and universities, a generally accepted understanding of the term does not exist. As a result, discussing the topic on an academic level is difficult, and so is implementing Industry 4.0 scenarios (Hermann et al.2016).

The convergence of industrial production as well as information and communication technologies has made Industry 4.0 as one of the most frequently discussed topics among practitioners and academics (Draft – Horch, 2014).

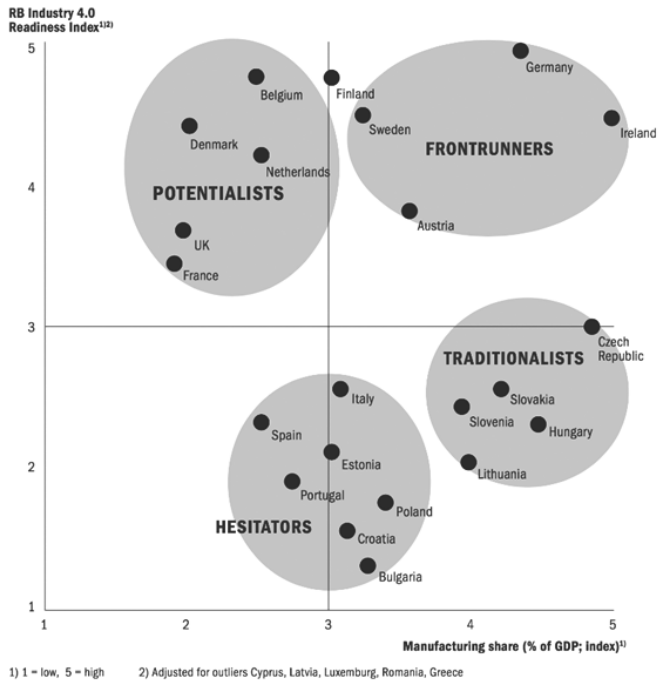
The fascination for Industry 4.0 is twofold. For the first time an industrial revolution is predicted a-priori, not observed ex-post (Draft and Horch, 2014).. This provides various opportunities for companies and research institutes. The economic impact of the industrial revolution is supposed to be huge, as Industry 4.0 promises substantially increased operational effectiveness as well as the development of entirely new business models, services, and products (Schrauf – Berttram, 2014). Industry 4.0 has become by now a global slogan and its ideas can be recognized in the industry development and industry digitalization policies pursued by individual countries and the priority of which is to improve the competitiveness of the given country (Kagermann 2013) by enhancing its innovation capability and digitalization.

Figure 1: Historical development of Industry 4.0 (RSA Sollutions. 2015)



We would like to highlight a study in order to address the relative position of Hungary versus Slovenia, regarding their readiness for the upcoming digital transformation: the Roland Berger Industry 4.0 Readiness index (Roland Berger, 2014).

Figure 2: Roland Berger Industry 4.0 Readiness index (Roland Berger 2014)



The index uses the following sets of indicators when creating a so-called country ranking.

1. Industrial excellence:
    a. production process sophistication
    b. degree of automation
    c. workforce readiness
    d. innovation intensity
2. Value network:
    e. high value added
    f. industry openness
    g. innovation network
    h. internet sophistication

The attached figure (Figure 2) uses two dimensions: the vertical axis represents the previously mentioned Roland Berger Industry 4.0 Readiness index while the horizontal axis is the manufacturing's share of the GDP. The chart suggests, that with one of the highest shares of manufacturing in the GDP, Hungary is relatively highly dependent on manufacturing, while, based on the observed indicators, it rather stays behind its European competitors as far as digital transformation readiness is concerned. (Roland Berger, 2014). *Traditionalists* are primarily from the countries of Eastern Europe. They still live from their former industrial base having to some extent even now healthy structure

3.2 FUTURE TRENDS IN LOGISTICS

Forecasting future logistics trends can be very complex since it is very hard to say what will become an important trend with global impacts and what will only be a »fashion fad«. One of the leading publications in this area is "Logistics trend radar", published annually by DHL to enlighten different socio-economic and technology trends relevant especially for logistic companies.

Future logistic will be shaped by mega and micro trends, which will be seen especially in flexible start-ups that almost do not have any assets and are therefore highly adaptable. Five most important innovations in logistics can be summarized as (DHL, 2016):

First is autonomous logistics with autonomous vehicles and drones. This topic has undoubtfully got the most media attention. Autonomous vehicles are already developed and ready to use in closed loops such as warehouses, airports etc. Next step is to test them on public roads. Drones have already been identified as appropriate for delivery of goods by Amazon (Amazon Prime), for delivering medicines in distant locations, for visualisation and monitoring of degraded or by natural disasters affected areas as well as for monitoring radiation e.g. in Fukushima.

Second innovation is Internet of things (IoT) and its potential of connecting, monitoring and managing electronic devices connected with internet. It is evaluated that over 50 billion devices will be connected by 2020 and this will result in 1.9 trillion dollar worth new business opportunities. Due to safety regulations and related risks, IoT has currently more interest on for households and their appliances but will be implemented also in logistics sector.

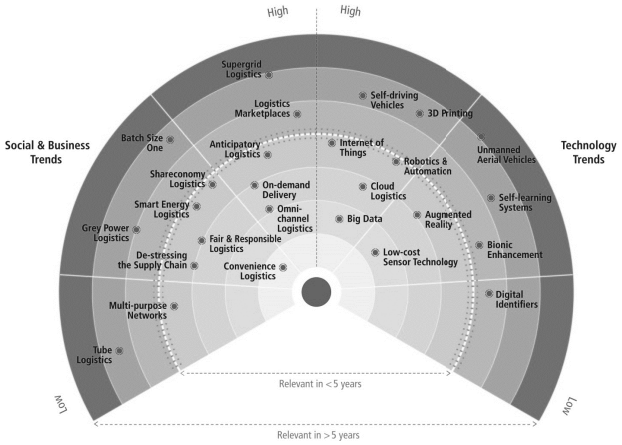
Third chance is represented in collaboration of humans and machines. Machines will join human work force. Studies revealed that smart glasses technology increases efficiency for 25 % and are positively accepted by users. This can also be expected in robotics and automation, which is still very interesting for logistics sector with new robots will be cheaper, smaller, more flexible and easier to programme.

Fourth chance is related with retail logistics. We can expect deliveries of anything, at anytime, anywhere to anyone. Customers are more and more informed and use different "online" and "offline" channels. Logistics must adapt to this trends with multichannel and personalized solutions. Trend dictates elimination of last mile logistics, related with high costs towards automatization (in Slovenia there are GLS and Pošta Slovenije post boxes on gas pumps) as well as delivery in trunks and delivery with drones.

Fifth trend is focused on integrating environmental protection in general development paradigm. Stricter legislation and increasing environmental awareness force companies to be greener. Customers demand green and socially responsible solutions. Focus is to generate added value with environmental components and to implement circular economy. As a case Freitag bags can be presented since they are produced from waste truck tarpaulin or Fairphone cell phones, produced from environmentally undisputable materials.

Social and business as well as technology trends related to logistics sector are presented on Figure 2 as well as their relevance through time.

Figure 3: Social and business and Technology trends in logistics (DHL, 2016)



However the riskiest areas identified are a) data security and b) vulnerability of IT in case of frauds and cyber-attacks. As seen on Figure 2, different business opportunities can be identified among social and business trends as well as among technology trends. According to demographical changes (older population) and stressful environment, grey power logistics and de-stressing of supply chains as well as shared economy will gain more power. Fair and responsible logistics will become important in the next 5 years as well as anticipatory logistics with the goal to minimize costs and to increase customer loyalty. Batch size will be reduced due to more personalized solutions. On the side of technology trends there are numerous trends that will affect industry 4.0 such as augmented reality, sensors, cloud logistics, bionics, self-learning systems, 3D printing and especially IoT as well as self driving unmanned vehicles. All of these seems to be very distant at the moment, but logistics managers must be aware of fast changing business environment and especially changing customer demand which they have to forecast correctly and apply appropriate business models and business actions to gain the most benefits.

3.3 FOCUS OF »GREEN« LEGISLATION DEVELOPMENT

One of the key features of environmental protection is the existence of 'negative externalities'. These occur when the private cost of an action, like driving a car or burning coal to produce energy, is lower than the cost of that action to society, e.g., in terms of pollution (Winterstein & Tranholm Schwarz, 2008).

The transportation sector plays a pivotal role in contemporary societies, consequently, traffic pollution in many cities around the globe causes up to 70% of total carbon emissions (UN HABITAT, 2011). The concept of alternative transportation technologies and alternative energy resources has arisen as a potential long-term solution for achieving an environmentally friendly future and has become "an embraced goal" of many countries around the world (Bockarjova and Steg, 2014).

Since under these circumstances the market fails to allocate costs correctly, private stakeholders lack the incentive to invest sufficiently in environmental protection. As a result, the market produces too much pollution. This market failure can be remedied by ensuring that economic operators take the social costs of their action duly into account (i.e. 'internalise' those costs) and, consequently, reflect them in the final prices of their products. The environmental policy should be based on the principle that 'the polluter should pay. Indeed, if pollution becomes a real economic cost, companies will tend to maximise their profits by reducing this cost component and, therefore, reduce pollution at the same time. Also, if polluting goods are more expensive, demand will revert to less polluting sectors offering cheaper and more ARTICLES environmentally friendly goods, thus creating new markets for eco-industries (Winterstein & Tranholm Schwarz, 2008).

Green issues are now a significant part of many companies' logistics strategy and more customers are interested in alternatives, more eco-friendly transportation

options. New regulations are also coming from the governments that put higher demands on the industry (Nevhagen, 2014).

Public intervention aimed at putting the 'polluter pays principle' into practice generally takes the form of either regulation — setting environmental standards at a level sufficiently high to eliminate negative externalities — or market-based instruments. In the EU, among the most favoured market-based instruments are taxes, charges and tradable permit schemes because they provide a flexible and cost-effective means of correcting this market failure.

In 1995, Porter and van der Linde argued that pollution equates to inefficiency and that inefficiency is in turn a source of economic disadvantage. Thus pollution prevention represents an opportunity for business entities to improve their financial performance through, for example, enhanced productivity and innovation (Burritt and Christ, 2016).

Transport has a high impact on the environment and is the largest industrial source of CO_2 emission. The European Commission has developed policies and presented several communications, with new concepts such as co-modality, to reduce the impact of goods transport on the environment. Further Directives are being developed that could have a strong influence on how the Chain needs to be managed in order to ensure compliance and to satisfy the imperative of sustainability. A mix of regulatory measures and stimulating measures (bonus and malus) will set the context for transport operations. So far, however, the regulatory system may be considered relatively limited, but an increasing number of initiatives are likely to be introduced specifically to reduce CO_2 emission from transport. Almost all measures concentrate on companies with a role in the supply chain and only a limited number focus on management of the logistic chain in total.

Recent experiences show that influencing activation of sustainable measures on the chain as a whole delivers far more effective results than targeting the individual companies that make up the components of the chain. First estimates show that, in terms of reducing impacts, results from pressure on the chain as a total system can be 30% to 50% more effective than if every company involved undertakes the initiative separately. Therefore, to make a logistic chain sustainable, it requires co-operation between all partners with an operational task in the supply chain, private as well as public.

One concrete example is the new regulation from International Maritime Organization regarding the Sulphur content in ship's fuel within the Baltic Sea Region. From 1 January 2015, the Sulphur must be below 0.1%, compared to the year 2017 1 percent. Generally, the new environmental regulation has caused great concern to the countries and is a great challenge, not only to the shipping industry, but also to ports within the Baltic Sea Region.

Switching to more expensive low Sulphur fuels may reduce the competitiveness of the sea transport drastically and lead to a modal backshift from sea to road. It might even change the directions of logistics flows in Europe in order to avoid the SECA and also involve simultaneous development of specialized facilities in ports (Nevhagen, 2014).

For a variety of reasons that by now are well documented in the literature on business and the environment, firms adopt policies and behaviours not specifically required by government. Five reasons have been proposed for viewing environment as a core for business function akin to finance or marketing and thus a source of opportunity: differentiating products, managing competitors, reducing operating costs, redefining markets, and managing risk and uncertainty. Managing the supply chain for environmental reasons serves nearly all of these ends. It may differentiate products by adding credibility to processes or product designs. It may reduce operating costs by encouraging process efficiencies among suppliers, eliminating waste disposal and treatment, reducing liabilities from materials contained in suppliers' products, and other measures. Regulating the supply chain provides a strategy for managing competitors by forcing the competition to adopt similar policies. A major reason firms regulate supply chains is to reduce risk and uncertainty. They are less likely to lose critical suppliers due to violations of environmental laws or exposure from negative publicity. They may create reputation capital with consumers, communities, and agencies, and reduce defects or environmental hazards in products (Fiorino – Bhan, 2012).

4 CONCLUSION

The increasing integration of the Internet of Everything into the industrial value chain has built the foundation for the next industrial revolution called Industry 4.0. Future development as well as forecasting trends has therefore become even more relevant than in the past. New technologies and new business models bring new benefits but only if implemented at the right time and on the right place. Customers demand personalized solutions and flexibility and even current market leaders must be aware that their current market share and position will not last if they do not adapt to the new future situations. Future logistics will undoubtfully be based on lean, green and innovative approaches throughout the whole supply chain instead of owning logistics assets and infrastructure.

Several key issues will have to be solved before companies and governmental bodies can deliver a genuinely integrated environmental management system for the complete supply chain. Major considerations are agreement on methods of calculating carbon and other emissions for benchmarking and demonstrating compliance and transparency in order to create trust between competing companies. Quality management systems, certainties on legal positions with respect to liability, the level of knowledge of all partners involved, and a totally new systems approach will also be necessary. In order to set up sustainable logistic supply chain management within industry 4.0 each part of the chain will need to establish its own systems and organization to an appropriate standard and in a format that can be configured towards integration with all stakeholders (GreenPort, 2010).

REFERENCES

- Bockarjova, M. – Steg L. (2014) Can Protection Motivation Theory predict pro-environmental behavior? Explaining the adoption of electric vehicles in the Netherlands. *Global Environmental Change.* Vol. 28, pp. 276–288.
- Burritt, R. – Christ, K. (2016) Industry 4.0 and environmental accounting: a new revolution? Asian Journal of Sustainability and Social Responsibility. 1, 1, 23–38.
- Cuhls, K. (2003) "From forecasting to foresight processes – new participative foresight activities in Germany". Journal of Forecasting.22 (2-3) 93-111.
- Czaplicka-Kolarz, K. – Stanczyk, K. – Kapusta, K. (2009) „Technology foresight for a vision of energy sector development in Poland till 2030. Delphi survey as an element of technology foresighting". Technological Forecasting and Social Change. 76 (3) 327-338.
- DHL. 2016. Logistics trend radar. Available on: http://www.dhl.com/en/about_us/logistics_insights/dhl_trend_research/trendradar.html#.V48a5Pl96Uk [March 12, 2017].
- Draft, R. – Horch, R. (2014) Industrie 4.0: Hit or Hype?, *IEEE Industrial Electronics Magazine,* 8(2), 56-58.
- Enyedi Gy. (2012) Városi világ, Akadémiai kiadó, Budapest
- Fiorino D. HorváthJ. – Bhan, M. (2012) Environmental Regulation with Supply Chains: Comparing Private and Public Regulation. Centre for environmental policy.
- GreenPort (2010) Logistic Chain Management: from environmental protection to sustainable business. Available on: http://www.greenport.com/news101/Projects-and-Initiatives/logistic-chain-management-from-environmental-protection-to-sustainable-business#sthash.43EUolUY.dpuf [March 14, 2017].
- Hermann, M. – Pentek, T. – Otto, B. (2016) Design Principles for Industrie 4.0 Scenarios, Hawaii International Conference on System Sciences, 3928 – 3937.
- Jantsch, E. (1967) Technological forecasting in perspective. Paris: OECD.
- Kagermann H, W. – Wahlster, J. – Helbig (2013) "Securing the future of German manufacturing industry: Recommendations for implementing the strategic initiative INDUSTRIE 4.0.", acatech, Final report of the Industrie 4.0 Working Group, Frankfurt
- Nevhagen P. (2014) 5 global logistics trends. Greencarrier. Available on: http://blog.greencarrier.com/5-global-logistics-trends/ [March 14, 2017].
- Obrecht, M. – Denac, M. (2016) Technology forecast of sustainable energy development prospects. *Futures.* 84, 12-22.
- Porter M. E. – van der Linde, C. (1995) Green and Competitive: Ending the Stalemate. Harvard Bus Rev 73 (5) 120–134.
- Roland Berger (2014) INDUSTRY 4.0. The new industrial revolution. How Europe will succeed? downloaded 27.01.2017 https://www.rolandberger.com/publications/publication_pdf/roland_berger_tab_industry_4_0_20140403.pdf
- RSA Solutions. 2015. Industry 4.0. Available on: http://www.industry40wood.com/home.html. [March 17, 2017].
- Schrauf, S. – Berttram, P. (2014) Industry 4.0. How digitization makes the supply chain more efficient, agile, and customer-focused. Available on: http://www.strategyand.pwc.com/media/file/Industry4.0.pdf [March 17, 2017].
- UN HABITAT. Global report on human settlement. 2011 Available on: http://mirror.unhabitat.org/downloads/docs/E_Hot_Cities.pdf [March 13, 2017].

• Winterstein A., Tranholm Schwarz B. 2008. White Paper on the future of Europe: European commission. Available on: http://ec.europa.eu/competition/publications/cpn/2008_2_12.pdf [March 15, 2017].

ESZTER HORVÁTH

The Effect of Regions on Agricultural Enterprises in Szigetköz Hungary

The effect of agglomeration on settlements' agriculture[1]

Eszter Horváth: assistant professor, Széchenyi István University (borses@sze.hu)

Abstract

The analysis demonstrated in this study is the first part of a wide range of investigations. This study includes the history of the farming practice in the region and deals with registered agricultural joint ventures in the region. In my research work I tried to answer the question: How can regional characteristics differentiate farming practice and the number of agricultural enterprises and the profile of their activities. There is a major difference to be detected in the numbers and activities of agricultural enterprises within a certain region. Approaching to Győr, the region's main city and seat of the county, we can observe a decrease in the numbers of agricultural enterprises although the arable land there is excellent. At the same time the number of inhabitants in those rural communities increases together with the proportion of houses in areas that were earlier used for farming and as a result there is a higher rate of population with solvent demands as well. Agricultural services gain on importance in the communities in the agglomeration of Győr constantly.

SZIGETKÖZ: INTRODUCTION

Szigetköz is the area of Kisalföld that is surrounded by the Danube and its branch called Mosoni Duna. Being the largest island of Hungary its area covers 375 km^2, it is 52 km in length and 8-10 km in widths. Szigetköz is a perfect plain, there are only some centimetres high differences in elevations. Side branches, islands and rocks characterize its surface.[2]

Balogh says the landscape of Szigetköz has thousand faces. Szigetköz and its region is Hungary's western "gate" and the borders of three countries meet there. Szigetköz is organically included in the Danube-region, it is the point of junction

[1] The research was supported by the EFOP3.6.1-16-2016-00017 project

[2] Nyugat-Dunántúl 2014-2020. évi Regionális Fejlesztési Stratégia, Nyugat-Pannon Terület- és Gazdaságfejlesztési Szolgáltató Közhasznú Nonprofit Kft. 2013.

of north-west and east-west running infrastructural networks and tourist routs. Besides Szigetköz is home of one of the country's most protected natural sanctuaries (Szigetköz Area of Outstanding Natural Beauty) and one of the most developed regions, exemplary in its renewal but also transforming and modernising.

Alexay (1982) describes the region as follows: this micro-region can be found in the centre of Kisalföld surrounded by the Old-Danube and the Mosoni-Danube. It is the home of the Danube's once uncontrolled branches and forested islands. It is 375 square kilometres, about 65 000 cadastral acres large. Regarding its size, it is Hungary's largest river island.

Danube is a determining factor in the area of Szigetköz. The other rivers, like the Mosoni Duna, the Lajta, the Rábca and Rába depend on the interflow of the Danube and their water volume is only a portion of its. Entering the plain the Danube deposits its sediment, fills its bed, breaks up into branches and gets into lower course. Danube was first controlled between 1886-1894. After the diversion of the Danube in October 1992 the water discharge reduced to 10-20 percent of the original mean on the 42km long section between Dunacsúny and Szap and the water level of the main branch sank by 3-4 metres. In the Szigetköz we distinguish levels of low and high flood area, as well as surfaces with wind-blown sand. Every variation of the soil development can be found in Szigetköz and its regions: alluvial soils, meadow soils and chernozem soils. /Reflex Környezetvédő Egyesület, 2004/

Szigetköz can be divided according to different aspects: administratively two districts cover the area one of Mosonmagyaróvár and the other one is of Győr.

According to the direction of streamflow and local production characteristics we can divide Szigetköz into three micro-regions:

1. Upper-Szigetköz (from Rajka - Cikolasziget – to Halászi) its local production characteristics (more shallow cover layer soils, ground water can be found in the gravel section and usually very deep) are a bit worse than the area's average. There is no area with outstanding yield, but more areas can produce good and medium-good yields (areas with lower locations)
2. Middle-Szigetköz (From Cikolasziget - Halászi to Ásványráró) its characteristics approach the average of the region (Szigetköz) or are a bit better (there are more shallow cover layer soils, and lower areas near the Danube have higher ground water level). There are more areas that produce outstanding yields every year.
3. Lower-Szigetköz (from Ásványráró to Vének) its local production characteristics are better than that of the Szigetköz average (many deep laying areas with higher ground water level). There are many areas with outstanding yields. Traditional vegetable production areas of Szigetköz can still be found there zbó, 2005).

As per regional development Szigetköz can be divided into Upper-Szigetköz and Lower-Szigetköz. Communities of Upper-Szigetköz are Dunakiliti,

Dunasziget, Feketeerdő, Mosonmagyaróvár, Halászi, Kisbodak, Püski, Máriakálnok, Kimle, Dunaremete, Darnózseli, Lipót, Hédervár, Mecsér, and Ásványráró, while Dunaszeg, Győrladamér, Győrzámoly, Győrújfalu, Győr, Vámosszabadi, Nagybajcs, Kisbajcs, Vének belong to Lower-Szigetköz. Because of its location it can be regarded as one of the richest regions in the country. The neighbourhood of Austria has a strengthening effect on one hand, but the demand on labour tends to brain drain on the other hand. The factory complex AUDI seated in Győr and the joining industrial and service basis mainly affects the infrastructure of Győr and its region contributing to the rapid development of population with solvent demand for agricultural products.[3]

RECALLING THE FARMING PAST IN THE REGION

Kovács (1992) – a researcher dealing with the ethnography of Szigetköz– describes the history of animal breading in the region as follows: Animal breeding in Szigetköz has got a thousand- year-long tradition. Not long ago it was the main income of families. Natural housing and semi-natural housing systems were then wide spread. The author's research work in the dialect of the Szigetköz region revealed many elements originating in the traditions of animal breeding and they remained a part of the living memory. Although many phrases got forgotten, some of them are still reflected in the dialectical language thus enriching our culture.

The lower areas of Szigetköz with their meadows and pastures ensured excellent possibilities for shepherding. Animal breeding was based on the natural forage grown in the flood area. Cattle, horse, swine and poultry keeping and breeding was typical in Szigetköz. Native breeds that excellently accommodated to the extensive, natural farming and housing system (grey cattle, Bakony swine etc.) spread in the region. The animals were kept on pasture from early spring to late autumn. If they grazed off the pasture they were driven to another pasture swimming from one island to the other one. Natural locations of Szigetköz were suitable for keeping water fowls, too. /Horváth, 2006/

After the regularization and embankment of the Danube agriculture started to develop and changed the system of animal keeping and the way of life of the people living in the communities of Szigetköz. Animal keeping became more intensive, closed housing spread quickly. As fallow-farming stopped crop-rotation required more and more organic manure, which could have been ensured by closed housing system, only. The new farming system preferred forage growing, which required to break the excessive pastures and start professional ley farming /Timaffy, 1970., 1980/

[3] Nyugat-Dunántúl 2014-2020. évi Regionális Fejlesztési Stratégia, Nyugat-Pannon Terület- és Gazdaságfejlesztési Szolgáltató Közhasznú Nonprofit Kft. 2013.

Changes in the system of animal breeding in Szigetköz in the second half of 20th century were also proved by *Tenk* (1993). His research work revealed that the changes in the numbers of the animal population (continuous decrease) was a country wide incident. Although the size of the decrease was far behind the country's average in Szigetköz it clearly shows the tendency. The author's investigations also prove – regarding the year 1988 as etalon – that milk production reduced by 30 %, pork production by more than 40 % till 1993. He came to the conclusion that the problems of the producers (farmers) were the same as in the whole country but Szigetköz was overloaded by the ecological changes induced by the diversion of the Danube in the years after.

Rechnitzer (1993) came to similar conclusions. He predicted that farming in Szigetköz would become less important, but due to their favourable natural characteristics their performance would exceed the county's average. He thinks that the changes in the natural-environmental characteristics of Szigetköz would not hinder a sudden stop in the 'socio-economic' milieu of the region. Rechnitzer referred to signs of uncertainty that had accumulating effects on other factors and participants and might question the future of the micro-region and could have a bad influence on the lives of the people living there. The author writes: „Szigetköz developed from a typical agricultural raw material producing region into an agricultural-industrial area. Future means to explore local natural endowments more completely and more consciously and regional development can attract capital investments as well. It would be a serious failure to leave this valuable example of the Hungarian modernization to its fate, or be doomed to destruction."

Kocsisné (2004) investigating farming practice in the county of Győr-Moson-Sopron revealed that in the county (like in Szigetköz) investments were mainly made in the industry and tourism. As a result, farming (producing raw materials) was pushed back and lost its importance a bit.

Salamon (1992) investigating the production structures of the Kisalföld region (and of course that of Szigetköz)– and analysing data of the West-Transdanubian region in the period of 1986-1990– came to the conclusion that there was a sever lost in the animal produce of the region. Beef cattle products decreased by 23.2 %, mutton sheep products by 37.8 % and meat poultry products by 0.8 %. Only the volume of meat type swine increased by 6.3 %.

AGRICULTURE IN SZIGETKÖZ TODAY

First of all, I think it is important to describe agriculture in the county of Győr-Moson-Sopron briefly. A plain builds the centre of the county's area with excellent agricultural endowments. The ratio of the farmland equals that of the country's average, but the tilled area is larger. Traditional agricultural branches are typical, like intensive vegetable growing, fruit growing and the decline of the

related food industry.[4] The proportion of the agricultural area amounts 63% (256 Thousand ha), which equals the country's average. Its territory slightly reduced in the past years. Since 2005 the size of the agricultural areas has continuously been reducing mainly because of enlarged urban areas and industrial zones, but at the same time the size of the forests and fish ponds has increased as well. The quality of the arable land in the county greatly varies. Therefore it is necessary to protect good quality arable land effectively. About 17% of the arable land in Győr-Moson-Sopron county belong to the excellent quality tilled land area. The surroundings of Mosonmagyaróvár and Győr can be highlighted among them. In the county we can observe further decline of the agricultural sector that lost 0.5% points from its role during 10 years. In 2009 it achieved only 3.6%, which is about the average of the EU27. Among the structural characteristics of the sector we should stress that despite of the structural changes corporate enterprises remained the units that employed the highest number of employees. Among the enterprises private ones prevailed numerically, mainly because earlier employees after having lost their jobs – due to their knowledge, profession and close connections to the countryside – found a living in the frame of private business.[5]

The literature of the agriculture of Szigetköz is quite spares. *Timaffy László* dealt with the agriculture of the area more detailed but regional reports and development concepts mentioned it only peripherally.

Similar to the county there is a high proportion of the used agricultural area out of the total area showing the dominance of the farming participants. Except for Dunakiliti, Vének, Dunasziget and Mosonmagyaróvár this proportion approaches or respectively exceeds 80%. As for Dunakiliti this proportion is greatly influenced by the 1200 hectares that were taken from tillage because of the built river barrage. About fifth of the arable land of the county can be found in the micro-region of Mosonmagyaróvár supporting the importance of farming. The largest part of the arable land is tilled area and forest. The highest proportion of tilled land of the micro-region can be found in Jánossomorja.

The proportion of tilled land is the lowest in the villages Dunaremete and Vének. Among the cultivated crops grapes and fruits have the smallest territory, hardly 1%. In the crop growing system the proportion of the main cultures (wheat, maize, sunflower) within the tilled land exceeds 50 %. The proportion of other crops varies greatly: like peas, silage maize, alfa-alfa or vegetable varieties. Their role accommodates to market changes and forage varieties decline according to the decrease of the number of animals kept in the micro-region. Reducing tendency in the numbers of animals in the country and in the counties also characterize this micro-region. One-fourth of the numbers of cows and

[4] Kistérségi programozási tevékenység a Mosonmagyaróvári KSK kistérségben (2005). HHP Contact Tanácsadó Kft. 65. p.
[5] Győr-Moson-Sopron megye Területfejlesztési Koncepciója (2013). Universitas-Győr Nonprofit Kft. 30. p.

one-fifth of the swine-number in the county can be found in this micro-region. The high proportion of animals demonstrate that the micro-region has a main role in producing animal products in the county (milk, pork, chicken and eggs).[6]

Based on former research I could show that agriculture in Szigetköz is formed by the following main regional factors:

- the value of the landscape in Szigetköz;
- ecological damage that hit the region;
- excessive proportion of industrial investments caused unfavourable conditions for agricultural production: the reduced volume of raw material production in agriculture;
- declining role of agricultural activities in the society;
- Social-economic deviations in Szigetköz influencing agricultural production (Lower-Middle- and Upper-Szigetköz). (Horváth, 2007)

Nation-wide incidents, like raw material shortage, concentration of production, disintegration of animal product sector, inevitable accommodation to market conditions, marketing uncertainty due to multiple actors in the market, food quality and security requirements as well as a weak protection of producers' interests and the fact that the region lost the large animal keeping estates and private farms and as a result a wide range of animal products got lost that were typical for the region.

Based on my investigations I can characterise agricultural production in the region as follows:

- reduction in the numbers of the animal stock and farms
- outdated machinery and technology
- reduction in the numbers of animal products
- shortcomings of the vertical product line
- under-utilization of the possibilities of grassland farming offered by the nature in Szigetköz
- lack of motivation for production (Horváth, 2008)

Based on the evaluation of a questionnaire the Municipal Development Plan of Győrzámoly refers to agricultural activities in the community as follows:

- Strengths: good quality soils support wide ranges of agricultural and horticultural utilization
- Weaknesses: high proportion of homogenous arable fields, low level of business activity within the community
- Opportunities: due to higher demands on residential areas municipality-owned territories were offered for this purpose.
- Threats: agricultural sector is declining, as a result the communities lose

[6] Kistérségi programozási tevékenység a Mosonmagyaróvári KSK kistérségben (2005). HHP Contact Tanácsadó Kft. 65. p.

> relations to the close environment of their village. Villages' standardisation is going on. They lose their provincial character therefor they will be less attractive destinations for eco-tourists. The region becomes a route for transit traffic with its bad impacts e.g. higher environment pollution. Further on the Plan of Győrzámoly regards the lack of larger industrial enterprises in the village as one of the most serious problems, because they could create jobs. Therefore people have to look for jobs, mainly in Győr, and the village becomes a 'sleeping one'.[7]

Similar statements can be found in the Development Plan of Dunaszentpál: A great proportion of homogenous tilled fields characterize the region, but the rate of forests and grassland is low in the land use. The proportion of garden and orchard sector is minimal. It is inevitable to change the structure of land use, to reduce the proportion of tilled area, to practice ley farming, afforestation, to increase the proportion of gardens and orchards as well as to introduce and develop organic-farming.[8]

Dealing with the agriculture in the region it is important to keep in mind that 20% of Szigetköz is protected or specially protected area and priority natural wetland habitat. The vegetation (reed-grass, reeds) of waters and mort-lakes support a rich diversity of wetland birds and fish species, as 80% of the domestic fish species can be found there. Flood-plains support communities of river flats, shallows, groves and marsh-meadows, where we can find valuable species. Besides natural beauties the cultural landscape's rural character is very valuable.[9]

SETTLEMENTS IN SZIGETKÖZ

15 out of the investigated settlements belong to the Mosonmagyaróvár district and 10 to the Győr district. Below you will find a brief summary of the main factors that characterise the two districts and the agglomeration of Győr.

Since 2013 in Hungary, the Mosonmagyaróvár district has belonged to the county of Győr-Moson-Sopron with its seat in Mosonmagyaróvár. The district is 899.97 km² large with a population of 73135, and population density of 81 capita/km² according to the present data. Three towns (Mosonmagyaróvár, Jánossomorja and Lébény) and 23 villages belong to it.

[7] Győrzámoly településfejlesztési koncepció (2015): Talet-Plan Tervező, Szolgáltató és Kereskedelmi Kft. 82-83. pp

[8] Dunaszentpál településfejlesztési koncepció (2014). Talet-Plan Tervező, Szolgáltató és Kereskedelmi Kft. 65 p.

[9] Győr-Moson-Sopron megye Területfejlesztési Koncepciója (2013) Universitas-Győr Nonprofit Kft.14.;15. p.

The area of Mosonmagyaróvár is the country's gate and at the same time an important economic sub-centre, too. Dynamic development of Pozsony enhanced the agglomeration process that stretched till Mosonmagyaróvár, and got much farther and reached the agglomeration of Győr.

Since 2013 in Hungary the Győr district has belonged to the county of Győr-Moson-Sopron with its seat in Győr. The district is 903.41 km² large with a population of 188162 and population density of 208 capita/km² according to the present data. One city (Győr) and 34 villages belong to it.[10][11]

Most important indices show that the region's economy cannot be regarded as homogenous. This is reflected by comparing the two districts as well. Considerable differences can be observed among the smaller regional units that refer to a north-southern slope of development – clearly reflecting the national, what's more the international tendencies. Basically Győr-Moson-Sopron is an economically developed and dynamically growing county, although we cannot regard it as a unite economic region because the diverse development and dynamics as well as traditional and new systems of economic relations limit the economic dimensions.[12]

The concept calls attention to the fact that it is desirable to protect landscape values in Szigetköz, and the area of Hanság-Tóköz in the process of a rapid agglomeration, while in several smaller centres (Mosonszolnok, Jánossomorja and Lébény) a vivid reindustrialization is going on, which is organically connected to the vehicle manufacturing functions in Győr and other European centres.[13]

Every of the studied settlements in Lower Szigetköz belongs to the agglomeration of Győr. Therefore I decided to learn the most important economic indices and characteristics of the agglomeration. Agglomeration of Győr is the second largest one in the country – it includes 68 settlements. Compared to the eligibility of 2003 agglomeration attraction could have been proved for 40 settlements except for Hédervár.

Settlements belonging to the agglomeration of Győr: Abda, Árpás, Ásványráró, Bágyogszovát, Bakonypéterd, Barbacs, Bezi, Börcs, Bőny, Dunaszeg, Dunaszentpál, Écs,Enese, Fehértó, Felpéc, Gönyű, Gyarmat, Gyömöre, Győr, Győrasszonyfa, Győrladamér, Győrság, Győrsövényház,Győrszemere, Győrújbarát, Győrújfalu, Győrzámoly, Ikrény, Kajárpéc,Kisbabot, Kisbajcs, Kóny, Koroncó, Kunsziget, Lázi, Lébény, Mecsér, Mérges, Mezőörs, Mórichida, Mosonszentmiklós, Nagybajcs, Nagyszentjános, Nyalka, Nyúl, Öttevény, Pannonhalma, Pázmándfalu, Pér, Rábacsécsény, Rábapatona, Rábaszentmihály, Rábaszentmiklós, Ravazd, Réta-

[10] Magyarország településhálózata. Agglomerációk településegyüttesek (2014) KSH Kiadvány. 40-49 pp
[11] http://www.jaras.info.hu/jarasok-tarsadalma
[12] Győr-Moson-Sopron megye Területfejlesztési Koncepciója (2013) Universitas-Győr Nonprofit Kft. 29.p.
[13] Győr-Moson-Sopron megye Területfejlesztési Koncepciója (2013) Universitas-Győr Nonprofit Kft.

lap, Románd, Sikátor, Sokorópátka, Szerecseny, Táp, Tápszentmiklós, Tarjánpuszta, Tényő, Tét, Töltéstava, Vámosszabadi, Vének, and Veszprémvarsány. The seat of the county maintains closer links to the southern and eastern parts. Its settlements are located in the east side of the county in one block. Population density exceeds that of the agglomeration in six villages – Abda, Nyúl, Győrladamér, Győrság, Győrújbarát and Győrújfalu .[14]

Deconcentration of the population can be observed within the region. It resembles a typical suburban process as the concentration of the population in the centre city stagnates while it is increasing in the neighbouring settlements. This is a natural urbanisation process and refers to the fact that towns and their regions develop together organically.

The region is the target area of nation-wide concentration process, i.e. while the population density in Hungary decreases (due to the decline in population), it increases in the investigated region, especially in its inner zone, close to Győr. Besides Budapest-agglomeration, Győr and its area is an important domestic migration target (hardi, 2014).

In settlements of the agglomerations agricultural areas get more rapidly into other use (greenfield investments, building estates, cable-infrastructural systems, big shopping centres etc.) (Tóth, 2014).

Investigating the agriculture in the settlements we should regard their role in rural development from a special point of view, because the countryside is much more than the place of food and raw material production → it becomes the site of new features and dimensions (e.g. recreation, biological diversity, residential function, environment protection etc.). *All these are competitive advantages against the non-rural areas. It has already been detected and people will feel the lack of nature and this will create a real market to satisfy them:*

- new methods of a spatial use can be detected (e.g. tourism, recreation, preservation of the environment etc.),
- services, industry and technology is spreading rapidly,
- while rural areas are more and more differentiating.[15]

METHOD OF INVESTIGATION

The investigation covered 25 villages of Szigetköz, the towns (Győr and Mosonmagyaróvár) were not included into the sample.

I summarized the number of joint ventures in the settlements of Szigetköz from the data base of http://hbi.hu. On the basis of the TEÁOR numbers and e-reports I selected the enterprises that carried out agricultural activities. Beside

[14] Magyarország településhálózata. Agglomerációk településegyüttesek (2014) KSH
[15] http://ec.europa.eu/agriculture/rural-development

the sectoral descriptions and activities including agriculture, forestry, fishing I involved enterprises that dealt with agriculture and food production, so processing industry and businesses dealing with professional, scientific and technical activities were also included. For simplicity further on all the investigated ones will be recorded as agricultural enterprises.

To evaluate the numbers of population, built houses and flats, arable areas and set aside areas I used the data of KSH (Central Statistic Authority) referring to the county and settlements.

In my research I used statistical methods that describe stochastic relations. My aim was to show the influence of a given factor.

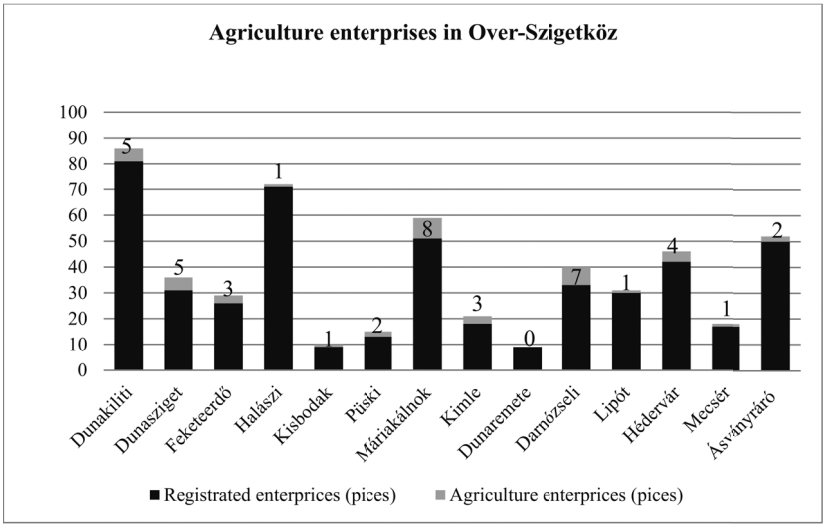
Applied methods:

- t test with two samples to compare the average and deviation of two samples
- calculation of the H and H2 index for mixed relations
- independence analysis, Khi2 test assuming a relation among the quality features
- regression analysis and correction analysis assuming a relation among quantity features
- basic and chain coefficients in analysing time-series

RESULTS OF INVESTIGATION

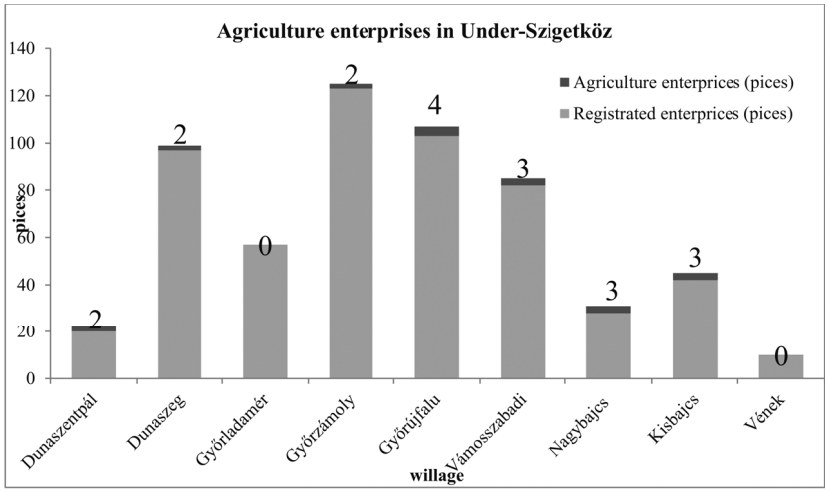
The differentiation in population, economy and development featuring Győr-Moson-Sopron county could be traced in the well definable region of Szigetköz. The study aimed to learn the numbers and activities of the agricultural joint ventures in Szigetköz. The decline of agriculture, the reduction of the proportion of tilled land, the increasing size of set aside areas and other (mainly building) land use could be followed by overviewing the agricultural data of the county. Evaluating the numbers of population and built homes we concluded that there was an intense increase in the population together with a vivid drive to building homes in the communities of Szigetköz. Analysing those factors in the Szigetköz communities of the Mosonmagyaróvár district we revealed that except for two villages (Halászi and Máriakálnok) a slow increase (in some communities rather stagnation) was typical.

Figure 1: Agriculture enterprises in Over-Szigetköz



Source: own searching

Figure 2: Agriculture enterprises in Under-Szigetköz



Source: own searching

The decline in the agricultural activity could have been induced by the increasing number of set aside areas. To prove this I compared the numbers and deviation of the agricultural businesses in Lower and Upper Szigetköz communities. There

are apparently less agricultural businesses in Lower Szigetköz (Figure 1. and Figure 2.) and the considerable difference in the numbers of enterprises and their deviation from the average between the two districts can be proved. Furthermore, we could also confirm that the areal unit might influence the numbers of the agricultural enterprises.

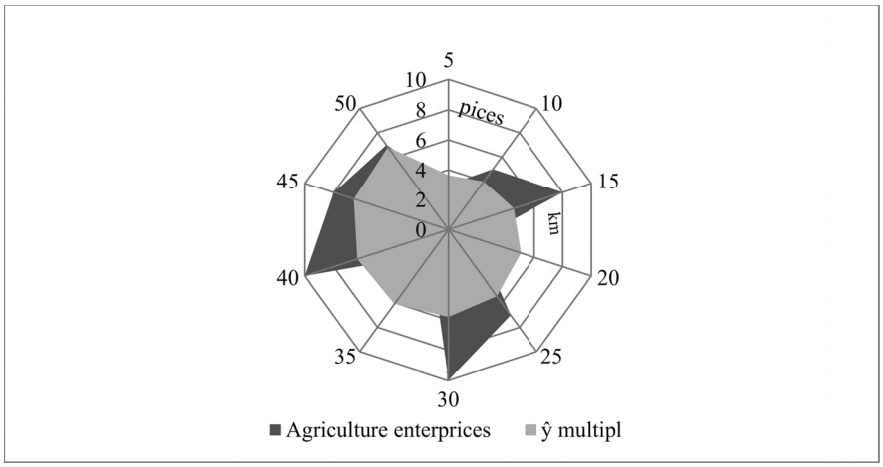
Table 1: Number and deviation examination of agricultural enterprises in Szigetköz

	Number of agricultural enterprises	Average	Deviation
Under-Szigetköz (n1)	18	2	1,1545
Over-Szigetköz (n2)	44	3,14	2,5314

Source: own searching

It could also be justified the fact that the number of agricultural enterprises in agglomeration of Győr decreased. (Figure 3.) Their activities are limited to crop growing (of course based on the given natural endowments), forest management, fresh water fish farming and related services, as well as horse keeping and breeding and related services.

Figure 3: The relationship between the location of the agrarian enterprises and the distance of these enterprises from Győr.



Source: own searching

Agricultural traditions and the culture of animal breeding are more visible in the settlements of the Mosonmagyaróvár district, we can see the farm animals (like poultry, cattle and pigs) and the remains of the former co-operations are still operating (in the forms of private limited liability company, ltd and co-operation).

Investigations outline a new type of tendency, which indicates that prosperity and agricultural activities serving weekend leisure (horse riding and fishing) start to spread in the villages of the agglomeration.

REFERENCES

- Alexay Zoltán. (1982) Szigetköz. Budapest, Gondolat Kiadó, 1982.
- Balogh Ákos – Csemez Attila. – Rechnitzer János. (1999) KÉE Tájtervezési és Területfejlesztési Tanszék, MTA RKK Észak-dunántúli Osztálya, Budapest-Győr, 1999.
- Dunaszeg településfejlesztési koncepció (2014) Talet-Plan Tervező, Szolgáltató és Kereskedelmi Kft.
- Dunaszentpál településfejlesztési koncepció (2014) Talet-Plan Tervező, Szolgáltató és Kereskedelmi Kft.
- Győr-Moson-Sopron megye Területfejlesztési Koncepciója (2013) Universitas-Győr Nonprofit Kft.
- Győrzámoly településfejlesztési koncepció (2015) Talet-Plan Tervező, Szolgáltató és Kereskedelmi Kft.
- Hardi Tamás (2014) Az ingázás térbeli jellegzetességeinek változása az Észak-Dunántúlon, különös tekintettel Győr munkaügyi vonzáskörzetére. A gazdaságszerkezet és vonzáskörzet alakulása. A győri járműipari körzet, mint a térségi fejlesztés újiránya és eszköze c. kutatás monográfiái 5. Universitas-Győr Nonprofit Kft.
- Horváth Eszter (2007) Animal Produce emission in the Mid-Szigetköz villages (1990-2006), Acta Agronomica Óvariensis, Mosonmagyaróvár, 2007. Volume 49. Number 1., 77-89. p Horváth Eszter (2008) Az állatitermék-előállítás helyzete és fejlesztésének lehetőségei a Közép-szigetközi térségben. Doktori értekezés. Mosonmagyaróvár
- Horváth Eszter. (2006) The review of animal product producers in the Central-Szigetköz area and its regional developing possibilities in the EU, Within the European Union III. Nemzetközi Konferencia, Mosonmagyaróvár, 2006. április 6-7.
- Kistérségi programozási tevékenység a Mosonmagyaróvári KSK kistérségben (2005). HHP Contact Tanácsadó Kft.
- Kovács Antal (1992): „Szíp kutya, randa eb – A Felső-Szigetköz állattartásának szókincse. Mosonmagyaróvári Helytörténeti Füzetek 8. Agrárkert RT. Nyomda, Győr, 1992.
- Kocsisné Andrásik Ágota (2004): Az állattenyésztési kisvállalkozások finanszírozása Győr-Moson-Sopron megyében. Doktori Értekezés, Mosonmagyaróvár, 2005.
- Magyarország településhálózata. Agglomerációk településegyüttesek.(2014) KSH Kiadvány Nemzeti Fejlesztés 2030 – Országos Fejlesztési és Területfejlesztési Koncepció
- Nyugat-Dunántúl 2014-2020. évi Regionális Fejlesztési Stratégia, Készítette: Nyugat Pannon Terület- és Gazdaságfejlesztési Szolgáltató Közhasznú Nonprofit Kft. 2013.
- Tóth Géza (2014) Az agglomerációk, településegyüttesek lehatárolásának eredményei. Területi Statisztika, 54, 3, 289-298

• Rechnitzer János. (1993) A környezeti válság és a vállalkozás a Szigetközben. XXV. Óvári Tudományos Napok (Mosonmagyaróvár, 1993. november 10-11.) Az állati termékek termelésének és feldolgozásának biológiai, technológiai, ökonómiai kérdései Tanulmánykötet
• Reflex Környezetvédő Egyesület (2004) A Szigetközi Tájvédelmi Körzet Kezelési Terve, CD formában megjelent, Győr, 2004.
• Salamon L. (1992) A kisalföldi régió termelési struktúrájának jelenlegi és várható alakulása, XXXIV. Georgikon Napok, Keszthely, Regionális politikák és fejlesztési stratégiák az Alpok-Adria térségben
• Szabó Mária (2005) Vizes élőhelyek tájökológiai jellemvonásai a Szigetköz példáján. Akadémiai doktori értekezés. Budapest.
• Tenk Antal (1993) Az ökológiai viszonyok változásának hatása egy mikrotérség (Szigetköz) állattenyésztésének alakulására. XXV. Óvári Tudományos Napok (Mosonmagyaróvár, 1993. november 10-11.) Az állati termékek termelésének és feldolgozásának biológiai, technológiai, ökonómiai kérdései Tanulmánykötet
• Timaffy László (1970) Szigetközi krónika. Győr – Sopron megyei Tanács Mosonmagyaróvári Járási Hivatala, Győr
• Timaffy László (1980) Szigetköz, 1980. Gondolat kiadó Budapest

INTERNET RESOURCES:

• http://www.proudgreenhome.com/articles/mixing-homes-and-agriculture-in-suburbia/2 downloaded: 2016.05.21.
• http://hbi.hu downloaded: 2016.05.01.
• http://www.gymskik.hu/hu/- downloading the database: 2016.06.02.
• http://e-beszamolo.im.gov.hu downloaded: 2016.05.10.
• http://ec.europa.eu/agriculture/rural-development-2014-2020/index_en.htm downloaded: 2016.06.12.
• http://www.jaras.info.hu/jarasok-tarsadalma downloaded: 2016.05.05.

ERZSÉBET PRINTZ-MARKÓ, ZSUZSANNA IVANCSÓNÉ HORVÁTH, FERENC DARABOS

Wellness Patchwork - A Wellness Phenomenon of Our Age

Erzsébet Printz-Markó: Széchenyi István University, Kautz Gyula Economics Faculty, Departmant of Tourism (printz-marko.erzsebet@sze.hu)

Ferenc Darabos PhD: Széchenyi István University, Kautz Gyula Economics Faculty, Departmant of Tourism (darabos.ferenc@sze.hu)

Zsuzsanna Ivancsóné Horváth PhD: Széchenyi István University, Kautz Gyula Economics Faculty, Departmant of Tourism (ivancso.zsuzsa@sze.hu)

Abstract

In our research we reviewed the spectrum of the health tourism, the models of the wellness tourism. Our questionnaire survey proceeds along Ardell's model, which we conducted at multiple-generation Hungarian spas. With the help of it we discovered the wellness tourism habits of the Hungarian population. Our research had 547 participants. According to our supposition the wellness cannot be done effectively if our leisure time and everyday philosophy of life conflicts. Is the wellness wellness in the people's minds as well or is it just a new fad that we 'go wellness', empty words, behind which the content vanishes? Our survey verified our earlier research results: currently, the wellness tourism for the majority of the tourists is still none other than relaxation spiced up with fun elements. A change of paradigm would be needed for us to be able to efficiently participate in health care programs, really serving our health, thus shaping our lives. This change of aspect applies both to the supply and the demand sides.

Keywords: Ardell's five-factor wellness model, wellness philosophy, wellness patchwork

1. INTRODUCTION

The theoretical part of the present study models the health tourism and within it, focuses on one of its constituents, the wellness tourism. In this respect, besides the general characteristics of the target groups using wellness tourism and wellness services, it shows the relation of the 547 persons participating in our spa guest questionnaire to wellness.

The objective of our research is to investigate the significance of the 'real wellness' (E-AWR, 2013), that is, the life philosophy of the wellness among Hungary's inland tourists. According to our assumption it is rather only certain elements of the wellness philosophy that are present. Foreign and home researchers both worked on the issue. (Chen – Prebensen – Huan, 2008) We labelled this phenomenon as 'wellness patchwork'. This is greatly influenced by the current trends of fashion and an internal human dilemma that can be described as the fact that one participates in wellness because others also do and if they did not, they would be left out, lag behind or be forgotten. All this decreases the binding to the community, the belonging to somewhere. For certain people, wellness is a 'prestigious experience', the feeling of belonging to a higher ranking society group.

These mean the feeling of belonging somewhere and the self-fulfilment levels of Maslow's (Maslow, 1943) hierarchy of needs. This fits perfectly to the two step grades of wellness which were described by the futurology institute of Berlin and was briefly summarized by Árpási (2014), that the first grade means the consumer wellness and the second one means the connection with the environment.

In our research we conducted the questionnaire survey and evaluation along the constituents of 'real wellness' to prove or disprove our assumption.

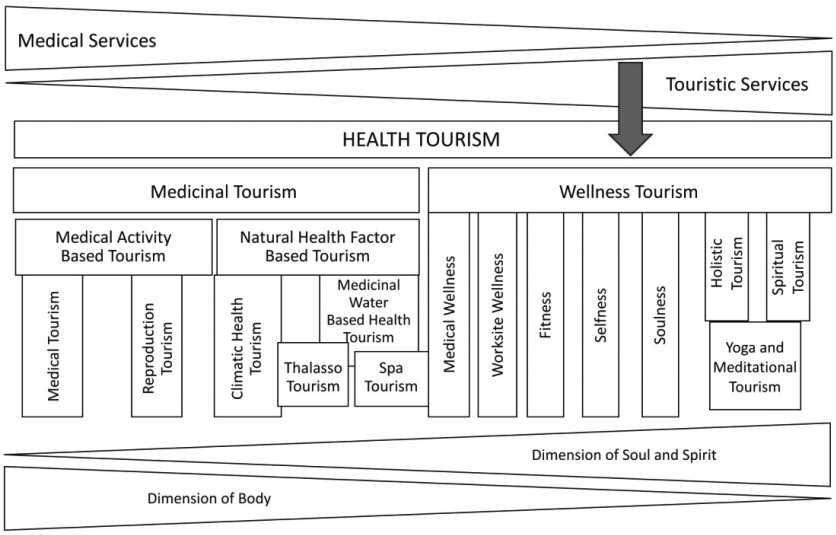
2. CONCEPTUAL BACKGROUND

The conceptual approaches relating to health tourism are both diverse and complex at the same time. Besides the fact that the terminology shows the national characteristics of the individual researchers and certain terms are used as synonyms, the foreign and home professionals suggest more and more markedly the usage ratio of the health and touristic services during the creation of definitions (Bywater, 1990, Kincses et al., 2009).

Essentially, the medicinal tourism and the wellness tourism provide the base for the health tourism. (Müller – Kaufmann, 2000, Rátz, 2004, Ruszinkó, 2006, Smith. – Puczkó, 2010, Michalkó, 2012)

Synthesizing the above for the more effective positioning of the health tourism, the spectrum of the health tourism is modelled by Printz-Markó according to the following.

Fig. 1.: The spectrum of health tourism based on the usage ratio of medical and tourism services and the unity of body-soul-spirit in Printz-Markó's approach



Source: Own edition based on Printz-Markó's own research

Fig. 1 proportionally displays the usage of the health and touristic services, and the dimension of body-soul-spirit in case of certain types of health tourism. The forms of tourism being the constituents of health tourism appear according to their articulation. The sizes of the constituents mean a solution for model construction. Therefore their sizes do not indicate their demand or supply weight.

The novelty of the Printz-Markó model (Fig.1) is that the dimension of body-soul-spirit appears proportioned in the theoretical system of health tourism. Dunn was one of the first writers to state that the individual has to be handled as consisting of body, soul and spirit whose harmony is important. Among various wellness researchers, aside Dunn (1961), Hettler (1980), Opaschowski (1987), Greenberg – Dintiman (1997), Illing (1999), the Global Spa Summit (2010) and from Hungarian side Kiss and Török (2001) also display in their interpretation of wellness the unity and balance of body-soul-spirit. Devereux – Carnegie (2006), Pernecky – Johnston (2006), Steiner – Reisinger (2006) connect the essence of wellness to spirituality, and relate several of its esoteric aspects to the New-Age movement, as does Miller (1994), Heelas (1996), Green – Aldred (2002).

The trends also justify the incorporation of this unity into the model. From among the trends, for example, Manlga (Kenney, 2015) highlights that the offer of spa destinations focuses more and more apparently on the balance of body-soul-spirit. Michalkó (2012) sees that the establishment of wellness hotels roots in the fact that they, concentrated in time and space, contribute to the achievement of the optimum of body, soul and spirit.

Back to Dunn, it is worth mentioning that he is the author of the word wellness and its definition. (Nahrstedt, 2002). The word wellness came into being with the fusion of the words 'well being' (that is 'to be well (healthy), feel good') and the 'wholeness' (completeness). Furthermore, Dunn conceived the 'high-level-wellness'-concept which means the high-level practice of the healthy life. According to his opinion wellness is the conscious preservation of health, a balanced and active lifestyle (Darabos, 2007).

Related to this and the present topic of research – as indicated by the red arrow in Fig. 1 – the following part of the study focuses on one of the two constituents of the health tourism, the wellness tourism.

Among the wellness interpretations, beyond the Dunn's (1961) wellness model, the Travis (1972 in Travis-Ryan, 2004), the Ardell (1977), the Hettler (1980), the Haug (1991), the Müller and Lanz Kaufmann (2000), the Horx (2000), the Nahrstedt (2004) and the Lee's (2004) wellness models are definitive.

The establishment of the world's first wellness center, the Mill Valley Wellness Relaxation Center in the early 1970s (Berg, 2008) and the development of the illness-health continuum model in 1972, and in 2004 the development of 12 elements of the wellness wheel is related to Travis. Travis puts the emphasis on the individual's responsibility and developed a 8 months programme to assist in the acquisition of the wellness philosophy (Árpási, 2014).

Ardell, the 'wellness guru' is related to the wellness newsletter launched in 1984, the Ardell Wellness Report, the establishment of the www.seekwellness.com website and the foundation of a wellness center. In his first model of 1977 the individual responsibility was in the centre, then the norms and rules of society were emphasized. Hettler, in 1975, established the American National Wellness Institute, of which he became the president. He is related to the Testwell wellness self-assessment questionnaire which he developed under the health preservation program launched for university students in 1979. It defined the 6 dimensions of wellness.

The first European wellness model is related to Haug's name. Müller and Lanz Kaufmann complement Ardell's model with the concept of mental wellness. The novelty of Nahrstedt's wellness model is the insertion of the health interpretation of the Oriental cultures and their related methods and the emphasis of the social connections and the environmental sensitivity.

Basically each of the models above builds on the individual responsibility.

Lee (2004) constructs the European health and wellness model on the four primal elements such way that they are connected to the therapy procedures and services. In his system the balance among the individual elements is created by the Kneipp-cure.

Illing's concept and definition which is similar to Ardell's is oriented towards completeness and sets up a wellness model based on five pillars, but he defines wellness under the point of view of health tourism. According to Illing (2002) 'wellness is the entire effort made to achieve body–soul–spiritual well-being through

vitalising and relaxing means or programmes used in special health centres'. Illing defines 3 grades of the wellness:

1st Grade Wellness: Joy without the considering the consequences on the body and soul.

2nd Grade Wellness: The state of well being is tried to be achieved actively (training, consciousness), while considering the consequences.

3rd Grade Wellness: Sustained change in the behaviour with the objective of permanent achievement of the sustained well being for the body and soul (Laczkó, 2009).

Wellness tourism means to be temporarily away from your permanent residence and during that time your goal as a tourist is to achieve an optimal state of health and a balanced condition related to body, soul and spirit. The wellness services offer complex health care and prevention programme and provide possibility to acquire health-related knowledge in an attractive environment in a fun way. The active (sport, fitness) and the passive (beauty farms) wellness form part of wellness tourism. The wellness profile means the providers' specialization within the branch. The specialized service means that beside wellness an other function is linked. This makes the provider exceptional. Therefore its service is a Unique Selling Product on the market of touristic supply. Such things are for example the Turkish and Roman baths and the connection of the conference and the wellness (Aquaprofit, 2007). All this is stemming from that the tourists' expectations tend to be more and more complex. The needs of the tourists, the internal drives give the motivation of the tourists. This means the meeting point of Maslow's needs (1. physiological needs, 2. safety need, 3. love and belonging, 4. esteem, success, 5. self realization), and their levels expanded by Mill – Morrison (1992) (6. knowing and understanding - learning, 7. aesthetics – recognition of beauty), and the travel intentions (Table 1.).

Table 1. Maslow's (1943), and Mill – Morrison's (1992) Needs and the Related Travel Motivations

Level of Need	Need	Travel Motivation
1.	Physiology	Physical-intellectual relaxation, draining the pressure
2.	Safety	Calmness, prevention, regeneration, health
3.	Belonging	Maintaining cousinly and social relationships
4.	Esteem	Respect, personal development, prestige, achieving status
5.	Self-actualization	Self-discovery, sense of adventure, self-knowledge
6.	Knowing and understanding	Interests, studying, learning
7.	Aesthetics	Environmental beauty, sense of beauty

Source: Own edition based on Mill – Morrison (1992), Lengyel (2004)

According to Tasnádi (2002) it is the needs of relaxation, regeneration travel and social life that are most related to tourism. Kozma (2006) thinks that tourism may satisfy the lower levels of the hierarchy of needs.

Based on the needs, different travel motivations appear for spending the leisure time which generate different types of tourists. Deriving from the nature of our research topic, the leisure and life-purpose groups by F. Romeiss-Stracke (1989) can be linked here. Pursuant to this the lifestyle groups differentiate the four tourist types below in the connection system of the demands of tourists' leisure time and those of the touristic market:

Table 2. Tourist Types According to F. Rosmeiss – Stracke

Tourist Types		Characteristics
A	Active pursuer of experience	A demanding consumer in whose life-style travelling, well-being of the body, the active sport and enjoyment are determinant.
B	Trend-sensitive	Demanding consumer with a single-minded and environmentally conscious mind.
C	Tourists travelling with family	Price sensitive customer seeking the opportunities for group experiences in his leisure time with his family members, relatives, friends.
D	Relaxing	Less single-minded consumer preferring passive relaxation and having a relatively advanced environmental consciousness.

Source: Own edition based on Kaspar – Fekete (2006)

The consumers can be segmented according to several aspects but the most important is that for the groups which will form during segmentation, well separable service packages should be able to be developed even in the case of the same spa facilities, wellness providers, accommodation.

3. RESEARCH METHODOLOGY

The questionnaire survey was conducted between May, 2014 and November, 2015. The questioning was done partly with paper questionnaires at multiple-generation spas, Hajdúszoboszló, Lipót, Kehidakustány, Bükfürdő and the Annagora Aquapark in Balatonfüred, partly with sharing on the termálonline website. Our questionnaire sheet contained 22 questions and was filled in by 547 persons. Unfortunately, the willingness to answer was quite low, overall the younger people and within it women were more willing to assist.

The items of the questionnaire were based on Ardell's five dimensional wellness model and Lee's European medical and wellness model. In the research, two and multiple output closed and five-stage Likert-scale questions were used to examine the respondents' participation in wellness tourism, motivation, services

used, their approach to nutritional awareness, environmental sensitivity, stress management, physical fitness and self-responsibility.

The questionnaire was analysed with the SPSS program. The data were analysed with frequency and cross-table analysis, chi-square test was applied where the level of significance was set at 95%.

4. CHARACTERISTICS OF RESEARCH SAMPLE

The proportion of the women among the respondents was 70%. The age of respondents were asked for with open question then transcoded based on the categories of the study of Budai – Székács (2001), (Table 3). Budai and Székács (2001) were the first to define the market segmentation of Hungary's health tourism. According to the character of the services and the age of users 8 target groups were defined as indicated in Table 3. (1. Active Youth, 2. Youth Seeking Entertainment, 3. Health Conscious Youth, 4. Middle-aged With Family, 5. Health Preserving Middle-aged, 6. Health Conscious Elder, 7. To Be Rehabilitated Post-Operation, 8. Elder Seeking Recovery.) Árpási (2014) supplemented further 2 target groups to the segmentation (Table 3: 9. Young Couples with Small Children, 10. Grandparents with Grandchildren).

Table 3: Hungarian Target Groups of Health Tourism

Age	Service			
	Fitness	Adventure Bath	Wellness	Spa
18-35 yrs	1. Active Youth	2. Youth Seeking Entertainment 9. Young Couples with Small Children	3. Health Conscious Youth	7. To Be Rehabilitated Post-Operation
35-55 yrs		4. Middle-aged With Family	5. Health Preserving Middle-aged	
from 55 yrs and on		10. Grandparents with Grandchildren	6. Health Conscious Elder	8. Seeking Recovery

Source: Own edition based on: Budai – Székács (2001), Aubert – Csapó (2004), Árpási (2014)

Our present study focuses primarily on the wellness tourism thus the characteristics of the target groups using the wellness services from Table 3 are briefly detailed.

The target groups using wellness services, according to Budai and Székács (2001) consist of the health conscious youth between the age of 18 and 35, the health preserving middle-aged between the age of 35 and 55 and the health conscious elder above the age of 55. For the health conscious youth the health

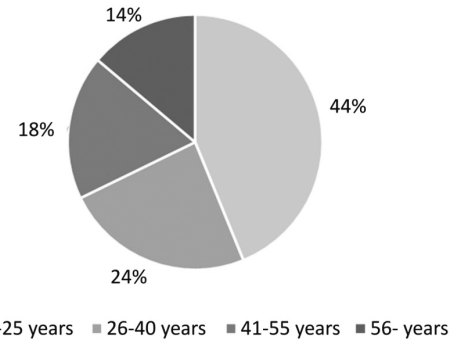
preserving active leisure is of primary importance. They usually lay more importance on the beauty care than on exercising. This segment usually has no children. Despite that the health preserving middle-aged already have a family, they usually arrive at the given destination without children. They prefer the quiet, calm environment, the beautiful landscape and their main motive is the regeneration, relaxation.

The health conscious elder consider the rich relaxation, high-standard services, the pleasant environment important. Their health condition is good. They feel youthful (Budai – Székács, 2001).

In our research we investigated whether these groups are identifiable after more than a decade.

Since the booking rate of wellness holidays is increasing in proportion among the age of twenties (Árpási, 2014) and our investigations highlighted the need for further refinements, we formed 4 age groups: age of 18-25, age of 26-40, age of 41-55 and age of 56 and on. Their distribution is shown in Fig. 2. The analyses were done according to this new categorization.

Fig. 2.: Age Distribution of Respondents



Source: Own research

86 % of the respondents, according to their own judgment, can make a decent living out of their income, 46% of them can even save which is an important factor since among the participants of wellness tourism the proportion of ones with a higher income is typical.

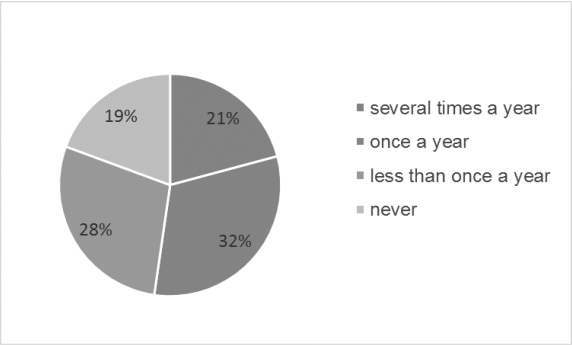
5. KEY RESULTS OF THE RESEARCH

5.1. FREQUENCY OF PARTICIPATION IN WELLNESS

At first we investigated the frequency of participating in wellness tourism. It is especially interesting in the light of the fact that one of the megatrends of our present age according to Jakopánecz and Törőcsik (2015), based on international

researches is the 'health', the 'health boom' and the 'expansion of health market' which incorporate the health conscious behaviour of the individuals. Our research has shown that hardly more than one-fifth of the respondents stay more than once a year in a wellness hotel. 32% of them does so once a year, 47% less than once a year or never did participate in the wellness tourism.

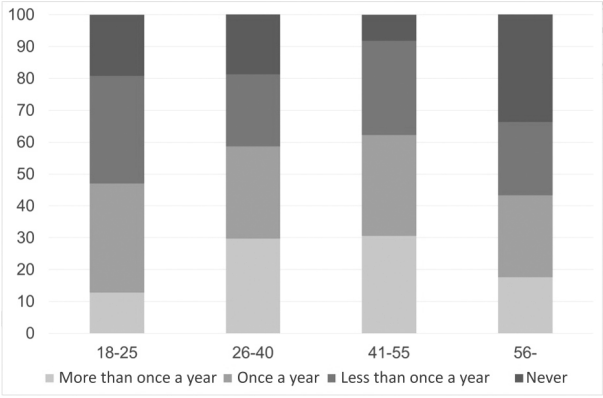
Fig. 3. Frequency of Staying in a Wellness Hotel



Source: Own research

Based on cross-table analysis, we found significant correlation between the participation in wellness tourism, the age and the income. As it can well be seen in fig. 4, the 41-55 year-olds take part in wellness more frequently compared to the older age group whose participation is less characteristic. This is partly explainable by the income and the fact that the elder tend to choose the spas instead where they can recover and relax, in many cases with Social Security support.

Fig. 4. Correlation of Frequency of Staying in a Wellness Hotel and Age



Source: Own research

During the wellness tourism, based on Ardell's (2010) five-dimension model, the tourist should pay attention for the nutritional awareness, the physical activ-

ity, the proper stress management and should act responsibly for the environment and himself.

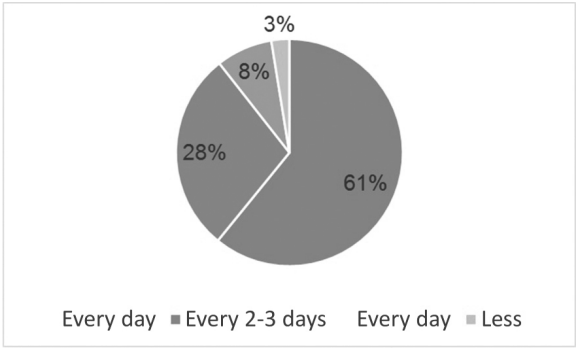
We investigated along these factors, to what extent do the respondents wellness consciously, that is whether the wellness is 'real wellness' or just a relaxation spent using services of high standard or as we call it, a kind of 'wellness patchwork'.

5.2. NUTRITIONAL AWARENESS

Based on our research we found that the respondents, in connection with nutrition, are relatively aware of what the healthy nutrition means/would mean, however, this is realized only partly. In the analysis of attitude, on a scale ranged from 1 to 5, a high value was given, an average of 4,2 – besides a relatively small dispersion – to the „To me healthy eating is important", but food supplements were judged negatively and it was not common that they would use them (an average value of 2,4 with 1.479 of dispersion). Organic foods are consumed by very few, the related attitude is not really favourable, 2,4 (with a scatter of 1,365).

According own admission, only 61% of the respondents consume fruit and vegetable every day (Fig. 5.).

Fig. 5.: The Frequency of the Respondents' Fruit And Vegetable Consumption



Source: Own research

The women and the elder insert the fruit and vegetable more frequently into their diet. The fact that only 62.3 % of those who marked nutrition as the most important factor for preserving the health of the body and the soul consume these foods every day, supports the theory of „patchwork".

Also a surprising result is that although the nutritional awareness is considered to be relatively important, the question 'To what extent do you agree about the following statement?: I always look at the ingredients of a food' received only a medium value, though with a quite high scatter of 1,451.

Concerning drinking most of them drink mineral water or tapped water (73,5%). The choice here was influenced mainly by the income.

The detrimental habits were analysed through the alcohol consumption and smoking. Based on the answers, only 6,2% of them consumes alcohol regularly and 31,6% of the respondents smoke time to time or regularly.

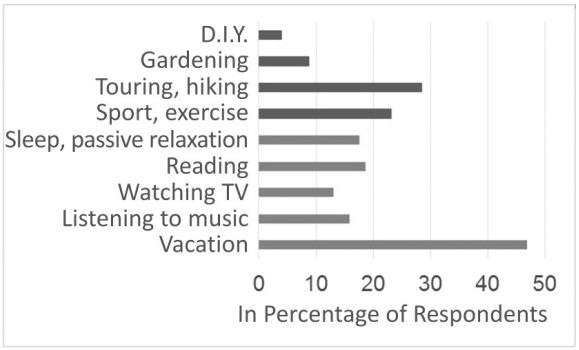
5.3. PHYSICAL ACTIVITY

The activity was examined using attitude questions related to the frequency of sports, the form of relaxation and the leisure movement forms.

Based on the research it can be stated that any activity (sport, hiking, gardening, D.I.Y.) means relaxation only for 65% of the respondents, for the others relaxation can only mean a passive mode (reading, listening to music, watching TV sleeping, etc.) (Fig. 6.).

The situation with sports is even worse. 46,8% of the respondents do not do any sports, exercise – not competitively – daily (13,5%) or two or more times a week. Among the elder there are the fewest to do sports or exercise, however, anyone participating in such an activity, does so regularly and is exceptionally active.

Fig. 6.: What Does Relaxation Mean For Respondents

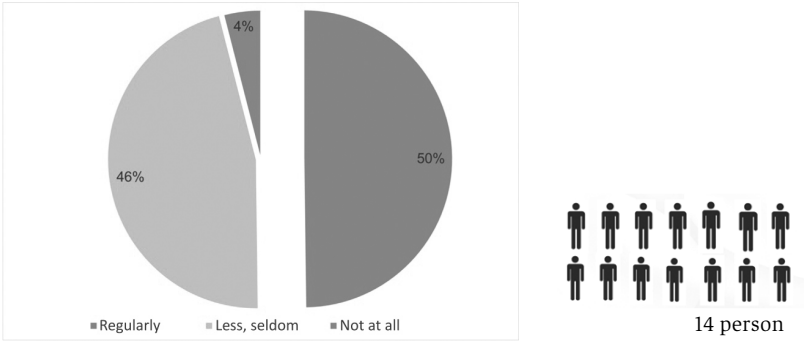


Source: Own research

5.4. STRESS MANAGEMENT

According to Ardell (2010) a part of the real wellness is the management of the stress. Although only 15,8% of the respondents consider their life stressful, analyzing the answers to an other question it turned out that 49,7% of them gets into stressful situation. The 41-55 years old group felt themselves to be the most stressful, in their cases we found the highest frequency in the wellness visits. However, stress control as part of wellness was used only by 14 persons out of the total sample (Fig. 7.).

Fig. 7.: Relation of Frequency of Getting Into Stressful Situation and Those Using Stress Control



Source: Own research

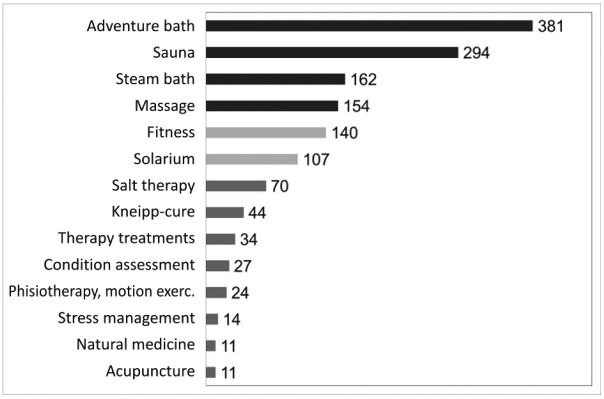
5.5. ENVIRONMENTAL SENSITIVITY

The environmental sensitivity was examined based on the behaviour towards the environmental hazards. During the research we asked what hazards do the respondents protect themselves against. The results verify that people consider those environmental hazards that are appearing in the media to be dangerous, they protect themselves against them, any other ones they practically ignore. This also proves the extent the people's thinking can be influenced by the media. There are two environmental hazards which trigger protective reaction: UV radiation, 58,9 % and preservatives, 44,6%.

5.6. REAL WELLNESS VS. WELLNESS PATCHWORK

According to the above it can be seen that the wellness in Hungary, like several other European countries, can be regarded more as 'wellness patchwork' than 'real wellness'. During the wellness relaxation it is the adventure elements which dominate. The majority of the respondents have only demanded these wellness services out of the full list of services included in the questionnaire (Fig. 8.). The wellness hotels would have a major role in confronting the traveller with the wellness as a philosophy of life. Under this, the restaurant should offer menu complying with the nutritional awareness. Their homepage could feature information on the real wellness and the media also should pay more attention to the essence of wellness.

Fig. 8.: Frequency of the Usage of Wellness Services as Percentage of Respondents



Source: Own research

6. SUMMARY

As a result of our primary and secondary research it can be stated that among Hungarian inland wellness tourists the elements of the 'real wellness' do predominate in equal proportion. Thus the wellness is not a philosophy of life for them but a kind of "wellness patchwork" phenomenon. During our questionnaire survey we also observed the body shape of the questionnaire subjects. Since the survey was done on paper in person, an interesting external personal observation can be recorded beside the statistical results. The observed body shape of the wellness tourists appearing in our research sample could be said less than fit or sporty. Therefore the nutritional awareness and physical activity also suffered damages also in this respect as 'real wellness', that is wellness philosophy of life constituent.

In the background of the development of 'wellness patchwork' phenomenon there is the frequent use of the expression wellness, which is encountered with in several fields of life. Illing (2002), Kickbusch (2003), Fóris (2007) highlight that up to our days besides tourism, the beauty care, fashion, everyday consumption sport, recreation, prevention, the alternative therapy and marketing all had the wellness as a trigger word. On the supply palette of Germany, for example, besides several others there appeared the wellness socks, the wellness shampoo, the wellness clothing, the wellness sausages, the wellness drink, the wellness cereal flakes, and Mercedes-Benz even developed a wellness truck (E-AWR, 2012).

The process seems to be less and less reversible. Change in the long run may be brought about by the clarification of concepts, the establishment of service packages meeting the requirements of the respective segments, and, with this, the diversification of wellness.

REFERENCES

- Ardell, D. (1977) High Level Wellness: An Alternative to Doctors, Drugs, and Disease. Emmaus, PA: Rodale Press. 6-12p
- Ardell, D.(2010): in:
- http://www.seekwellness.com/wellness/wellness_models.htm (download date: 2014.08.25.)
- Aubert A. – Csapó J. (edt.) Egészségturizmus. PTE TTK Földrajzi Intézet. Pécs, 2004.
- Aquaprofit Műszaki, Tanácsadási és Befektetési Rt.: Országos egészségturizmus fejlesztési stratégia, Bp., 2007. 05. 30.
- Árpási, Z. (2014) Wellness turisztikai szolgáltatások fejlesztésének lehetőségei a Dél-alföldi régióban, Ph.D. értekezés. Szent István Egyetem, Gazdálkodás- és Szervezéstudományok Doktori Iskola, Gödöllő
- Berg W. (2008) Gesundheitstourismus und Wellnesstourismus.
- München: Oldenbourg Wissenschaftsverlag GmbH. 2-140p.
- Budai, Z. – Székács O. (2001) A magyar egészségturisztikai kínálat alakítása a különböző célcsoportok igényei szerint. Turizmus Bulletin, 4.
- download location: http://itthon.hu/site/upload/mtrt/Turizmus_Bulletin/01_12/Sz1.htm#_ftn2,
- (download date: 2014.09.01.)
- Bywater, M. (1990) Spas and health resorts in the EC, EIU Travel & Tourism Analyst, 6, 52-67.
- Chen, J.S. – Prebensen, N. – Huan, T.C. (2008) Determining the Motivation of Wellness Travelers, Anatolia: An International Journal of Tourism and Hospitality Research, Vol. 19, Number 1, pp. 103-115.
- Darabos, F. (2007) A környezeti hatások szerepe a wellness turizmusban Apáczai-napok Tanulmányok 2007, NYME AK 478–484 pp.
- Devereux, C. – Carnegie, E. (2006) Pilgrimage: Journeying beyond self. Journal of Tourism Recreation Research 31(1). pp. 47-56.
- Dunn, H.L. (1961) High Level Wellness. Arlington, VA:R.W. Beatty, Ltd. Eugenics Watch. 5-49p.
- E–AWR (2012) Wellness in Germany, Electronic Ardell Wellness Report (E-AWR). 6/10/2012, Issue 619, p3-3. 1p. download location:
- http://www.seekwellness.com/wellness/ardell_wellness_report.htm (download date: 2015.11.10.)
- E-AWR (2013) An Industry at the Crossroads: Which Way Forward for Spas - Beauty and Pampering, Prevention, Alternative Healing, Medical Tourism or REAL Wellness? Or, a Mishmash Blend of Everything? Electronic Ardell Wellness Report (E-AWR). 4/15/2013, Issue 644, p2-2. 1p. download location:
- http://www.seekwellness.com/wellness/reports/2013-04-10.htm (download date: 2015.11.10.)
- Fóris, Á. (2007) A wellness terminológiája. in: Laczkó T. (edt.): Wellness alapismeretek I., PTE ETK, Pécs, pp. 24 - 36.
- Global Spa Summit (2010) Spas and the Global Wellness Market: Synergies and Opportunities, prepared by SRI International, May 2010.
- Green, B. – Aldred, L. (2002) Money is just a spiritual energy: Incorporating the new age. Journal of Popular Culture, 35 (4), 61.

- Greenberg, J. S., & Dintiman, G. B. (1997) Wellness: Creating a life of health and fitness. Boston: Allyn and Bacon.
- Haug, C. (1991): Gesundheitsbildung im Wandel. Bad Heilbrunn: Julius Klinkhardt, 15-44p
- Heelas, P. (1996) The New Age movement: The celebration of the self and sacralisation of modernity. Oxford: Blackwell
- Hettler, B. (1980) Wellness promotion on a university campus. Family and Community Health, 3 (1), 77-9
- Horx M. (2000) Die acht Sphären der Zukunft. Wien/München: Signum.
- Illing K., T. (1999): Der Neue Gesundheitstourismus – Wellness als Alternative zur traditionellen Kur? Berlin TDC Illing, K. (2002): Medical Wellness und Selbstzahler. Zur Erschliessung neuer Märkte für Rehabilitations-, Kurkliniken und Sanatorien. TDC Verlag, Berlin
- Illing, K. (2002) Medical Wellness und Selbstzahler. Zur Erschliessung neuer Märkte
- für Rehabilitations-, Kurkliniken und Sanatorien. TDC Verlag, Berlin.
- Jakopánecz, E. – Törőcsik, M. (2015) Az egészség megatrendje. A kardiovaszkuláris betegségek mai képe. Tanulmány. Pécsi Tudományegyetem. Pécs
- Kaspar, C. – Fekete, M. (2006) Turisztikai alapismeretek.BGF, KVIF, Perfekt, Budapest
- Kenney, P. (2015): Wellness tourism taking the vacation world by storm. WRVO Public Media
- download location: http://wrvo.org/post/wellness-tourism-taking-vacation-world-storm#stream/0 (download date: 2015.08.16.)
- Kickbusch, I. (2003) Die Gesundheitsgesellschaft zwischen Markt und Staat. 2003. 06.24., Berlin: http://www.wellnessverband.de/infodienste/beitraege/040418_gesundheitsges ellschaft.php download date: 2015.08.16.)
- Kincses, Gy. – Borbás, I. – Mihalicza, P. – Udvardy, E. – Varga, E. (2009) Az orvosi szolgáltatásokra alapuló egészségturizmus tendenciái. Egészségügyi Stratégiai Kutatóintézet (ESKI), Budapest
- Kiss, K. – Török, P. (2001) Az egészségturizmus nemzetközi keresleti és kínálati trendjei in Turizmus Bulletin 2001/6. p.18
- Kozma, B. (2006) Turizmus Marketing, BGF, KVIF, Budapest
- Laczkó T. (2009) A wellness régióspecifikus jellemzői a Dél-Dunántúlon, PhD értekezés, PTE, TTK
- Lee, G. (2004) Spa Style Europe. London: Thames and Hudson
- Lengyel M (2004) A turizmus általános elmélete KIT Kft. Heller Farkas Gazdasági és Turisztikai Szolgáltatások Főiskolája, Budapest
- Lanz Kaufmann, E. (1999): Wellness-Tourismus, Universität Bern
- Maslow, A.M (1943) A Theory of Human Motivation Psychological Review p.370-396
- Michalkó, G. (2012) Turizmológia, Elméleti Aplapok. Akadémiai Kiadó, Budapest
- Mill, R.C. – Morrison, A.M.(1992) The Tourism System.Prentice-Hall International Editions, London
- Miller, C. (1994) People want to belive in something. Marketing News, 28(25), 1-3, Ic
- Müller, H. – Kaufmann, E.L. (2000) Wellness Tourism: Market analysis of a special health tourism segment and implications of the hotel industry, Journal of Vacation Marketing, 7(1), pp.5-17
- Nahrstedt W. (2002) Wellness im Brennpunkt. Wissenschaftliche Betrachtung eines jungen Markets. Wellness+Wirtschaft-professionell und profitabel: Konzeption, Finanzierung und Vermarktung von Spa-Projekten. 10-22.

• Nahrstedt W. (2004) Wellness: A new perspective for leisure Centers, Health Tourism, and Spas in Europe on the Global Health Market. The Tourism and Leisure Industry. Binghampton/New York: The Haworth Hospitality Press. 181-198.p.
• Opaschowski W., H (1987) Über den künftigen Wellness-Trend, download location:http://www.opaschowski.de/index.php?id=10 (download date: 2016.03.15.)
• Pernecky, T. – Johnston, C. (2006) Voyage through numinous space: Applying the specialization concept to new age tourism. Journal of Tourism Recreation Research 31(1), pp.37-46.
• Priszinger, K. – Pénzes, E. (2009) Fogyasztói magatartás a termálvízre alapozott turisztikai szolgáltatások tekintetében, A Miskolci Egyetem Közleménye, A sorozat, Bányászat, Vol. 77. p. 141-150.
• Rátz, T. (2004) Zennis és Lomi Lomi, avagy Új trendek az egészségturizmusban In: Aubert A., Csapó J. (edt.): Egészségturizmus. Főiskolai jegyzet, Pécs, PTE TTK Földrajzi Intézet, pp.46-65
• Romeiss-Stracke, F. (1989) Neues Denken im Tourismus. München: ADAC (Hrsg.)
• Ruszinkó, Á. (2006): Egészségturizmus I. oktatási segédanyag a Heller Farkas Főiskola Egészségturizmus Szakirány hallgatói részére, 2006
• Smith, M. – Puczkó, L. (2010) EGÉSZSÉGTURIZMUS: gyógyászat, wellness, holisztika Akadémiai Kiadó Budapest
• Steiner, C. – Reisinger, Y. (2006) Ringing the fourfold: A philosophical framework for thinking about wellness tourism. Journal of Tourism Recreation Research 31(1), pp.5-14.
• Tasnádi, J. (2002) A turizmus rendszere, Aula Kiadó, Budapest
• Travis, J. – Ryan, R.S. (2004): Wellness Workbook: How to achieve enduring health and vitality, 3rd edt., Ten Speed Press, Celestial Arts, xviii p.

KATALIN DÖBRÖNTE

Global integration versus polycentric approach in the Central European urban structure

Katalin Döbrönte: PhD Candidate, ELTE Earth Science Doctoral School
(dobronte.katalin@t-online.hu)

Abstract

The paper focuses on the urban hierarchy of Central European cities with a twofold approach: it compares the urban hierarchy based on the concentration impacts of global economic development (taking advanced producer services as indicator) and the urban hierarchy based on the polycentric approach.

The paper studies how the cities of Central Europe can be integrated into the global networks of advanced producer services, what kind of spatial structural impacts they have, and how it affects the position of the cities in the region. Hundred advanced producer services working in the field of management consultancy and accountancy identify seventy-nine cities in sixteen countries of Central-Europe as an empirical base for the study. The APS indicator is developed according to their locational status, nodal value and relational matrix (Taylor 2001). On the other hand, I study the same sample of cities according to polycentric indices, and identify the urban hierarchy accordingly.

The paper discusses – based on the empirical evidences – what are the implications of global economic and polycentric development approaches in the sixteen countries identified as examination area for the purposes of this study, where are the centres identified by the different approaches, and what are the underlying factors. The paper also offers an answer to whether the region has remained homogeneous, if certain cities could close the gap with Western European cities, and if certain cities form new peripheries as a consequence of being unable to integrate into the global processes.

Keywords: advanced producer services, urban hierarchy, Central Europe, polycentric development

INTRODUCTION

Along with the strengthening of the globalization process since the 1980s, the role of the cities becomes ever more important. In the last 35 years a transnational urban network has developed worldwide, where the economically strongest cities of the global economy form the nodal points. These cities as nodal points have a central role in the flows of international networks of capital, information and labour, and thus gain even more powerful positions. In this respect, it is important that the position of these cities is not defined by their connectedness to their surroundings, but rather by the speed and depth of their integration into different networks. Global cities are normally not embedded into their region, the focus of their relationships fall out of the geographical space physically surrounding them (De Vos et al., 2012).

There is a huge development gap among the regions of the European Union. Differences between the Western and Eastern subregions are significant, but there is also a huge gap within the Eastern sub-region, between the Central and the South-Eastern sub-regions. The European Union is able to represent an economic and political power in the global world only in cases when there is balanced development in the European Union countries and the neighbouring countries. The member states declared first time in the European Spatial Development Perspective (ESDP 1999) that focus should be given to the strengthening of the spatial awareness of development policy. Incentives for polycentric urban network development and levelling the urban-rural relationships were identified as instruments for balanced development. In order that the European Union preserves and strengthens its world economic positions, and remains a decisive actor in the global power structure, the EU should avoid significant inner peripheries within its territory, outstanding economic performance should be spread among several centrum areas, and not just the so called Pentagon area as it characterises the EU territory at present. The main development centre is bordered by London, Paris and Milan. The regions outside this central space are significantly lagging behind in development.

The research focus shifted to the functional characteristics of cities in the 1990s. Researchers aimed at studying primarily the connectedness of European cities to the global urban network, and pulled attention to the importance of international urban network relations. At the same time national urban networks lost emphasis in the research agenda. The model of specialized urban networks is related to this agenda, which is characterized by common patterns of material or non-material products, like exchange processes of commerce, or analysing economic, financial or scientific networks (Hall 1992). A strongly related, but independent model is that of the cooperations among capital cities, or stating it in a wider scope cooperation networks of central cities with political and/ or economic power. The interactions among these nodal points of urban networks are the most intense in their volume.

During the 2000s when development goals had already been adapted to development processes, the process of globalization was also reflected in the urban network development policies and goals. The European Union put emphasis on the main metropoles where economic and innovation capacities are concentrated. Metropole regions are getting integrated to the global urban network, and the polycentric urban network development goal should be implemented on the level of small and medium sized cities (Leipzig Charter, 2007). As the larger cities are the venues of the majority of economic performance, some large cities could become key actors in the international economic processes and thus joined the global urban network. The main challenge is to avoid the split of the European urban network regarding the metropoles and the small and medium sized cities.

The paper intends to provide empirical analyses for the above statements by comparing two different urban network development policies and identifying the similarities and differences. The two development approaches are the global economic cooperation approach based on the networks of advanced producer services and the polycentric urban network development involving sixteen countries from Central Europe. For the global economic development approach the paper studies the networks of advanced producer services present in the Central European macro-region identifying 79 cities in the region, and identifying an APS location index indicating the location strategies of consultancy and accountancy companies present in the global economic processes. Further analyses were focused on the sample of these 79 cities, for which also a polycentric index is calculated. For the polycentric index the reference point is the index system of the ESPON (2006) project, but with adaption to the city level also paying attention to availability of data. Final part of the paper analyses the results, conclusions and justifications of the two different development approaches.

The examination area referred to as Central Europe in the paper includes the following countries: Hungary, Czech Republic, Slovakia, Poland, Austria, Slovenia, Croatia, Romania, Bulgaria, Moldova, Serbia, Kosovo, Montenegro, Macedonia, Bosnia-Herzegovina, Albania.

CENTRAL-EUROPEAN URBAN HIERARCHY BASED ON THE LOCATION DECISIONS OF ADVANCED PRODUCER SERVICES

It can be stated that the number and complexity of business transactions has multiplied in the process of economic globalization, which contributed to the growth of the complexity and volume of central functions of multinational companies. This resulted in the extension of advanced producer services. Another important impact of globalization is that the service intensity of industrial production activities also significantly increased, which multiplied the demand for services (Johnson, 1998). Cities are usual venues of service development and provision,

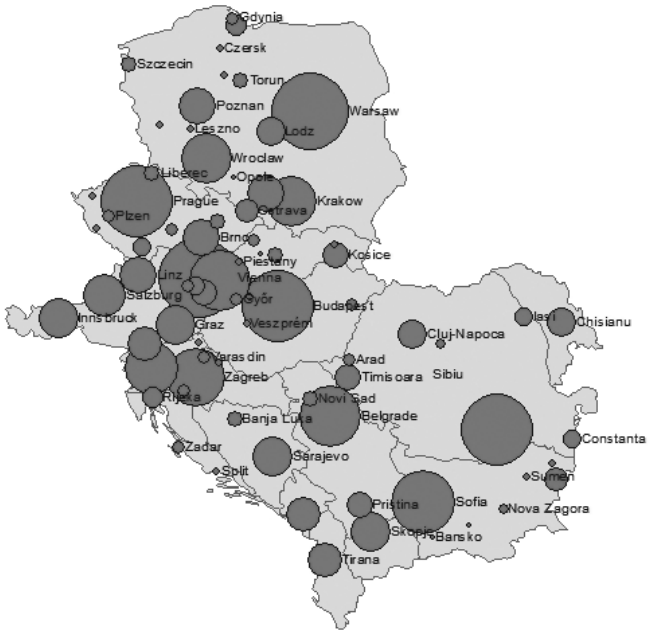
and economically stronger, more competitive cities are in better positions with advanced producer service location decisions (Taylor 2001, Sassen 1991). At the same time service extension taking place up to present takes place not only at the top of urban hierarchy, but on every level of national urban networks. Some cities only appear in the regional markets and others in the national and international markets, while the group of cities on the global scene are highly concentrated and it includes only some capital cities in the Central European macroregion. Researchers study the geography of advanced producer services since the beginning of the 1990s (Daniels és Moulaert, 1991), the methodology examining urban network cooperations and their relatedness based on advanced producer services was elaborated by Taylor and his research group (2001). The success of service providers is usually determined by their locations and which cities they choose to include in their networks.

Further examinations are carried out based on 100 advanced producer services, out of which 64 have a Central-European office. The 64 APS networks are present in 79 cities in the examined macroregion, and further analyses are based on a sample of these cities. As regards the consultancy companies, the list is based on the widely accepted rankings of Forbes, Vault and the Global Consulting Network.

The altogether 79 cities include all of the cities above 500,000 inhabitants, but only 39 cities out of the 91 cities with inhabitants totalling between 100,000 and 500,000 host an APS office. In case of cities with 50.000 – 100.000 inhabitants 13 cities are included in the sample out of the 149 cities, and 9 cities with a population lower than 50.000 are involved. This already reflects that the APS location decisions are influenced by the special characteristic of the Central European urban network and the lack of the medium sized cities as defined in Western Europe (above 500,000 inhabitants). In case of cities with 100.000 – 500.000 inhabitants a concentration can still be seen, however in case of cities with lower population number it is not the size of the city but other special features that primarily attract APSs.

The impact of advanced producer services on cities, city hierarchy can be examined from three aspects: presence, service value of the city and the connectedness of the city into the network. The complex index was calculated with the summarizing of the three part-indices with an even weight. The APS location index expresses the location strategy of advanced producer services in Central Europe. In the next part of the paper the analyses of the APS index follows and will also be applied for the comparison with the polycentric index.

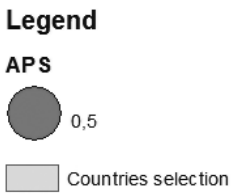
Figure 1.: APS index of Central-European cities



Source: own editing based on data from webpages of advanced producer services

The location strategies of the advanced producer services identified 34 cities where there are at least five APS networks present, which already indicates a concentration of APS networks in a city. These cities can be regarded as cities at the top of the Central-European urban hierarchy from this aspect. A strong hierarchical relationship can be seen regarding the integration into the global and to the different regional level processes. The figure shows the outstanding position of the capitals of the economically stronger countries. Based on the examinations Moldova, Albania, Montenegro, Kosovo, Macedonia and Bosnia-Herzegovina can be regarded as marginal countries (not a periphery, but only included through their capital cities). There is also a strong hierarchical order among the ten most powerful capitals. Vienna, Warsaw, Prague, Budapest and Bucharest are at the top, but Sofia, Bratislava, Belgrade, Ljubljana and Zagreb have already fallen behind. Kraków, Wroclaw and Salzburg emerge from among the secondary cities and precede Sarajevo, Skopje, Podgorica and Tirana among the capital cities, and also the other Austrian regional centres and Brno. This group represents 30% of the cities in the sample, and reflects the strong hierarchical order among the cities

in the macro-region regarding the integration to global or different regional level cooperations. Only one-third of the examined cities are able to join a regional level network cooperation of advanced producer services. Pristina and Kisinyov, the economically weakest capitals and other secondary cities are lagging behind. The weakest 22 cities (28%) appear only marginally in the location strategies of advanced producer services. However, this group has a great significance, these cities ensure that no new peripheries occur in the macro-region.



An expressive data example for the high concentration of APSs is that Salzburg with the second highest Austrian APS index value after Vienna has a value of 29% of Vienna's value. Concerning the secondary cities, the high ranking of the Polish cities are not surprising regarding the size of both the country and of the cities, and also their metropolis status. The secondary cities fulfil an important role in cases of several countries, like Brno, Cluj Napoca, Timisoara, and with a less important role Kosice and Varna. The role of the secondary cities is more marginal in the case of Hungary, Slovenia, Croatia and Serbia. In the case of Moldova and the other Western-Balkans countries, only the capital is involved in the sample (Banja Luka's involvement is justified by its secondary capital function.).

The results of the examination support the fact that mainly the capital regions and further metropole regions are able to get integrated to the global urban network. The lack of medium-sized cities with Western European definition limits increases the group of cities that are capable of joining. Although there is no periphery on the level of countries, there is a significant difference among the secondary cities regarding their positions and geographical locations. An important question regards the role of geographical distance in the location decisions of APSs. The analyses show that geographical proximity has a negative impact on the position of cities. Bratislava is an expressive example, its proximity to Vienna, Prague and Budapest has a contra-effect on the location decisions of APS networks, and thus its weight is weaker than that of the other Visegrad capitals. However, the ranking of Sofia is outstanding, it also precedes Bratislava, which is rather justified by its geographical location than its economic performance. On the level of secondary cities the position of Salzburg and Graz is interesting. Geographical proximity of Graz to Vienna offers a better position for Salzburg regarding the location decisions of advanced producer services. To sum up, the Central European macroregion could join the global structures via Vienna, Warsaw, Prague, Budapest and Bucharest in recent decades and advanced producer services were able to identify cities with economic potential, which thereby led to a minor modification of the urban hierarchies in the macroregion.

CENTRAL-EUROPEAN URBAN HIERARCHY BASED ON THE POLYCENTRIC INDEX

The Urban Agenda 2020 approved as Amsterdam Pact in 2016 also confirms the intention of polycentric development in coherence with the ESDP. The territory of the European Union is very diverse socially, economically, culturally, regionally and historically, and the development of the whole settlement structure is significant for the future position of the European Union. The majority of emerging challenges is local in its scope, however solution can only be provided with a wider spatial cooperation. It also means that the solution of a local problem may provide positive impacts for the wider surrounding of the city as well. Emphasis should be put on cooperation of cities and on the strengthening of urban – rural relations for this reason.

Along with the modification of the ESDP, the Urban Agenda of the European Union applies a twofold approach regarding the development of the European urban network. While large cities, mainly metropolises can join global economic cooperation networks, small and medium sized city networks need more of a polycentric development approach. Strengthening of the network of small and medium sized cities contributes to a strong relationship with its region and thus the split of urban network and the development of new peripheries can be avoided.

Examinations related to advanced producer services show that 51 cities in 16 countries of the macroregion could become an APS location hosting more than one APS network, and further 28 cities could join the cooperation network of the global tercier sector mainly through an accountancy network office. This also means that only a small sample of the cities of the macroregion ensure the connectedness to the European and global urban structures, but they do not contribute to the balanced development of the cities of Central Europe. It is important to emphasise here that polycentricity is not a goal in itself, but rather an instrument for reaching economic competitiveness, social cohesion and sustainable development (ESDP 1999).

Without inciting polycentric development a strengthening concentration would occur, as it has happened since the beginning of the 1990s (Illés 2006, Szabó 2005). Enduring advantages in competitiveness concentrate geographically, and metropoles become centres of economic development. Metropoles dispose on several economic advantages resulting from concentration, like positive local externalities, agglomeration advantages, economies of scale, and positive spillover effects of knowledge. Naturally, negative impacts also occur, e.g. crowdedness causes higher costs, there is more pressure on the environment, lack of labour in the metropolises and underutilised potentials in the peripheries (Faragó 2006). The theory of polycentric development aims at balancing these positive and negative impacts through influencing the spatial aspects of economy and through strengthening the spatial awareness of development policy. More instruments exist for influencing the spatial processes of the economy, but it is

evident that large cities and metropolises have a key role in the production of GDP. Small and medium sized cities can gain position in case developments are spread regionally on several centres, and development policy ensures accessibility of services in these centres. The size of the network with several nodal points should reach a critical mass and the main instrument is multilevel hierarchical network development in this respect (Espon 2006). Thus the distribution of economic and economically relevant functions occur over the urban system where several urban centres gain significance.

In order to interpret polycentricity all functions defining a city's role should be identified. One of the main characteristics is the population number and prospective demographic tendencies. Other relevant factors influencing the position of a city in the urban hierarchy are the functions fulfilled by the city, public services, presence and number of public authority provided by the city. A further aspect is the city's economic power, if it has an industrial production base, logistic function, innovative – knowledge base function and a strong enterpreneurship. If these functions are concentrated in one, characteristically in the capital city, the urban structure is monocentric. In this case services (both public and profit-oriented) and regional management are supplied from one centre (Espon 2006).

Dimensions of polycentricity applied by the Espon research include weight, accessibility, public administration power, decision-making function, knowledge, industry, tourism. The paper identifies these dimensions as a starting point, however the exact indices are modified due to the examination level of cities and to availability of data. Thus the following data are applied for the calculation of the the polycentric index[1] [2]:

Weight is calculated with population number (scale: cities with a population above one million, 500.000 – one million, 100.000 – 500.000, 50.000 – 100.000).

Accessibility: several factors: if a city is along an already functioning TEN-network, if it is a port city, the traffic of international airport (NUTS2 level data, however cities with an international airport can be identified).

Public administration weight: if it is a capital city, if it is at least a NUT3 seat.

Decision-making: cities with a seat of a multinational company based on the ranking of the TOP500 multinational companies of Central- and South-Eastern Europe by Deloitte (2015).

Knowledge: if it is a university city, share of students in tertiary education among the population of 20-24-year-old (% NUTS2 level), share of people with a

[1] Western-Balkan countries (Serbia, Montenegro, Macedonia, Kosovo, Albania, Moldova, Bosnia-Herczegovina) are not included in the sample because of missing data.

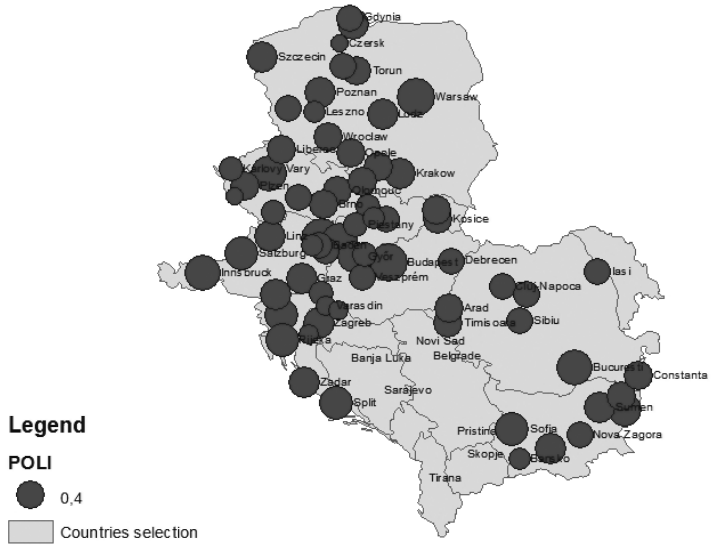
[2] The relatively higher minimum level can be explained by the fact that certain data of the knowledge and industry dimensions refer to NUTS2 level, thus the data of the city is distorted upwards. However this margin of error does not influence the ranking, only causes higher values for the lowest rankings.

tertiary degree among the population of 25-64-year-old (%, NUTS2 level).

Industrial dimension should have been changed by ratio of tertiary sector, however data is not available. Thus the paper applies two different indices for the industrial dimension: ratio of labour in industry (as a share of labour in non-financial sectors, %, 2011, NUTS2 level), and index for regional economic concentration projected to NUTS2 region (as a share of labour in non-financial sectors, %, 2011, NUTS2 level).

Tourism: guest nights spent at hotels and other commercial quarters by non-residents projected to NUTS2 region (as a share of all guest nights spent by residents and non-residents, %, 2012). This index offers a good reflection of the touristic attractiveness of the region.

Figure 2.: Polycentric values of cities



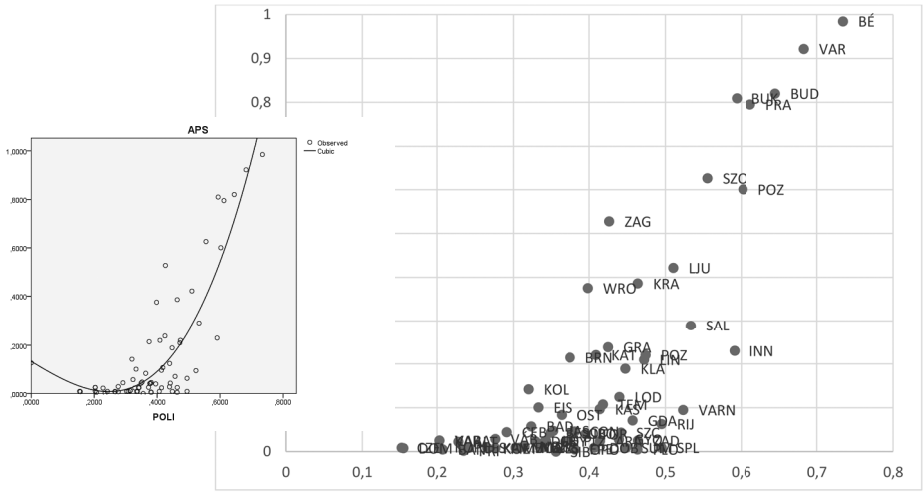
Source: own editing based on Eurostat data

The above values show that polycentric approach highlights other cities at the top of the urban hierarchy as the APS location index. Geographical proximity appears as a natural advantage in the polycentric approach, which explains the better position of Bratislava in this case. A more balanced analyses of the social and economic factors underlies the polycentric methodology, which is contrary to the advanced producer network approach, and thus nationally significant cities - normally also NUTS3 seats - but with a weaker economic potential there is a higher position in the polycentric ranking than in the APS based hierarchy.

Another important factor is that the geographical location of higher education institutions is not concentrated in the Central European macroregion and NUTS3 seats usually host a university or college, and that strengthens the social factors. In this respect the high ranking of Varna is to be mentioned on the same level with Bucharest and two Austrian regional centres, and also the relatively high ranking of Timisoara, Arad, Kosice and the Adriatic Croatian cities that all have a weaker economic performance. The lower position of Wroclaw, Brno, Plzen and Ostrava in the polycentric ranking is justified by these underlying factors with a weaker level of spatial organisational power of social factors. In this case, the stronger economic position of the cities was insufficient for countervailing the lower position in the polycentric methodology. Cities in the lowest positions in the ranking are also smaller in inhabitant number, their inclusion to the APS sample is justified by special factors. For this reason their weak position in the polycentric ranking is a natural symptom consequence.

COHERENCE OF APS LOCATION INDEX AND POLYCENTRIC INDEX

Figure 3.: Coherence of APS location index and polycentric index



Axis X: values of polycentric index, Axis Y: values of APS location index,
Source: own editing

Main results of regression analyses: R2 = 0,767, adjusted R2 = 0,756

$$Y = \beta 0 + (\beta 1 * t) + (\beta 2 * t2) + (\beta 3 * t3)$$

Coefficients					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
POLI	-,794	,962	-,427	-,825	,412
POLI ** 2	,251	2,733	,110	,092	,927
POLI ** 3	3,681	2,379	1,141	1,548	,126
(Constant)	,133	,111		1,200	,234

The table shows the main results of non-linear regression analyses done with SPSS.

The above explanation is nuanced by regression analyses, and the main capitals of the macroregion show an outstanding performance both regarding the APS location and polycentric indices. The sample based on APS locations includes primarily cities that are at the top of their country urban hierarchy. This fact results in a correlation between the two types of examinations, the polycentric and the economic power analysis. At the same time, it can be stated that the connection is not linear, but tertiary. Flexible, gradually accelerating with a high correlation coefficient means that the higher the degree of a polycentric position a city has, the higher its potential will be for joining international economic integrations. Whether a city can exploit this potential, depends on its economic structure's diversity, and on the ratio of market performance within the overall economic performance of the city. The urban hierarchy of Central Europe based on the administrative structure is path dependent, the majority of cities in the sample fulfilled a significant role already in the second half of the 19th century. The analyses highlights that first of all those cities can be regarded as economically successful which can become part of international and transnational economic cooperations. Tourism as a special feature can highlight certain cities with favourable geographic locations, however city development based on only social factors cannot result the city's involvement into economic integrations.

Cities that are part of global economic cooperation function in a way that they are "split" up in their region as regards their participation in business networks, which results in the formation of new centres and peripheries. All cities hosting advanced producer services become part of urban network cooperations although on different levels, based on the number of APS networks presence, on their service value and on their network connectedness. This also means that integration into global business cooperations happens also on the level of small and medium sized cities that also function as nodal points of polycentric development. It is to be emphasized that these cities represent a new type of hierarchy as regards economic

network cooperations, however it does not result in integrated development of Central European urban network. Small and medium sized cities that are out of business cooperation networks fulfil central network functions as regards public administration and public services and are thus centers of polycentric development.

Based on the regression analyses APS locational index and the polycentric index raises different cities to the top of urban hierarchy. As regards the polycentric approach the social – economic factors represent a more balanced weight, this means that cities significant in the national urban hierarchy being NUTS3 seats but with a limited economic potential have a weaker position in the hierarchy defined by the APS locational index. At the same time these cities show a significant spatial organizational power in the polycentric approach. Capital cities are at the top of the hierarchy, while small cities that are involved in the sample with a special locational factor appear at the lowest segment in both aspects. Examples here are Timisoara, Arad, Kosice, Debrecen, Plovdiv, Split and important cities in their countries, but with a marginal position in APS locational strategies. Those cities that could not accomplish a successful economic restructuring in the 1990s or could not attract foreign direct investments, or where the main economic sector is the public sector could not gain a favourable position in the city competition for APS locations. It can also be stated that NUTS3 seat cities being economically successful and appearing as APS locations have a larger spatial organisational power in their relationships with their surroundings. Cities that are not able to become an APS location can only fulfil a marginal incentive role in the economic development of their surrounding region, and their spatial organisational role appear primarily in public administration and public service provision. Naturally, the small size of the countries also influences the number of cities that have the opportunity for integrating with APS networks, and that suggests a strong city competition. After the opening up in the 1990s economic processes were characterised by foreign direct investments, application of Western paradigms, export-oriented growth. This resulted in excessive dependence of FDI, banks and the Eurozone in most of the countries (Simai - Gál 2000). Naturally with a different emphasis in the different countries, but characteristically for the whole macroregion. The in-country market relations need more attention, as the in-country economic cooperation and growth opportunities are valorised. This economic policy approach can bring further medium sized cities into position and enable their integration to economic cooperation.

CONCLUSIONS

The paper studied two different urban network development concepts based on empirical data, and compared the results of the APS location index based on the location strategies of advanced producer services and of the polycentric index related to the urban hierarchy in the Central-European macro-region.

Advanced producer services decide upon the locations where economic performance is outstanding, the labour force is highly qualified and broadband accessibility is at stake (Sassen 2005). In examining the urban hierarchy based on the APS location, it can be stated that the sample includes all the capitals of the macroregion, all cities above 500,000 inhabitants, the majority of cities above 100,000 inhabitants and, among them, all metropolises (36 cities according to Eurostat methodology). All the countries of the macroregion host APS offices, although in cases of some peripherally located countries, the capital city is the only city chosen as the APS location (Kisinyov, Podgorica, Pristina, Tirana, Sarajevo). Mainly advanced producer services offering a complex service portfolio choose the capitals of these countries which contributes to the involvement of all the countries of the macroregion to APS networks thereby avoiding the formation of new inner peripheries. At the same time, it is important to state that the embeddedness of the sub-regions differ a lot.

Advanced producer services as an index for centers of gravity of the urban network have a twofold role: on the one hand they reflect the complex economic relations of the macro-region as consultant companies choose cities with high economic potential as office locations. On the other hand advanced producer services may have an incentive role towards the urban policy of the countries as APSs open offices only in cities with global or at least regional functions. Advanced producer services concentrate their capacities geographically, and cover a market from a certain low number of offices in a country based on their business strategy. If the critical mass of economic activity is present in a city, it becomes a potential venue for an APS which can further strengthen its regional economic role.

APS location decisions show a strong correlation with the monocentric or polycentric kind of the urban structure of the countries. The Central European urban structure is fragmented, there is no integrated urban network. Most of the countries are small countries regarding territory and population in European comparison (with the exception of Poland and Romania). Countries with a polycentric urban network host more APS offices in several cities, like in Austria, Czech Republic and Poland. APS location decisions reflect also the traditionally monocentric urban structure of some countries, like Hungary, Slovakia, Bulgaria. The accountancy networks offer opportunities for secondary cities in these countries for getting integrated into the APS networks, mainly with one presence (like Debrecen, Komárom, Veszprém in Hungary).

It can be stated as a conclusion, if monocentric structures became more resilient and cooperation strengthened between cities that are geographically

connected in neighbouring countries, APS locational decisions would adapt to the processes. A more intense cooperation among national urban networks could result in the increasing economic weight of the macro-region by attracting more advanced producer services. Currently the cities do not have cross-border impacts.

The distance of a city from the capital also appear as an important factor when talking about the opportunity for the formation of secondary centers. Service providers settle into regional cetners in order to supply the national market. In Austria it was not just Vienna's geographical location, but also the morphological characteristics of the country that justified the development of secondary centers already in the previous centuries. Kosice is a secondary center in Slovakia, there is a Plovdiv – Varna development axis in Bulgaria, while in Croatia Split can fulfil the role of a secondary centre. These factors also appear in case of Poland and Romania as the size of these countries is outstanding and the advanced producer service market cannot be covered only from the capitals. In case of Poland an even distribution of cities with APS location can be seen in the Western and central parts of the country. It is important that a certain minimal critical distance is needed for the advanced producer service for opening up a new location besides the capital. This fact suggests that regional centres further away from the capital have a higher potential for concentrating APS consultancies. This justifies the higher APS index for Salzburg in Austria contrary to Graz, which has a higher economic performance. Geographical and morphological characteristics of a country are also significant location factors in APS location, although only as secondary factors besides economic performance.

REFERENCES

- Alderson, A.S. – Beckfield J. – Sprague-Jones J. (2010) Intercity relations and globalisation: the evolution of the global urban hierarchy, 1981 – 2007. Urban Studies, 47, 9, 1899-1923.
- Baudelle, G.– Guy, C. (2003) The Peripheral Areas of Western Europe and EU Regional Policy : Prospective Scenarios. –http://www.regional-studies-assoc.ac.uk
- De Vos A. – Derudder B. – Witlox F. (2012) Global city/ World city, in: Derudder B. – Hoyler, M. – Taylor P. J. – Witlox F. (eds): International Handbook of Globalization and World Cities, Cheltenham, UK, Edward Elgar
- ESPON Project 1.1.1 (2006) Urban areas as nodes in a polycentric development. http://www.espon.eu/main/Menu_Projects/Menu_ESPON2006Projects/Menu_ThematicProjects/
- EU Ministers Responsible for Urban Matters (2016) Establishing the Urban Agenda for the EU, 'Pact of Amsterdam', Amsterdam, The Netherlands, http://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf
- European Commission (1999) European Spatial Development Perspective Towards Balanced and Sustainable Development of the Territory of the European Union, ESDP, http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf

- European Commission (2016) Working Programme of the Urban Agenda for the EU, draft version, http://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/urban-agenda-working-programme.pdf
- ec.europa.eu/eurostat/data/database
- Faragó, L. (2006) A városokra alapozott területpolitika koncepcionális megalapozása. Tér és Társadalom, 20, 2, 83-102
- Hall, P. (1992) Urban and Regional planning. Routledge, London.
- Illés, Dóra (2006) Az ESPON program első befejezett projektje A városi területeknek mint a policentrikus fejlődés csomópontjainak szerepe és speciális helyzete (2002-2006) http://www.vati.hu/static/fvr/cikk_16.html
- Leipzig Charter (2007) Luxembourg: Office for Official Publications of the European Communities, http://ec.europa.eu/regional_policy/en/policy/themes/urban-development/agenda/, downloaded on March 2 2016.
- NEMES NAGY J. (2009) Terek, helyek, régiók. A regionális tudomány alapjai. Akadémiai Kiadó, Budapest
- Probáld F. – Szabó P. (2005) Európa térszerkezetének modelljei. in: Dövényi Z.–Schweitzer F. (szerk.): A földrajz dimenziói. MTA Földrajztudományi Kutatóintézet, Budapest, 2005. 159-170.
- Sassen S. (2005) The Global City: introducing a Concept, in: Brown Journal of World Affairs,11, 2, 27-43
- Sassen, S. (1991) The Global City: New York, London, Tokyo. Princeton: Princeton University Press.
- Simai Mihály – Gál Péter (2000) Új trendek és stratégiák a világgazdaságban. Akadémiai Kiadó
- Szabó P. (2009) Európa térszerkezete különböző szemléletek tükrében. Földrajzi Közlemények 133, 2, 121-134.
- Szabó P. (2015) Régió és térszerkezet az elmélettől a területpolitikáig. ELTE Eötvös Kiadó, Budapest.
- Taylor, P. J. (2005) Leading World Cities: Empirical Evaluations of Urban Nodes in Multiple Networks. Urban Studies, 42, 1593 – 608.
- Taylor, P. J. (1997) Hierarchical tendencies amongst world cities: a global research proposal. Cities, 14, 323-32.
- Taylor, P. J. (2001) Specification of the world city network, Geographical Analysis 33, 2, 181-194.
- Taylor, P. J. – Hoyler, M. (2000) The Spatial Order of European Cities under Conditions of Contemporary Globalization. TESG 91, 176-189.
- Világbank adatok, data.worldbank.org
- Wegener M. – Kunzmann K. R. (1996) New Spatial Patterns of European Urbanisation, In: Pumain, D., Saint-Julien, T., eds.: Urban Networks in Europe. Paris: John Libbey, 7-17. http://www.spiekermann-wegener.de/pub/pdf/MWKK_Saint_Cloud_1996.pdf, downloaded on January 13, 2016.

ANNEX

Table 1: APS locational index of cities

City	APS index	City	APS index	City	APS index
Vienna	0,9847	Presov	0,0062	Arad	0,0239
Graz	0,2385	Banska Bystrica	0,0429	Targu Mures	0,012
Linz	0,2098	Povazska Bystrica	0,0289	Sofia	0,6261
Salzburg	0,2891	Prievidza	0,0019	Varna	0,095
Innsbruck	0,23	Piestany	0,0075	Plovdiv	0,0052
Klagenfurt	0,1892	Warsaw	0,9219	Nova Zagora	0,012
Eisenstadt	0,101	Kraków	0,3861	Bansko	0,0052
Altenmarkt	0,0227	Lodz	0,1245	Sumen	0,0087
Baden	0,0577	Wroclaw	0,3755	Dobrics	0,0087
Budapest	0,8201	Poznan	0,2206	Kisinyov	0,1267
Győr	0,0277	Gdansk	0,071	Ljubljana	0,4218
Komárom	0,0075	Szczecin	0,0433	Murska Sobota	0,0091
Debrecen	0,0231	Katowice	0,2203	Zagreb	0,5276
Veszprém	0,0083	Torun	0,04	Koprivnica	0,0103
Prague	0,7951	Opole	0,0052	Varsdin	0,0256
Brno	0,2147	Bydgoszcz	0,0091	Rijeka	0,0631
Ostrava	0,0837	Czersk	0,0091	Zadar	0,0252
Liberec	0,0417	Leszno	0,0091	Karlovac	0,0252
Olomouc	0,0417	Zielona Gora	0,0091	Split	0,0091
Jihlava	0,0248	Gdynia	0,0239	Sarajevo	0,237
Plzen	0,0256	Bucharest	0,8095	Banja Luka	0,0408
Ceske Budejovice	0,0446	Cluj Napoca	0,1422	Belgrade	0,59
Karlovy Vary	0,0087	Timisoara	0,1075	Novi Sad	0,0431
Domazlice	0,0079	Iasi	0,0474	Pristina	0,1084
Bratislava	0,6006	Constanza	0,0458	Podgorica	0,1706
Kosice	0,0967	Sibiu	0	Skopje	0,2473
				Tirana	0,1801

Source: own calculation with application of Eurostat data, and data from the webpages of the advanced producer services

Table 2. Polycentric indices of cities

City	polycentric index	City	polycentric index	City	polycentric index
Vienna	0,73	Zagreb	0,43	Eisenstadt	0,33
Warsaw	0,68	Graz	0,42	Debrecen	0,34
Budapest	0,65	Timisoara	0,42	Baden	0,32
Prague	0,61	Kosice	0,41	Cluj Napoca	0,32
Bratislava	0,6	Arad	0,41	Nova Zagora	0,31
Bucharest	0,59	Katowice	0,41	Targu Mures	0,31
Innsbruck	0,59	Dobrics	0,41	Bydgoszcz	0,31
Sofia	0,56	Wroclaw	0,4	Murska Sobota	0,3
Salzburg	0,53	Torun	0,4	Ceske Budejovice	0,29
Varna	0,52	Olomouc	0,38	Povazska Bystrica	0,28
Ljubljana	0,51	Liberec	0,38	Karlovy Vary	0,27
Rijeka	0,5	Presov	0,38	Komárom	0,27
Split	0,5	Opole	0,38	Piestany	0,28
Poznan	0,47	Constanca	0,38	Leszno	0,24
Linz	0,47	Ostrava	0,36	Prievidza	0,23
Kraków	0,46	Brno	0,37	Altenmarkt	0,23
Plovdiv	0,46	Plzen	0,37	Bansko	0,21
Gdansk	0,46	Sibiu	0,36	Karlovac	0,2
Zadar	0,46	Iasi	0,35	Koprivnica	0,2
Sumen	0,45	Banska Bystrica	0,35	Varasdin	0,2
Klagenfurt	0,45	Jihlava	0,34	Domazlice	0,16
Szczecin	0,44	Gdynia	0,34	Czersk	0,15
Győr	0,44	Zielona Gora	0,34		
Lodz	0,44	Veszprém	0,33		

Source: own calculation with application of Eurostat data

TÜNDE PATAY

The Role of Integration of Immigrants and the European Political Attitudes

Tünde Patay: PhD Student Széchenyi István University, Doctoral School of Regional and Economic Sciences (tuende.patay@icloud.com)

Abstract

Migration is one of the main factors that shape the social-economic structures and political tools of a nation, but it also accelerates the development of urban areas. Europe has experienced a number of waves of migratory movements in the last decades, and issues relating to integration of immigrants have been becoming even more important for the political platform as well. The dynamics and combined effects of migratory movements, national policies and the roles of local authorities still present a mixed picture in Europe. Integration policies are mostly defined from the aspect of a regime. Some countries have restrictive immigration and integration policies, other nations provide easier access to their political and welfare systems. However, information sheets on language courses, cultural events and on the preconditions for the citizenship are the most-known tools of integration of newcomers. But based on diverse theories and also on a cross-country comparison of integration policies, this study shows that the scale of possibilities, goals and measures are wide. The meaning and structure of integration and particularly of political inclusion can be thereby analysed on the base of differentiated aspects or some chosen tools considered as best practices.

Keywords: Europe, inclusion, integration policy, immigration, subsidiarity

INTRODUCTION

Migrants make significant contributions to development at national or local level: with their workforce, experiences and knowledge, but with their cultural characteristics or international connections as well. On the other side, mobility brings negative effects with: expenditure of the welfare system, conflicts in the society, discrepancies regarding values and goals of the host community, and, of course, deprivation. A part of the migrants arrives without a detailed plan, they do not gather enough information regarding the future possibilities or hardships they could endure in the host country. However, some migrants aim to stay for a long time, want to work, establish security and take part in the civic life

too – while others might only hope to get involved into the social and political system. National and local governments have been learning for decades how to manage migration and its consequences. One of the most interesting themes of the migration research is how public policies can promote the active engagement and participation of immigrants in the political and civic life besides the labour market challenges, and how legal rules have influence on these issues. From the point of view of newcomers, the weight of inclusion is determined through a combination of the – often mentioned – push- and pull factors. The economic prosperity and political situation of a country, thus the participating possibilities of an individual can also be thought as pull effects.

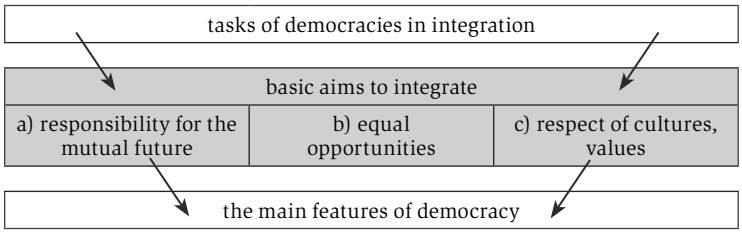
The aim of my study is to introduce the theoretical background and the European lessons on integration of immigrants, summarizing the mainstream solutions and the controversies as well. Thus the first part analyses the importance of integration and the main factors of inclusion. In the second part this paper presents the outcomes of a cross-country comparison with particular attention to the experiences of the classical host countries.

THE MEANING AND IMPORTANCE OF INTEGRATION OF IMMIGRANTS

Since the 1980s European states have been facing the challenge, how to include immigrants on different stages. Like Fassmann and Münz in their book also present (1996), the illusion of temporary or circular migration has disappeared, guest workers stayed in their new homeland, new migratory groups have been arriving: new labour force, more family members, students, refugees and illegal migrants as well. Information sheets on language courses, cultural events and on the preconditions for the citizenship are the well-known tools of integration of newcomers. But based on diverse theories and also on a cross-country comparison of integration policies and legal systems I have made, it can be observed that the scale of possibilities, goals and measures are wide. Firstly, because the effects of exclusion or marginalisation also vary. Marginalisation of migrants could have negative effects on the democratic politics, since it undermines the process of democratic representation and accountability (Jones-Correa 1998). Further, segregation has not only effects on the labour market and on our everyday life, but it can also undervalue the role of active participation. The negative consequences of exclusion could therefore scatter further as social and economic integration, just as the backwash-effect from Myrdal (1960). Thus, national strategies and solutions regarding the integration of immigrants should cover the key areas of growth and well-being: labour market, education, welfare system, civic and political life, and these are only the main points.

After summarising the areas of inclusion of immigrants, the role of integration can be, however, also derived from the aspect of the theories in connection with democracy:

Figure 1: The role of integration in democracies



Source: own illustration

a. one of the basic element of democracy is that all members of a community have a share in the decision-making processes regarding the future of this community
b. second element of a democracy is the equality of opportunity in the social, economic and politic area – these two cases are also defined as main features of the democracy e.g. according to the Democracy Reporting International (2011).
c. Entzinger (1999) adds to this, that another characteristic of modern democracies in the western countries is the respect for cultural differences, identities and values.

As a category of immigrants' integration, the issue "participation" would mean for migrants and their descendants to be involved in political processes and in the political representation, not only directly as a person but as a member of the civil society as well. Further, the political inclusion begins with the requirements for entering the country and goes on with the limited rights of legal residents. According to studies, state governments should make more efforts to identify the conditions and possibilities of integration of immigrants and their way to participation. On the other hand, it is also necessary to research its effects on the whole society. This leads us to the question what integration means, however, the outcomes of the scholarly and public debates vary. Not only the potential benefits or shortcomings of reforms but also the importance of dealing with this question are currently often discussed. It can be interesting to examine the participation of immigrants at the level of government and the role of this in the success of social integration and thus in relation with the fight against marginalisation (segregation).

In summary, the definitions of social, economic or political integration of a newcomer vary (Angenedt 2000, Treibel 2011). We find in the political issues - but also in the literature - different type of notions as assimilation, incorporation, integration and inclusion. Some emphasizes the responsibility of the receiving

community, some the importance of the willingness of the immigrants and there can be find theories that say that the success depends on the cooperation of all the actors: governments, immigrants, natives, employers, organisations and other communities – e.g. how the Council promotes it (Council of the European Union, 2004). It means, we can hardly find a consensus, not even on the political platform of one country (Verba et al. 1995).

THE LEVELS OF INCLUSION

The literature approaches to the participation of migrants from different aspects. American studies on political issues have been focusing on economic and social integration, and the political incorporation has only been considered as an issue of local election category (Ramakrishnan, Bloemraad 2008). In Europe researchers focus rather on institutional and organisational factors (Fieldhouse, Cutts 2008). According to the theory of Morales and Giuni (2011) the meaning inclusion of immigrants can be defined on 4 levels: macro, mezzo, micro level and the level of individual.

From the practical point of view, however, the most experts have privileged the national context in their studies. This is maybe because the range of citizenship and immigration policies is always defined at national level. However, in my opinion, at local level policies have more direct effects. Penninx also emphasizes the role of local governments since they have the power to strengthen the linkage between migrants and natives (2004). Local governments experience first challenges brought by ethnic, cultural and social diversity that immigration causes (Rogers, Tillie 2001). Comparing the migratory politics and strategies in Europe, it is mainly the local policy that can manage and accelerate the intensity of migrants' incorporation into the community. It is also at the local level that migrants usually have greater opportunities to become involved in political and civic life. It means, migrants are more likely to be able to mobilize successfully their ethnic communities at the local level.

It is also essential to emphasize the civil level, it means, the importance and role of civil organisations. After Koopmans et al. (2005), on the local level civil society organisations open opportunities for migrants, motivating them for collective action. The same origin or ethnical background leads migrants to favour the development of common identities. A shared fate can also mobilize the group consciousness.

Regarding the individual level, I agree with the definition, that integration means not only discrimination-free work circumstances and the acceptance of cultures, but the migrants' engagement in the civic and political communities. The relationship between the grade of integration and the characteristics of migrants can also be proved but as regards of the basic motivation of mobility there can be find obvious explanations too. Treibel (2011) also emphasises that the success and need of integration depends on interests of the migrants, the duration of stay

in the country of residence, the strength of the home country ties of individual migrants, and of course on the goal of migration. Tillie (2004) studied the individual and group determinants for the likelihood of inclusion into the host society. On the individual level gender, ethnic membership, cross-ethnic membership and social activities in the network of the respondent are of relevance while on the group level the amount of social capital in the ethnic community is important, particularly regarding political inclusion.

THE POLITICAL PARTICIPATION

Taking the promotion of migrants into consideration, there can be find several ideas on how and under what conditions to grant them political participation and political rights. There are six fields of political participation according to a interesting but not well-known study on the integration of immigrants in Western Europe (Layton-Henry 1990): civil rights, industrial rights, immigrant associations, consultative institutions, voting rights and citizenship. Comparing the migration policies and integration tools of European states (see European experiences below), the countries make differences in their goals regarding these 6 main factors, but citizenship (naturalisation) is overall the first element of forming the opportunities of participation. The scale is wide and expands from the first steps of integration of newcomers to the acquisition of citizenship. Just as for the citizenship – so writes Brubaker (1992) – some conceptions highlight the importance of cultural or ethnic connections, whilst it is only the time spent within the country that counts for the other ones. However Bauböck (1994) points out that certain entitlements are linked to legal residual status of the migrants, it is obvious that citizenship is the most common entitlement for a migrant to get full membership rights - and thus to take part in political life, too. Based on the legal systems of the European countries important differences can be observed among the countries in their policies and procedures. These are e.g. the country of origin, the duration of stay, the original goal of stay, income or special contribution to the competitiveness of the country. Consequently, countries with easier procedures have fewer foreigners in the community and more members who are fully entitled to take part in the political life.

The ethnic and cultural diversity plays an important role in the discussions both at political and private level. Some experts would promote it, but others think that ethnic and cultural features belong to the private life and thus it has nothing to do with the equal treatment and political participation. Some, however, view this practice as negative and disturbing circumstances (Taylor 1992). By analysing the political issues and communications of the European countries it can be pointed out that not the migrant itself but the ethnic groups are considered as an acteur of the political ground or as the mean target of incorporation. Immigrants develop communities in society, often new ones. It means that communities – which are important for the authorities too – exists not only along the ethnical background

but on the basis of the common cultural values as well. This communities are firstly important from the point of view of the political participation when the government takes steps – or introduce new legal rules – with special attention to the existence of such communities of either ethnical or cultural groups (Bauböck 2011). On the other hand, communities can function as a relevant channel of communication with the political area, developing consultation structures or lobbying actions.

THE OUTCOMES OF A CROSS-COUNTRY COMPARISON

According to the statistics of the Eurostat 3.4 million people immigrated, beyond the amount of Syrian, Lybian refugees, in 2015 to one of the EU-28 Member States, and approximately 2,8 million emigrants have left an EU-Member State. There were ca. 1,4 million citizens of non-member (third-country-nationals) countries, 1,2 million people with citizenship of an EU-Member State, 830 thousand people who migrated to their home country (returning or born abroad) and 6,1 thousand stateless persons.

Analysing the migratory history and the relevant legal rules of the European countries I have come to a conclusion that, beside social issues, naturalisation (obtaining a citizenship after fulfilling the requirements) is the most contentious issue of migration politics. Some states are more liberal, offering the newcomers an easy process to become a citizen (e.g. Italy, Portugal, Spain) while in other countries only a restrictive and hard way can lead an immigrant to obtain the citizenship (e.g. Austria, Cyprus, Germany, Ireland). Between 2010 and 2016, according to the data of the Eurostat, the number of immigrants with obtained citizenship was the highest in Romania (highest in 2013 with 90 % of all immigrants), Lithuania (86 % in 2015), Portugal (in average of 69 %), Estonia, Poland (in average 60 %), then Latvia and Slovakia. Regarding Hungary, persons acquiring citizenship were almost exclusively from the Hungarian minority in Romania or from returning diasporas.

In general, the effective integration of immigrants is one of the key factors for success regarding the European convergence targets. The elements of the European migration policy aim to harmonize the legislation and the administrative instruments, to maximize the positive effects of migratory flows while finding solutions for migratory challenges. After a cross-country comparison it is obvious, that these instruments and solutions are still divergent: there are European countries with restrictive policies; other states are, in contrary, open for multiculturalism providing easier access to equal rights (incl. political and welfare system). Analysing the strategies of the classic host countries, there can be found several factors underlying the differences between immigrants' integration and the labour market performance of these countries. These are – in summary - the historical background of the host country, the national streamline in the policies relating

migration management, the labour market and the welfare system of the host country, including the incomplete recognition of qualifications, discrimination and lack of information flow. Besides the country of origin, the skills, experiences and qualifications of immigrants and the purpose and circumstances of the stay can also be considered as important elements.

As for the residence permit, criteria for obtaining or losing it can vary from country to country, though the spirit of the European Union requires harmonized legal background. Austria and Germany have strict rules. If we look at the legislative and administrative practice in these countries, immigrants have to face difficulties getting and holding their permits or later upgrading them into a secure one or into citizenship. Granted access to the social welfare, marginalized life periods, crime issues or just administrative problems can undermine these upgrading goals. Political rights can be fully obtained after having obtained citizenship. At the same time, in the Netherlands and in Sweden or in France, the legal rules are not so strict; the probability of losing a residence permit or the citizenship is low. An important issue of the national or regional development is the socio-economic situation of immigrants – which also depends on the migration policy of the host country, and at the same time, on the national or regional welfare characteristics. Comparing the European welfare structures, immigrants (just like non-migrants) have basically easy access to the welfare services in northern Europe, such as Sweden, besides Belgium or the Netherlands. The United Kingdom offers the least protection against market forces for immigrants. In Austria, Germany and even Switzerland welfare benefits are only granted for immigrants if the strict requirements are fulfilled.

Beyond analysing the migration policies and legal issues regarding, the achievements of the MIPEX (Migrant Integration Policy Index) can also be useful for us. The MIPEX is a European tool to compare different indices regarding integration of immigrants. As for the period of 2007-2015, Sweden has in average the highest score, offering the easiest access to equal rights. The next ones are the Netherlands and the United Kingdom. The German-speaking countries (Germany, Switzerland and Austria) have lower scores. It illustrates their strict legal practices, reflecting the difficulties in the realization of equal rights.

Highlighting the political inclusion of immigrants, these fields are the followings: electoral rights, political liberty, consultative bodies, implementation policies (information-flow).

Figure 2: The 10 top-countries that offer an easier way to political participation (2015)
80-100: favourable - 60-79: slightly favourable - 41-59: halfway favourable -
21-40: slightly unfavourable - 1-20: unfavourable – 0: critically unfavourable

Ranking	Country	Score
1	Norway	82
2	Luxembourg	81
3	Finnland	79
4	Portugal	74
5	Ireland	73
6	Sweden	71
7	Iceland	67
8	Denmark	64
9	Germany	63
10	Italy	58

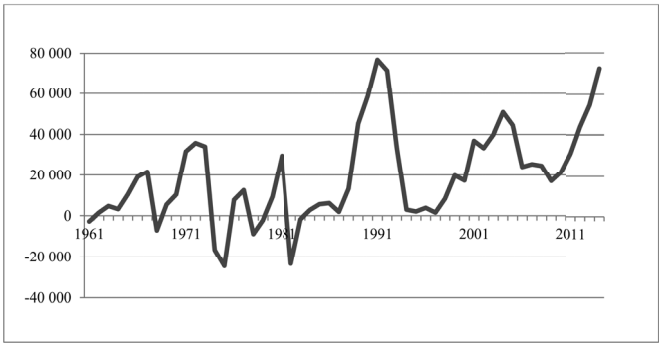
Source: own illustration on the base of MIPEX

Generally in Western Europe immigrants have greater voting rights, stronger consultative bodies, more support for organisations and better cooperation with authorities. Persons with foreign citizenship in Central Europe and the Baltic states must be generally first naturalised, since the political participation is still missing from these integration strategies. In addition, a reform concerning migration needs greater political cooperation (such as in the UK) or constitutional reforms (e.g. in Austria or Germany). However, as I can see, political participation is becoming even more important as countries realize the worth of voting rights and consultative bodies.

THE CASE OF AUSTRIA

After the breakdown of the Austro-Hungarian Monarchy the history of migration has also developed in the successive states in different ways. By now Austria has become a nation with a mixed population, which means, that approximately 12% of the inhabitants are foreign residents and 20,4% has a migratory background (the person or both of the parents arrived from abroad). Thus Austria is now a country of immigration.

Figure 3: Net migration rate in Austria, 1961-2015



Source: own illustration based on the data of Statistik Austria

Since the first labour migration program of the 1960´s the migration policy and integration tools have been severely revised and reworked. At the same time, new measures were introduced that should ensure better integration of foreigners in Austria – and so as "integration before immigration". Regarding exclusion of immigrants, the Austrian anti-discriminative laws were to be harmonised with the EU law. The 2010 National Action Plan and its organ, the Integration Fund announced many new initiatives, although these are mostly soft-solutions – without legal consequences. Compared with the legal rules of other countries, immigrants have less equal rights and opportunities in Austria than in the other "classical" host-countries. Highlighting the political integration of immigrants again, it should play the same role on the political and social platform as the labour market or social welfare, since the political exclusion can also have negative consequences.

Despite of the efforts the Austrian state makes to find an optimal non-legacy-solution for the integration of immigrants – or despite of the communication the Austrian government interpretates its activities and goals – according to the Migrant Integration Policy Index of the EU the country only reaches yearly the following achievements:

Figure 4: Evaluation on the base of MIPEX-data as for Austria (2015)

Rank	20 (of 38)
Score	50
Labour market mobility level	64
Family reunion level	50
Integration in educational issues	47
Integration in health issues	63
Political participation level	38
Permanent residence level	57
Access to citizenship	26
Anti-discrimination level	57

Source: own illustration based on the data of MIPEX

Almost 120 thousand of immigrants arrive yearly to Austria – not including the new asylum seekers - thus it is obvious, that immigration has effects on the public service at state and local level as well, e.g. in the fields of education, social care, health care, unemployment, housing, business environment and - in connection with all of these - the command of the German language became more important. The government therefore tries to manage migration and direct the integration of migrants with different methods. One of the main barriers to integration (and successful cooperation with immigrants) is the limited German knowledge of migrants and the lack of knowledge regarding the history and culture of the country. The state makes thus efforts to communicate the importance of these not only in Austria (with the help of different channels) but abroad, through the embassies and institutions too. The Austrian government made, however, no progress on political participation and can be found behind other reform trends as other countries extend citizenship entitlements for the 2nd generation and dual nationality for all. On the base of the development of the Austrian legal rules in the last century we can say, that this issue has not even changed since the Monarchy, only along the impacts of the EU-rules. The policy in connection with permanent residence and naturalisation is one of the most restrictive in Europe, and do not still take into account immigrants' efforts, their individual abilities and circumstances. However, the Austrian subnational authorities have also recognized the importance of immigrants` integration. Different integration instruments have been developed – in Graz even since the appearance of the first guest-workers. We can still only talk about a countrywide intensive integration activity from 2000. Today, a cooperative attitude of the regional or local government regarding integration of immigrants and the priority of information-transfer among the actors (local community, immigrants, institutions, authorities, entrepreneurs, civil groups, media) profoundly affect the outcomes of the labour market and thus both the social and economic development of the region.

SUMMARY

Today each European state, including Hungary, faces different migratory challenges. One of the most interesting questions is how the government can make advantages of it, how the political level can promote the active engagement and participation of immigrants. Integration is the process by which immigrants become accepted into the society, getting a range of entitlements depending on their legal status. In conclusion, naturalisation is a common way in Europe to integrate immigrants – with the requirements and with its achievements such as citizenship, access to domestic politics, economic and social advantages. We have seen that the strategies, instruments and solutions in the host countries can vary, despite of the Convergence objective of the EU.

The circumstances and effects of the inclusion can be observed in local context as well. It is the local level that directly shapes the attitudes of the native population towards migrants and the immigrants' contribution to the development. The characteristics of the individual level, of the migrants themselves, can also help us to find further solutions for this topic, but the local civil communities have also an impact on the opportunities and willingness of migrants for the participations. Therefore, comparative analyses could be conducted either on regions of a country or on European metropolitan cities. Thus, the focusing on the local level can give us additional materials when studying migrants' incorporation, giving us the possibility to learn from the lessons of the European host countries.

REFERENCES

- Angenendt, Steffen (2000) Globalisierung und Wanderungsbewegungen. In: Butterwegge et. al.: *Zuwanderung im Zeichen der Globalisierung, Migrations-, Integration- und Minderheitenpolitik.* VS Verlag für Sozialwissenschaften, Opladen, 35-41.
- Bauböck, R. (1994) *The integration of immigrants.* Council of Europe CDMG, Strasbourg.
- Bauböck, R. (2011) Citizenship and Freedom of Movement. In: Smith, R. (ed.): *Citizenship, Borders and Human Needs.* Pennsylvania Unversity Press, Philadelphia. 343-376.
- Brubaker, R. (1995) National Minorities, Nationalizing States, and External National Homelands in the New Europe. *Daedalus 124/2*
- Council of the European Union (2004) Immigrants' Integration Policy in the European Union *In: 14615/04 - 2618th Council Meeting on Justice and Home Affairs* http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/jha/82745.pdf letöltés: 2016.03.25.
- Democracy Reporting International (2011) *Report – International Consensus: Essential Elements of Democracy.* http://www.democracy-reporting.org/files/essential_elements_of_democracy_2.pdf letöltés: 2016.04.23.
- Entzinger, H. (1999) Immigrants' political and social participation in the integration process. In: Council of Europe, Directorate of Social and Economic Affairs: *Political and social participation of immigrants through consultative bodies.* Strasbourg
- Eurostat-Data: http://ec.europa.eu/eurostat/statistics-explained/index.php/Main_Page
- Fassmann, H. – Münz, R. (eds.) (1996) *Migration in Europa. Historische Entwicklung, aktuelle Trends, politische Reaktionen.* Campus Verlag, Frankfurt am Main.
- Fieldhouse, E. – Cutts, D. (2000) Diversity, density and turnout: the effect of neighbourhood ethno-religious composition on voter turnout in Britain. *Political Geography, 27.* 530-548.
- Jones-Correa, M. (1998) *Between two nations.* CU, Cornell
- Koopmans, R. (2005) *Contested Citizenship. Immigration and Cultural Diversity in Europe.* UMP, Minnessota.
- Layton-Henry, Z. (1992) *The Politics of Immigration.* Blackwell, Oxford-London
- MIPEX - Data: http://www.mipex.eu/play/

• Morales, L. – Giuni, M. (2011) Social capital, political participation and migration in Europe. *Social Sciences Collection 2011,* Palgrave MacMillan, Hampshire
• Myrdal, G. (1960) *Beyond the Welfare State.* Yale University Press.
• Pennix, R. et al (2004) Integration of Migrants: economic, social, cultural and political dimensions. European Population Forum 2004. UNECE, Geneva.
• Rogers, A. – Tillie, J. (eds.) (2001) *Multicultural Policies and Modes of Citizenship in European Cities.* Ashgate, Aldershot.
• Ramakrishnan, S.K. – Bloemraad, I. (Eds.) (2008) *Civic Hopes and Political Realities: Immigrants, Community Organizations, and Political Engagement.* Russell Sage Foundation Press, NY
• Statistik Austria - Data: http://www.statistik.at/web_de/statistiken/index.html
• Tillie, J. (2004) Social capital of organisations and their members: explaining the political integration of immigrants in Amsterdam. *Journal of Ethnic and Migration Studies.* Vol. 30, Issue 3/2004. 529-541.
• Treibel, A. (2011) *Migration in modernen Gesellschaften – Soziale Folgen von Einwanderung, Gastarbeit und Flucht.* Juventa Verlag, Weinheim und München
• Verba, E. et al. (1995) *Voice and Equality.* Harvard UP, London

ISTVÁN PESTI

Indicators and research metodology of the process innovation

István Pesti: Széchenyi István University RGDI, PhD student (scientific.pesti@gmail.com)

1. INTRODUCTION

As only that subject can be analyzed, which is measured, therefore the measurement is substantial from research point of view, especially on the field of innovation, because of its state-of-the-art nature. The question of innovation measurement is discussed within the literature from Schumpeter's often quoted publication's date, 1912, but the economic environment and the technical developments had been changed in the last more than 100 years. In the light of the above mentioned, I made my literature review based on the last 10 years English language publications, considering the obsolesce of the scientific results. It is assumed, that the collection of the indicators and applied research methods from the previous studies might contribute to further theories in the field of economics and business economics too. In this article, I use the current, international organizations used understanding, and argue that the further theories are based on the original one. According to the Oslo Manual, the types of the innovation are the following: product innovation, process innovation, organizational innovation and marketing innovation (OECD, 2005). As from my scientific interest is related to the process innovation, this one is aimed to extract, however these for can not be separated from each other sharply. There are several institutions had been created for innovation research, the most relevant to this paper are the following: The innovation research method, statistic data collection and analysis of the EUROSTAT is governed by the related EU regulation, this makes the collected data transparent and comparable. The Community Innovation Survey (CIS) collects periodic data within the EU, The European Innovation Scorecard is, where the EU results are compared to global context. The INNO-Policy Trend chart, which is an independent institution, focusing on the EU member states' innovation performance. Last but not the least; the Mannheim Innovation Panel (ZEW) is collecting data on one of the strongest economies of the EU, the German one, since 1993.

In order to use the common definition, I regard the process itself as activity, which covers the performing of given tasks, framed by time and space, having start and end point; assigned with inputs and outputs, as it is agreed within the literature (Davenport, 1993; Papinniemi, 1999) On the other hand, the understanding of the process innovation measurement is important from comparison point of view. For example, the results of this article are going to be used for the analysis of the performance of Hungarian beer manufacturers, but having their data and the described method, the data collection and analysis can be performed within the neighboring countries with similar economical conditions.

2. INDICATORS

The applied indicators are depending on the hypothesizes of the research and the data collection, they are presented as follows from different aspects.

Resource-based indicators are playing important role from the statistic data collection and data availability point of view. As example, I would mention the ratio of the BSc degree owners within the segment of the Hungarian whole population in the age between 18 and 64 years. In this paper, the economy and business economy shall be regarded as same from indicator point of view, for example, the employee of a company is the member of the Hungarian population.

Input-based indicators (or so called short term indicators) are those, which contributing to the realization of the innovation process, for example, the financial expenses (in the same currency, eg. USD or EUR), in order to make the performance of different countries comparable.

As illustration of the above, for example:

- GERD, which means Gross Domestic Expenditure on R&D
- BERD, which means Business Expenditure on R&D
- GOVERD, which means Governmental Expenditure on R&D

I would like to note, that from the above, only the GOVERD indicator can be regarded unconditionally valid, the companies are not obliged to share this kind of data in their full understanding and because of global financial reasons, the reported amount in a given country can influence another business unit's performance in another country.

Process-focused indicators (considering their duration, so called mid-term indicators) are describing the whole innovation process, including its duration, resources, etc.

For example:

- number of patents (PC)
- amount of investment into development project (EUR)
- return on investment from new offers (EUR)
- rate between investment projects (%)
- planned and realized performance (%)
- average duration of the project development (days)

However, it is interesting that the indicators are depending from the data source, for example the above written "rate between investment projects": it can be the return rate, the rate of amount of investment and can also be the rate of complexity. Process focal points are applied, when the whole process is under investigation, not only part of it. From Total Cost of Ownership analysis point of view, the change in one factor might result to decrease/increase of an other one.

Output-focus indicators (or so called long term indicators) are able to present the end of a given project, make the conclusion, whether had the project reach its planned goal or not.

For example:

- number of innovations per 1000 employees (pc/1000)
- profitability (cost/profit, EUR)
- customer satisfaction (%)
- market enter time (day)
- idea generation (day)

Applying the above indicators, the performance of companies, industries and regions can be compared because of the transparent data from a general source.

Completing the above collection, we can declare, that beside of the above three indicators, categorization can happen on static or dynamic point of view, which means that the measurement might related to a fix time or a given period.

In global context, some of the indicators can not be applied because of the different environment of data collection; therefore complex indicators shall be applied in order to take more factors into consideration.

For example

- Global Competitiveness Index,
- Summary Innovation Index
- Talent Index
- Innovation output indicator (IOI)(EB, 2014).

To summarise, it can be said that depending of the focal point of the research, there are various indicators can be applied. Considering the creation of a complex indicator, we shall be aware that the different source of data (with different unit of measure, different scaling and different data gathering periods) might vary, therefore they shall be synchronized before.

3. RESEARCH METHODS IN THE LITERATURE

Considering the international literature's relevant publications, I hereby summarize the engineering and economic researchers' papers in ascending order, which means that the oldest one is the first and the latest at the end.

1. table: Summary on the important publications in process innovation

Researcher	Methodology	Year of publication	Research area
Hipp – Grupp	Number of applications of trademarks	2005	Engineering
Li, Liu – Ren	Structural equation model	2007	Engineering
Luo – Chang	Visualized process analysis	2013	Engineering
Becker – Egger	Conditional mean-independence	2013	Economics
Nelson et. al.	index terms and domain expert assessment	2014	Economics
Lim – Suh	Visualized process development cycles	2015	Engineering
Kim et al.	Input-output analysis	2015	Economics
Ibert – Müller	Horizontal process analysis	2015	Economics
Hullova et al.	Complementarity-capabilitymatrix	2016	Economics
Li – Ni	Dynamic control model	2016	Economics
Knight et. al.	Table on System and individual level barriers and enablers	2016	Economics
Córcoles et al.	Discrete-Time Duration Analysis	2016	Economics
Janger et. al.	Create composite indicator	2017	Economics

Source: own creation

Reviewing the above, we can make a conclusion as the researchers used to apply the following methods:

- visualization
- their own models
- complex analyses
- indicators

There isn't a significant difference between the engineering and economics researches, only the subject of the research shall define the applied method, and –obviously- the available data.

My professional point of view is, that the better understanding of processes (and their analyses and development) can be done with process visualization, therefore it creates the opportunity to make visible the differences, combined with the fix time related numeric indicators.

The depth of the innovation (regardless it is incremental or radical) researchers used to understand on different ways, so they apply in multiple formats in the literature: one group of researchers are considering the incremental process innovations as process development, another group argues as the process innovation is simply the application of external innovation processes internally. (Reichstein and Salter, 2006; Pilav-Velic – Marjanovic, 2016)

The similar debate can be observed at the tool of visualization: the value chain analysis makes the structural understanding reasonable at some cases, but in other papers, publishers are using this only as illustration. As it can be highlighted from the table 1, the tools of process development can be applied in process innovation too. For example, the fishbone-analysis (or so called Ishikawa analysis) focusing on the 4Ms (man, method, material and machine) as method for cause and effect analysis. The continuous development's round also can be an option, its self-closing line symbolize the steps each after and the never ending development.

4. APPLICATION WITHIN THE INDUSTRY SECTOR

There are several researches in the literature regarding to the Low Technological Intensity manufacturing industries as beer industry or paper industry's processes and products, since 1990. (Hansen – Serin 1997; Jacobson – Staffan 2005; Tunzelmann – Acha 2006; Hirsch-Kreinsen 2015; Kirner, Kinkel – Jaeger 2009; Robertson – Smith, 2008, Heidenreich, 2009). Generally, it can be observed that the researchers are agreed on that the increased innovational performance not used to be achieved by firms individually, but in strong cooperation within the supply chain, independently from the industry. (Soosay et al., 2008; Nieto – Santamaría, 2007; Kibbelling et al., 2013). It is interesting to see, that among the SMEs (small and medium enterprises), the innovation sometimes is based on a specific colleague, who plays crucial role in the innovation process, sometimes with the result with „naked feet" innovation. (Naked fee innovation had been applied in the literature to those innovations, where the environment does not focus on innovation, but the external factors make the innovation some kind of must, the invented product/process shall replace an expensive, alternative solution.)

5. CONNECTION BETWEEN THE PROCESS AND PRODUCT INNOVATION

As the conclusion of the reviewed paper, I was able to realize three different understanding of the connection between the two types of innovation.

Some researchers (pl. Kurkkio et al. (2011), Novotny – Laestadius (2014)) considering the product innovation as starter point to the process innovation, so in the line of the elements, creation of the product shall be prior than the new product, because the new process is needed because of change in the product.

The logic behind of these understandings is that the sales of the products results different margins, therefore the sales of a more lucrative product shall be prioritized in front of sustain a less lucrative one.

As opposite, there are theories, where the product innovation shall start at process innovation (Martínez-Ros (2000), Lager (2002), Lim et al. (2006) Martínez-Ros – Labeaga (2009)), because the change in the environment shall influence the inputs to the process, so the newly created product must be the result of a process innovation.

The third way is the ignorance of the insignificant connection between the types (Damanpour, 2010), Van de Ven et al. (2013), (Pisano and Shih, 2012), (Battisti – Stoneman, 2010), Evangelista – Vezzani (2010)) because of their low correlation. Some of the studies showed that there is no significant correlation, both of the innovations can be understood and applied alone, as a single one.

My personal opinion is, that the innovation's five types (based on the Schumpeterian theory) shall be harmonized with each other, in order to contribute the organizational (and financial) corporation targets. Bonnano – Hawort's (1998) experience showed that the types not obviously shall be separated, they can be applied in the same time, based on the firms' management's decision, supposing, that their decisions are reflecting to the market processes.

Utterback (1996), and later Pisano (1997) and Lager (2000) had showed that the simultaneous innovation types are part of the normal operation of the market players.

At the same time, we shall take it into consideration, that in case of monopoly market, the support of two parallel innovations might lead to the cannibalization within the product portfolio. (Lambertini – Mantovani, 2009).

6. PROCESS INNOVATION WITHIN LOGISTIC PROCESSES

The topicality of the process innovation is supported by the fact that more global researcher team are working on it, in the following, I'll categorize the process innovations by logistic sub-functions, as they are generally part of an organization.

Procurement: the „KIBS" (Knowledge Intensive Business Services) are playing crucial role in our today's procurement, because they make the unit able to let the whole company prepare to the new business processes and to create new categories to the strategic and operational procurement.

Distribution, inventory management and warehousing: raw material-based warehousing concepts (Rojas és Leiva, 2016), especially int he FMCG industry.

Transportation (applying the results of the technological innovation): low or zero CO emission processes, and regarding to its management, we can see that the reverse logistics and shared-economy will have deeper influence on the existing processes. (Jianxiong, Z. R. D., 2017)

Order management: big data creation, analysis and sharing between the members of the whole supply chain, in order to reduce the bullwhip-effect. (Manders, Caniëls, Ghijsen, 2016)

ICT background of the above: new, cloud based solutions will be more and more popular among the SCM processes, which are in line with the Industry 4.0 processes, parallel, the reduced number of capex spending (a.k.a. investments) will contribute to the better cash flow. (Maruyama – Zennyo, 2017)

It is worth to mention that the process innovation used to be examined among the high technological industries, but the medium or low intensity industries are often out of scope. (Robertson – Tunzelman, 2008), but Heidenreich's (2009) research shows that the innovation is available at the SMEs at all type except product.

7. CONCLUSIONS

The aim of the paper was to contribute to the better and up-to-date understanding of the process innovation indicators and its research methods as a literature based secondary research, based on international publications.

Listing the existing, broad and international bodies' (as UN, EU, etc) researches and the types of indications might help to analyze the above mentioned organizations' reports and the related publications.

The table summarized previous researches show the difference between the engineering and economical point of view, despite of the subject of the analyses shall be the same. This difference can let the researchers understand the common points in order to create interdisciplinary research groups on the field of process innovation.

The managerial application of the results shows the validity of the research topic and makes the consequences able to make the managers' decision making process more accurate.

As my research topic is the process innovation within the Hungarian beer manufacturers' supply chain, this paper shall contribute to my dissertation's theoretical part also.

REFERENCES

- 2014. évi LXXVI. törvény a tudományos kutatásról, fejlesztésről és innovációról
- 2016. évi CLXXV. törvény a tudományos kutatásról, fejlesztésről és innovációról szóló 2014. évi LXXVI. törvény módosításáról
- Battisti, G. – Stoneman, P., (2010) How innovative are UK firms? Evidence from the fourth UK community innovation survey on synergies between technological and organizational innovations. British Journal of. Management. 21, 187–206.
- Becker, S. – Egger, P.H. (2013) Endogenous product versus process innovation and a firm's propensity to export, Empirical Economics, 44, 329–354

• Bonano, G – Haworth, B. (1998) Intensity of competition and the choice between product and process innovation, International Journal of Industrial Organization, 16, 495–510.
• Córcoles, D. – Triguero, Á. – Cuerva,M.C. (2016) Comparing Persistence of Product and Process Innovation: A Discrete-Time Duration Analysis of Innovation Spells, Economics Discussion Paper
• Damanpour, F. (2010) An integration of research findings of effects of firm size andmarket competition on product and process innovations. Br. J. Manag. 21, 996–1010.
• D'Antone, S. – Bonomi Santos, J. (2016) When purchasing professional services supports innovation, Industrial Marketing Management, 172–186
• Davenport, T.H. (1993) Process Innovation: Reengineering Work through Information Technology, Harvard Business School Press, Cambridge, MA
• Európai Bizottság (2010) Elements for the setting-up of headline indicators for innovation in support of the Europe 2020 strategy, Directorate-General for Research and Innovation, Brüsszel
• Európai Bizottság (2014) The Innovation output indicator 2014, Joint Research Centre, Ispra
• Evangelista, R. – Vezzani, A., (2010). The economic impact of technological and organizational innovations. A firm-level analysis. Res. Policy, 39, 1253–1263.
• Gault, F. (2013) Handbook of Innovation Indicators and Measurement, Edward Elgar Publishing , Cheltenham
• Hámori, B. – Szabó K. (2015) Az „innováció innovációja": Új innovációtípusok a globális gazdaságban , Külgazdaság, 59, 5–6
• Hansen, P. A. – Serin, G. (1997) Will low technology products disappear? The hidden innovation processes in low technology industries, Technological Forecasting and Social Change, 55.
• Heidenreich, M. (2009) Innovation patterns and location of European low- and medium-technology industries, Research Policy, 38, 3.
• Hipp, C. – Grupp, H. (2005) Innovation in the service sector: The demand for service-specific innovation measurement concepts and typologies, Research Policy ,517–535.
• Hirsch-Kreinsen, H. (2015) Innovation in Low-Tech Industries: Current Conditions and Future Prospects in Som, Kirner szerk: Low-tech Innovation, Springer, 2015 Genf
• Hortoványi, L. – Dobák M. (2016) A versenyképesség és az innováció vállalati szintű vizsgálata, Vezetéstudomány, 47, 12.
• Hullova, D. – Trott, P. – Simm, C.D. (2016) Uncovering the reciprocal complementarity between productand process innovation, Research Policy, 45, 929–940
• Ibert, O. – Müller, F. (2015) Network dynamics in constellations of cultural differences: Relational distance in innovation processes in legal services and biotechnology, Research Policy 44. szám, 181–194.o.
• Jacobson, D. – Laestadius, D. (2005) Low-Tech innovation in the knowledge economy, Peter Lang GmbH, Frankfurt
• Janger,J. (2017) The EU 2020 innovation indicator: A step forward in measuring innovation outputs and outcomes?, Research Policy, 46, 30–42
• Jianxiong, Z. R. D.(2017): Green process innovation and differentiated pricing strategies
• Kibbelling, M. – van der Bij, H. – van Weele, A., (2013) Market orientation and innovativeness in supply chains: supplier's impact on customer satisfaction. J.Prod. Innov. Manag. 30, 500–515.

• Kim, S-R – Kim, S.T. – Chun, Y.J. (2015) Environmental Regulation, Process Innovation and Social Cohesion in Korea, Indian Journal of Science and Technology, 8.
• Kirner, E. – Kinkel, S. – Jaeger, A. (2009) Innovation paths and the innovation performance of low-technology firms – An empirical analysis of German industry, Research Policy, 38, 447–458.
• Knight, L. (2016) Breaking the mold: Research process innovations in purchasing and supply management, Journal of Purchasing & Supply Management, 22, 239–243.
• Kurkkio, M. – Frishammar, J., – Lichtenthaler, U., (2011) Where process development begins: a multiple case study of front end activities in process firms. Technovation, 31, 490–504
• Lager, T. (2000): A new conceptual model for the development of process
• Lager, T., 2002. Product and process development intensity in process industry: a conceptual and empirical analysis of the allocation of company resources for the development of process technology. Int. J. Innov. Manag. 6, 105–130.
• Lambertini, L. – Mantovani, A. (2009) Process and product innovation by a multiproduct monopolist: A dynamic approach, International Journal of Industrial Organization, 27, 508–518.
• Li, S. – Ni, J. (2016) A dynamic analysis of investment in process and product innovation with learning-by-doing, Economics Letters , 104–108
• Li,Y. – Liu, C.Y. – Ren, C.F. (2007) Product innovation and process innovation in SOEs:
• Lim, L. P. L. – Garnsey, E. – Gregory, M. (2006) Product and process innovation inbiopharmaceuticals: a new perspective on development. R&D Manag. 36 (1), 27–36.
• Lim, S. Y. – Suh, M. (2015) Product and Process Innovation in the Development Cycle of Biopharmaceuticals, Pharm Innov .10, 156–165
• Luo, C. M. – Chang, H-F. (2013) Safety process innovation in medical service industry, Qual Quant, 47, 2915–2931
• Manders, J. H. M, – Caniëls, M. C. J. – Ghijsen, P. W. Gh (2016) Exploring supply chain flexibility in a FMCG food supply chain, Journal of Purchasing & Supply Management, 22,181–195.
• Martínez-Ros, E., (2000): Explaining the decisions to carry out product and process innovations: the Spanish case. J. High Manag. Technol. Res. 10, 223–242.
• Martínez-Ros, E., Labeaga, J.M., (2009). Product and process innovation: persistence and complementarities. Eur. Manag. Rev. 6, 64–75.
• Maruyama, M. és Zennyo,Y. (2017) Process innovation, application compatibility, and welfare, Information Economics and Policy, 1–12.o.
• NAV: Innovációs járulék tájékoztató, letölve: https://nav.gov.hu/data/cms381853/68._informacios_fuzet___Az_innovacios_jarulek_legfontosabb_szabalyai_20151009.pdf
• Nelson, A. et. al. (2014) Do innovation measures actually measure innovation? Obliteration, symbolic adoption, and other finicky challenges in tracking innovation diffusion, Research Policy 43, 927–940.
• Nieto, M.J. – Santamaría, L., (2007) The importance of diverse collaborative networks for novelty of product innovation. Technovation 27, 367–377.
• Novotny, M. – Laestadius, S., (2014) Beyond papermaking: technology and marketshifts for wood-based biomass industries – management implications forlarge-scale industries. Technol. Anal. Strateg. Manag. 26, 875–891.
• OECD (2016) Science, Technology and Innovation Outlook 2016
• OECD: Oslo kézikönyv, 2005, letöltve: https://www.oecd.org/sti/inno/2367580.pdf

• Papinniemi, J. (1999) Creating a model of process innovation for reengineering of business and manufacturing, Int. J. Production Economics 60-61.sz. 95-101.o.
• Pilav-Velic, A. és Marjanovic, O.(2016): Integrating open innovation and business process innovation: Insights from a large-scale study on a transition economy, Information & Management 53. szám, 398–408.o.
• Pisano, G. (1997) The development factory: unlocking the potential of process innovation, Harvard Business Review Press, MA
• Pisano, G. – Shih, W., (2012) Producing Prosperity: Why America Needs a Manufacturing Renaissance. Harvard Business Review Press, Boston.
• Reichstein, T. – Salter, A.(2006) Investigating the sources of process innovation among UK manufacturing firms, Ind. Corporate Change 15. szám, 653–682.o.
• Robertson, P. L. – Smith, K. (2008) Distributed Knowledge Bases in Low and Medium Technology Industries , Australian Innovation Research Centre University of Tasmania
• Robertson, P. L. – Tunzelmann, N.v. (2009) Innovation in low- and medium-technology industries, Research Policy, 38, 441–446.
• Soosay, C. A. – Hyland, P. W. – Ferrer, M. (2008) Supply chain collaboration: capabilities for continuous innovation. Supply Chain Manag. Int. J. 13, 160–169.
• Soosay, C. A. – Hyland, P. W. – Ferrer,M. (2008) Supply chain collaboration: capabilities for continuous innovation, Supply Chain Management: An International Journal, 13, 160-169.
• Tunzelmann, N.v. – Acha, V. (2006) Innovation In "Low-Tech" Industries, The Oxford Handbook of Innovation, Oxford University Press, New York
• Utterback, J. (1996) Mastering the dynamics of innovation, Harvard Business Review Press, MA
• Van de Ven, A.H., Ganco, M., Hinings, C.R., 2013. Returning to the frontier of contingency theory of organizational and institutional designs. Acad. Manag.Ann. 7 (1), 393–440.