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PREFACE

Three papers relate to agricultural issues. One paper gives a balanced review the status quo and future perspective of goat keeping and goat milk products, particularly emphasising the role of goat milk products in human nutrition. Across the globe, goats can be kept almost anywhere, even in poor surroundings. In a second paper the member states of The EU can be divided into specific groups with respect to agri-food agricultural trade according to three examined aspects in the cluster analysis (food trade features, exports of commodities, imports of commodities). The third paper the case study of L'Antica Pizzeria da Michele as a best practice of traditional speciality guaranteed and international franchising

Two papers relate to the application of ideas and methods from business management to sports clubs. One, discusses the application of the balance score card to a football club in Hungary. whereas the other one investigates of Corporate Social Responsibility to two football clubs, Real Madrid and Borussia Dortmund.

Two papers discuss consumer behaviour. One paper is an analysis of bathing habits among spa visitors in Hungary. Another one is an exploratory study of touristic motivations and lifestyles of Hungarian domestic tourists.

Wageningen, October 2019.

Johan A.C. van Ophem

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SCIENTIFIC PAPER

ESTABLISHMENT OF THE CUSTOMER PERSPECTIVE OF THE BALANCED SCORECARD SYSTEM AT SPORTS ENTERPRISES THROUGH THE EXAMPLE OF A HUNGARIAN FOOTBALL CLUB

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Abstract: *In our present world, more and more attention is being paid to the evaluation and monitoring of different sports organizations, which is because the support of spectator sports has become an important issue. Our fundamental assumption is that football clubs of our time should operate just like large companies in the business sectors. Obviously, it is an essential prerequisite that controlling, a controlling system or a performance measurement system be applied at the business entities operating the clubs. According to our experience, conscious financing of organizations is often neglected in the course of the management processes of sports companies. It is necessary to create the conditions at these organizations that enable managerial decision support and the establishment of a controlling system. It is essential to find controlling methods and tools that can be successfully applied in the life of a sports organization and that ensure the harmonization and coordination of different processes. Consequently, controlling provides a higher level of transparency and information supply for decision makers. The aim of present study is to introduce the Balanced Scorecard (The Balanced Scorecard is a balanced strategic system of indexes, which measures the performance of companies for the sake of implementing the strategy), one of the tools of strategic controlling and its application to sports companies through an example of a Hungarian football club.*

Keywords: *performance measurement, controlling, index system, Balanced Scorecard, decision support*
(JEL Classification: *Z23*)

INTRODUCTION

Currently, the role of sports has intensified and changed; by now, it has become a separate area of interest from an originally civil, exercise-based, private leisure activity. One of the reasons for the development of sport activities was the increase of their economic significance, which created the need for their economic analysis (ÁCS, 2015; BÁCSNÉ et al., 2018b). In modern societies, the role of sport has increased significantly, as the sports market has undergone explosive development. It was accompanied by an increase in its economic weight. In many countries, sport is considered a profitable sector and its economic importance has increased. The reason for the dynamic development of the leisure market of the sports industry is the increase of demand for sports opportunities due to leisure and lifestyle changes. This provides a constantly expanding market for companies providing sports services and businesses dealing with sports tourism and sports equipment production (ANDRÁS, 2003; BÁCSNÉ et al., 2018c). Following the improvement of the economic importance of sport, the association-based sport model had to be replaced by the business model (BÁCSNÉ, 2015a). Sport had to be produced as a service and its owners became profit-oriented (VÁCZI, 2010). In developed countries, sport is already managed by the market and its subsistence is not based on state support. The market presence of sport as a service is still in its infancy in Hungary (BÁCSNÉ, 2015b). According to DÉNES (2015) a sports economist, sport has to significantly reconsider its method of thinking and acting; management of successful sports has to be changed. There are some spectator sports that enjoy great success abroad, but they are not popular in Hungary. Federations of various well-known sports are struggling with financial difficulties and can only rely on the government. The power of sports favoured by the market lies in their large advertising media value, which is due to their considerable requirement of sports equipment and their spectacles. Other sports (canoeing, kayaking, swimming), however, are only valued on the basis of the number of Olympic medals (DÉNES, 2015). Based on the research of RÁTONYI ez al.(2017), it was also concluded that sport is a multi-billion-dollar economic area, one of the most dynamically developing industries in the world. Contribution of the sports sector to GDP in the EU Member States is close to 5%, while in Hungary it is approximately 1-1.5%. This ratio is likely to increase, for which various subsidies of corporate tax provide a good basis.

According to SZABADOS (2008), it seems that global football is increasingly characterized by globalization and uniformity: the same techniques and solutions appear in Madrid, Manchester, Milan, Marseille or even in Miskolc. Tools are undoubtedly similar, however the objectives and structures sometimes show surprising variability. Each football club follows its own ideas and its own strategy with strict consistency: this awareness is the most important indicator of these organizations being professional business enterprises. Furthermore, nowadays football clubs attract the interest of investors in the same way as regular enterprises, an evidence of which is that the well-known methods used for valuing firms and brands (presented by Takacs (2014,2015) for instance) are now applied for football clubs, and market values of the best teams are regularly revealed (e.g. Forbes's annually published List of Most Valuable Soccer Teams). The age of amateur associations has ended; enthusiastic non-professionals disappeared not only from the fields but also from club houses, and football companies consciously select and follow strategies as their teams do on the field. On the international level, Hamil et al. (2010) state that since the 1990s the process of sports becoming more business-like has had numerous consequences.

It can be stated that in the 21st century, demand for sport has progressed enormously, resulting in the development of the economic aspects of sports as well. Governments play an essential role in filling the funding gap, which is required for the sustainable operation of sports. In Hungary, government intervention and funding is considerable. Currently, increasing amounts of funding is involved in sport and more and more attention is paid to the social usefulness of sporting activities (VÁCZI et al. 2017, BÍRÓ et al. 2017), however many organizations are struggling to survive (KOZMA and KAZAINÉ, 2014b). BÁCSNÉ et al. (2018a) stated that the economic performance of Hungarian football clubs is lagging behind the international ones, and that the total revenue of 9 National League I football clubs examined by them amounts to 11.10% of the total revenue of domestic profit-oriented sport companies and 2.80% of the revenue of the entire sports sector. Thus, economic importance of the leading professional football companies is indeed significant.

The recent change in the life of sports organizations makes it necessary to introduce some form of managerial decision support that ensures that managers of sports companies are in possession of the information they need to make a proper decision in different decision-making situations (FENYVES, 2014). It would be important for sports companies to use different decision support tools developed in corporate practice, therefore a well-designed controlling system or even the application of certain controlling methods can contribute to the success of decisions. The environment of companies has changed over the recent years, and the lives of organizations are characterized by an increasingly dynamic, non-transparent and rapidly changing environment (VERESNÉ, 2013). Currently, only those organizations that are able to provide positive feedback on environmental change can retain their competitiveness (SZÉLES et al., 2014, HÁGEN, 2017, FENYVES et al., 2018). Due to unpredictable changes, long-term forecasts and plans have become unwarrantable, intuitions can no longer be relied upon, therefore the introduction of new solutions became necessary (MUSINSZKI, 2014, BÖCSEKI et al, 2015). The role of controlling activity has become more emphasized in the life of business organizations; it has become necessary to break down long-term plans into short-term plans, to observe changes in the environment and to compare them with the set

objectives. Multiple strategic performance measurement tools and index systems have been developed to support controlling activities (FENYVES et al., 2016, KOCZISZKY-VERESNÉ, 2016), such as the Balanced Scorecard system (KAPLAN and NORTON, 2004), Tableau de Bord (RODNISKI et al., 2013), Performance Prism (KUCSMA, 2017).

MATERIALS AND METHODS

Balanced Scorecard is a balanced strategic index system that measures the performance of companies for the sake of the realization of their strategy. Thus, BSC is one of the best-known examples of performance measurement systems, which helps in creating balance among the various strategic indexes (ROBERT and VIJAY, 2009, SZÓKA, 2017, HOTVÁTHOVÁ et al., 2015).

There is not much experience yet in terms of using Balanced Scorecard at sports organizations; relatively few technical literature deals with its introduction and application of sports organizations. As a pioneer in the history of football, the management of the German football club VfB Stuttgart applied BSC first, the process was led by Professor Péter Horváth of Hungary and his company. The effect of the BSC on the football club was clearly positive. With this step, the club started proceeding towards professional and effective management decisions.

The Balanced Scorecard can help managers of sports organizations as follows:

- BSC forces managers to clarify the strategic goals of their sports organization and to reconsider what steps they need for achieving and realizing these objectives;
- it forces a multi-faceted approach;
- drawing a cause-and-effect chain requires strong strategic thinking. The relationship between the operation and success of the organization also has to be examined and last but not least, different objectives need to be harmonized;
- it is a common communication tool for management members and it also represents a common objective
- annual planning and preparation of the budget can be linked to it
- it works as a formalized framework for monitoring the performance of the organization,
- it promotes the strategic learning process;
- it can also be used for motivational purposes.

It is important for the BSC to be easily comprehensible and an understandable and usable index system for sports professionals and sports managers. Particular attention should be paid to the placement of sports performance - which is one of the most important performance dimensions for sports organizations or in this case football clubs – in one of the four dimensions. Sports performance is one of the most important categories; however, it is not recommended to treat it separately, but to integrate it into the different perspectives (KOZMA and KAZAINÉ, 2014a).

As for the already mentioned VfB Stuttgart German football club, in 2004 Erwin Staudt, president of the club, commissioned the consulting firm Horváth & Partners to perform this pioneering task. This initiative and work could start with a significant change in the club's management, namely that Erwin Staud was appointed president of the team. One of his primary objectives was to develop professional management within the club. It is important to mention that prior to being appointed president of the team he was the manager of IBM in Germany. He immediately made two important decisions; firstly, he involved managers who are successful in other areas of business life into the management of the club and secondly he developed the Balanced Scorecard system.

The introduction of a balanced strategic index system at the VfB Stuttgart football club was a pioneering initiative. In the course of establishing the system, experts explored and analysed organizations working close with the club, as well as a number of other participants such as professional sports associations, spectators, fans, governing and managing organizations of the league, media representatives and sponsors. The analysis identified the objectives and expectations of the various participants and the system of interrelated activities. In addition, performance relationships amongst them were also analysed.

As a next step, after becoming familiar with the environment behind the operating framework, the strategic objectives of the football club designated along the following four perspectives: 1. financial perspective, 2. sports professional perspective, 3. customer perspective, 4. internal processes and potentials perspective.

As a result of the above, the comprehensive goals have been developed into such objectives and measures for the club managers that can be interpreted at all levels of the organization; indexes analysing the fulfilment of these objectives have also been elaborated. 130 indexes have been identified, the most important 30 of which provide comprehensive information to managers about the achievement of the set objectives, while the other 100 indexes provide information to sub-managers of different areas (Horvath & Partners, 2004).

For example, the introduction of BSC includes the strategic objective to create a strong and stable economic background and to reduce the amount of debt. Strict management was required to prevent the club from getting into a situation it did in the 1999 season, when the club accumulated EUR 16 million of debt.

The football club had a total budget of 46 million EUR at that time. The indexes analysing the financial management of the club cover all areas, which have a role in the development of incomes and expenses. Income indexes have an especial importance, which – among others – involve:

- attendance at games,
- sponsoring contracts,
- sales of VIP seats,
- services within the sports facility,
- and television royalties.

In addition to the above-mentioned economic and financial indexes, special attention is given to the development of junior athletes. Development of this new generation has special

attention, because as in the life of companies in other markets, where it is necessary to dedicate considerable resources for research and development in order to achieve future business results and success, a similar amount of attention and money must be dedicated to junior athletes in football as well. The most important indicator of the performance of the junior training is the inclusion rate of self-trained players in the league games. According to reports, this was over 30% in the life of the Stuttgart football club.

Overall, introducing Balanced Scorecard, Stuttgart has taken a huge step towards professional management and leadership. The explicit objective of the management was to maintain the initial economic success not only in the short term, but also in long term. The management was committed to governing the football club on a professional basis, just as successful business companies in the business sector (HORVATH & PARTNERS, 2004, SUHÁNYIOVÁ et al., 2015).

As for Hungarian football and Hungarian football clubs, there is no knowledge of the introduction of a similar system or application of the BSC system by any of the sports organizations. In the summer of 2015, the Hungarian Football Federation (MLSZ) launched its Financial Monitoring online data supply system (PMR) for football clubs included in both National League I and II.

Currently, more and more interest is taken in the social benefit of sporting activities (BORBÉLY and MÜLLER 2015, MÜLLER et al. 2016), however many sports organizations in Hungary are forced to fight for survival and against bankruptcy. It is noticeable that in Hungary most sports organizations have their focus on measuring sports performance. Modern sports clubs should operate as large companies in business sectors, and still relatively low attention is paid to measuring business performance and the factors affecting it. Despite the fact that relatively low emphasis is put on measuring these factors, sport club managers are aware of the interdependence of sport performance and business performance (KOZMA and KAZAINÉ, 2014c).

Unfortunately, the market alone is not able to maintain football clubs in Hungary yet. In major football markets such as the Premier League, where there are methods and opportunities for clubs to operate on a business basis, the basic purpose of sports organizations is the same as that of companies in traditional markets: the objective is to satisfy consumer needs while achieving profit. However, business considerations in Hungary are largely intertwined with the values of society, and the investment-oriented behaviour of local and central government has a prominent role in Hungarian football.

There are two kinds of success in football and in any other sports as well:

- sports professional success
- economic success

Sustainable operation is becoming more and more important at various sports clubs. Professional success, namely excellent sports results, usually attract attention. This professional success is not only socially beneficial, but also financially, because the professional success of the sports industry expands commercial opportunities and through this business potential, management of the organization can be placed on a business basis. The ultimate result of this may be that sports organizations are able to untie themselves from the funding policies of the currently governing party.

Nevertheless, the financial dimension of the Balanced Scorecard cannot be the most important aspect in the case of sports organizations. Out of four perspectives of the balanced scorecard system, emphasis should be put on the customer perspective, as is the case for non-profit organizations (BECSKY, 2011).

RESULTS AND DISCUSSION

Taking technical literature into consideration, a possible Balanced Scorecard index system for DVSC FUTBALL Ltd. was set up. Being aware of the objectives of the DVSC from previous chapters, and following consultations with the company manager, the focus of this club is on the customer perspective, of course not neglecting the indexes of the other three perspectives; according to the technical literature appropriate focus needs to be on the financial and non-financial indexes as well. In present study, the aim is to introduce the customer perspective.

According to HÁGEN and KONDOROSINÉ (2011), in the case of the customer perspective, managers recognize consumer and market segments where the organization intends to compete. The customer perspective of the Balanced Scorecard enables the company to harmonize the most important indexes related to customers with the demands of the selected customer and market segments. For consumers, products and services that create value are the most important performance drivers of result indicators. According to Horvath & Partners (2008), the customer perspective answers the following question: “How should we appear in the eyes of customers to be successful in implementing our strategy?”

Companies, in this case football clubs, need to identify existing market segments within the current and potential future customer base. After identification, segments that the clubs intend to compete with have to be selected. The basic groups of indexes of the customer perspective are the following:

- market share,
- retained/returned customers,
- new customers,
- customer satisfaction,
- customer profitability.

These five indexes are generally applicable for all organizations (HÁGEN and KONDOROSINÉ, 2011). In the case of sports organizations, also in the case of DVSC, the difficulty is caused by the fact that different consumer groups can be identified in different football markets. Five markets of football can be distinguished: consumer market, market for broadcasting rights, sponsorship market, player market and merchandising market (ANDRÁS, 2004).

According to HÁGEN and KONDOROSINÉ (2014a), in terms of strategy, customers belonging to the consumer

market, namely the fans are the most important from among the above-mentioned ones; they can be local spectators or fans who are engaged through various media. Fans are the most important because they are able to influence the demand of other consumers in a positive direction with their presence. For example, if the atmosphere of a stadium is lively, it generates a more marketable product for the media and sponsors. However, the majority of sports club revenues in Hungary come from different sponsors who have a commercial and political interest in supporting the given football team. There are basic indexes in the case of sports organizations as well to measure the performance of the customer perspective; these indexes are the same as the ones used in different industries. They are the following:

- market share (within a relevant geographic area),
- attendance at games,
- average consumer spending, etc.

There is a very special dimension of the performance of sports organizations, which is the sports success experienced by the consumers, the reason for which is subjective perception. Club fans are not only interested in the number of trophies acquired during the season, but also in a performance that matches initial expectations, the quality of the opponents, current form/condition of the team, etc. This is a critical factor for the management: on the one hand, it is difficult to manage on the other hand the focus needs to be on the team in order to achieve the objectives of the sports organization. There is no performance indicator, which could alleviate the disappointment of fans felt because of poor performance on the football field. Experience of consumers and fans might benefit from the creation of a so-called comfort feeling of the game day and other days. Non-game day services and events also help the club achieve success in the business by directly boosting revenues and promoting bonding with the club. Such events include various open days, family programs, which also attract women and children to the stadium who would never go to football games. For fans, the impression, opinion and positive image of the facility and its staff is very important, since it can contribute to the attendance of football games (HÁGEN and KONDOROSINÉ, 2014).

Due to the poor game results of the last 3 years, the DVSC football club has to consciously build a long-term relationship with the consumers in order for spectator fans, sponsors and the media to stay with the team despite the fluctuation of sports performance. Relationship with consumers is very important for every sports organization; it is the key for achieving success. Emotional attachment of fans to the team is considered normal, but sponsors and the media are much less loyal, they could leave the team sooner due to the poor performance. In most cases, media is likely to broadcast the games of the best performing team, or football club or they focus viewer attention on their games. Finally yet importantly, sports organizations, in this case the DVSC football club, must manage their reputation and brand name, which are key factors in the transition to a business based operation.

There is a divergence of opinion in foreign technical literature, regarding how brand value can be measured in the case of football clubs. However, opinions agree that the image of a team can maintain popularity even when performance does not exactly meet the expectations. Possible indexes of this perspective are the following:

- rate of attendance at sports events, in this case football games, compared to the total attendance of sports events in the city and its catchment area, the annual increase in attendance,
- newly concluded sponsorship contracts
- number of games broadcasted in national media,
- attendance at no-game events
- consumer activity on electronic platform (HÁGEN and KONDOROSINÉ, 2014).

Based on the above, the following indexes were set up in the customer perspective of DVSC FUTBALL Ltd. According the management, the objective of the DVSC football club is identical with the expectations of customers, namely for the club to achieve sports professional success.

The first index number that was set up is the attendance of home games in the 2016/2017 championship season and the 2017/2018 championship season, which are shown in Table 1 and Table 2.

Table 1: Attendance of spectators during the 2016/2017 championship season

Attendance					
Debreceni VSC - 2016/2017 NB I.					
No.	Date	Home team	Visitor team	Attendance	Result
1.	2016.07.17	DVSC	Paksi Fc	2 851	1-1
2.	2016.07.31	DVSC	Gyirmót Fc	2 463	4-0
3.	2016.08.13	DVSC	MTK	4 091	1-1
4.	2016.08.17	DVSC	Szombathely Haladás	2 367	0-1
5.	2016.09.10	DVSC	Újpest	4 081	2-1
6.	2016.09.20	DVSC	Budapest Honvéd	1 685	0-1
7.	2016.10.22	DVSC	Vasas	3 723	1-2
8.	2016.11.05	DVSC	Mezőkövesd Zsóry	2 385	0-0
9.	2016.12.03	DVSC	Videoton	1 814	0-1
10.	2017.02.18	DVSC	FTC	7 138	0-0
11.	2017.03.04	DVSC	DVTK	4 214	3-0
12.	2017.03.11	DVSC	Paksi Fc	3 021	1-3
13.	2017.04.08	DVSC	Gyirmót Fc	2 237	2-1
14.	2017.04.15	DVSC	MTK	2 363	0-0
15.	2017.04.22	DVSC	Szombathely Haladás	2 039	4-2
16.	2017.05.06	DVSC	Újpest	5 112	1-0
17.	2017.05.20	DVSC	Budapest Honvéd	6 328	2-5
Total				57 912	
Average				3 407	
Utilisation rate				16,75%	
Seating capacity of the stadium is 20 340					

Source: Own editing based on the data of DVSC FUTBALL Ltd. (2018)

Table 1 shows that the average number of spectators was 3 407 in 17 home games; the game played against Ferencváros TC stands out, it was watched by more than 7 000 people at the Debrecen Nagyerdei Stadium.

Table 2 shows that during the 2017/2018 championship season, there were a little more than 16 000 spectators at two home games played against Ferencváros TC. It can be seen that fans were much more interested in the games played against Ferencváros than the others. This higher number of attendance is also because the FTC has a very large fan base, who travel with the team to their away games.

Table 2: Attendance of spectators in the 2017/2018 championship season

Attendance					
Debreceni VSC - 2017/2018 NBI.					
No.	Date	Home team	Visitor team	Attendance	Result
1.	2017.07.15	DVSC	Mezőkövesd Zsóry	4401	1-2
2.	2017.08.06	DVSC	FTC	5 306	0-0
3.	2017.08.18	DVSC	Vasas	3 634	4-1
4.	2017.09.09	DVSC	DVTK	5 538	3-1
5.	2017.09.23	DVSC	Puskás Akadémia	3 241	3-0
6.	2017.10.21	DVSC	Szombathely Haladás	6 025	1-1
7.	2017.10.28	DVSC	Paksi FC	2 802	3-2
8.	2017.11.18	DVSC	Videoton	3 200	2-5
9.	2017.12.02	DVSC	Budapest Honvéd	2 521	1-0
10.	2018.02.24	DVSC	Balmazújváros	1 824	0-2
11.	2018.03.10	DVSC	Újpest	2 701	1-2
12.	2018.03.17	DVSC	Mezőkövesd	1 512	2-3
13.	2018.04.14	DVSC	FTC	10 841	1-1
14.	2018.04.28	DVSC	Vasas	3 214	2-3
15.	2018.05.12	DVSC	DVTK	3 383	2-1
16.	2018.05.27	DVSC	Puskás Akadémia	2414	1-1
Total				62 557	
Average				3 910	
Utilisation rate				19,22%	
Seating capacity of the stadium is 20 340					

Source: Own editing based on DVSC FUTBALL Ltd. (2018)

Comparing the attendance data of the last two championship seasons, it can be seen that the home games of DVSC football club were attended by 4 645 more people in the 2017/2018 championship season, however as shown in the tables, the team had a home game less in the last season. Consequently, the average number of spectators also increased by 503, and the utilization rate of the Nagyerdei Stadium was also higher in the 2017/2018 championship season; it increased from 16.75% to 19.22%. The growth of these ratios was on the one hand because the club re-appointed its previously successful coach András Herczeg for the 2017/2018 championship season, as well as because of the better sports performance, since while the team finished only in the 8th place in the 2016/2017 championship season, it was the 5th in 2017/2018. Initiatives successfully implemented by the marketing department of the club cannot be disregarded either. These initiatives focus on bringing the club's fans and players closer together, and on promoting the club to attract as many potential fans as possible. The initiated efforts include:

- school roadshow,
- fan meetings with players,
- fan clubs,
- open days,
- competitions, games during the half time of home games, for example penalty kicks, etc.
- launching of Loki Tv, which among others follows the lives of the players,
- "Miss Loki" beauty pageant,
- participation in different charities, for example the club teamed up with Dr. Zsolt Horváth, former DVSC player and raised more than 500,000 HUF for the Childrens' Heart Foundation (Gyermekszív Alapítvány) in April 2017. In December 2016, the club together with the Hope for Children with Leukemia Foundation purchased a patient monitor for 500,000 HUF for the Department of Children's Haematology and Oncology of the University of Debrecen (DVSC FUTBALL Ltd, 2018).

Attendance of DVSC games was compared to the attendance of sports events within the region, namely the attendance of Balmazújváros (National League I football club) Diósgyőr VTK of Miskolc (National League I football club) and the DVSC - TVP Debrecen women's handball team, as shown in Table 3.

Table 3 shows that games of DVSC football club had

Table 3: Comparison of the attendance of DVSC games to the attendance of other sports clubs

Name of the sports club	Section	"Championship season"	Seating capacity of the sports facility	"Total attendance"	"Average attendance"	"Utilisation rate of the sports facility (%)"
DVSC	"National Football League I"	2016/2017	20 340	57 912	3 407	16,75%
DVSC	"National Football League I"	2017/2018	20 340	62 557	3 910	19,22%
Balmazújváros	"National Football League I"	2017/2018	2 250	24 075	1 505	66,88%
DVTK	"National Football League I"	2017/2018	16 245	52 564	3 285	20,22%
DVSC-TVP	"Women's Handball League I"	2017/2018	2 256	18 400	1 415	62,74%

Source: Own editing, based on Lang (2018).

the highest total attendance in the 2017/2018 championship season, and average number of spectators also belongs to DVSC in Hajdú-Bihar county. Attendance of the DVTK football club was compared to the attendance of DVSC, because during the 2017/2018 season, DVTK played its home games at the Debrecen Nagyerdei Stadium due to the construction of its own stadium. DVSC does not only have outstanding attendance data within the region, but it also stands out from amongst its competitors on a national level. The football club operated by DVSC FUTBALL Ltd. had the second highest attendance in Hungary in the 2017/2018 championship season. FTC football club was the first in terms of the total attendance of home games, with 154,758 spectators (LANG, 2018).

Despite all this, the club and the club management still have plenty of work to do; examination of the utilization rates of sports facilities shows a lot worse and more realistic image about the current attendance rate of Hungarian football clubs. Table 3 shows that DVSC FUTBALL Ltd. has a stadium with the highest seating capacity in the region, which in the 2016/2017 season was utilised only at a 16.75% rate, however in the 2017/2018 season this rate has increased to 19.22%. Comparison of the above data to the stadium utilization rate of the Balmazújváros football club, shows that it was 66.88% in the 2017/2018 championship season, thus it can be concluded that DVSC is far below that. The same can be stated about the utilization rate of the DVSC - TVP women's handball club.

At the same time, it should not be overlooked that both the stadium of Balmazújváros and the sports arena of the DVSC - TVP have much smaller seating capacities; the capacity of both facilities is approximately 2 250 people which is much less than the 20 340 seats of the Nagyerdei Stadium. The most relevant comparison base is the DVTK football club, because, as mentioned above it played its home games at the Nagyerdei Stadium in Debrecen during the 2017/2018 championship season. Table 3 shows that there is hardly any difference between the stadium utilization rate of the two football clubs, DVSC and DVTK. It can be seen that DVTK precedes the utilisation rate of DVSC's stadium utilization rate by only 1%, which, taking into account the average number of spectators (which is behind the value of the DVSC football club), may also be due to the fact that the DVTK only rented a certain part of the seats of the Nagyerdei Stadium (16 245 seats), while DVSC has a total of 20 340 seats.

Figure 1 shows attendance data, while Table 2 includes the data of stadium utilisation rate.

Figure 1: Attendance data of the 2017/2018 championship season

Source: Own editing based on LANG (2018)

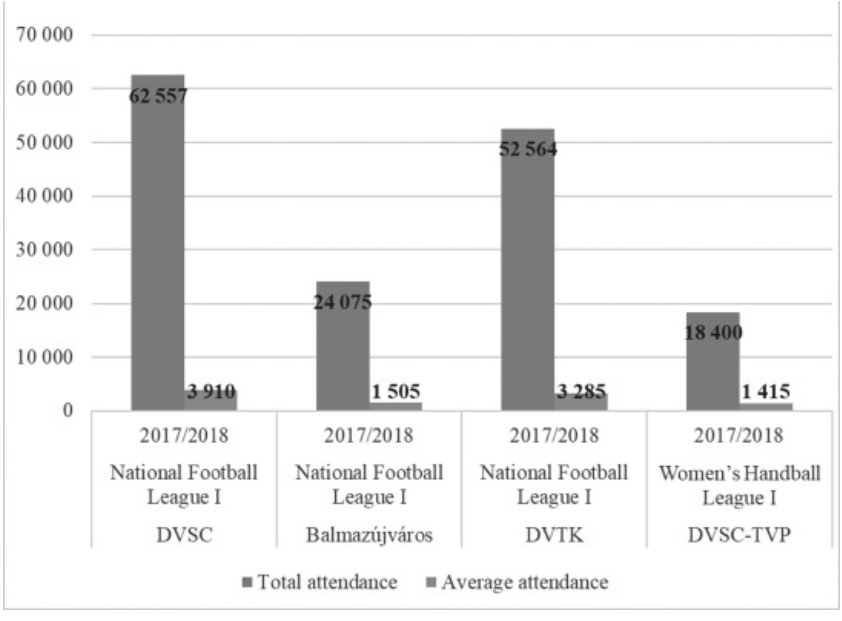
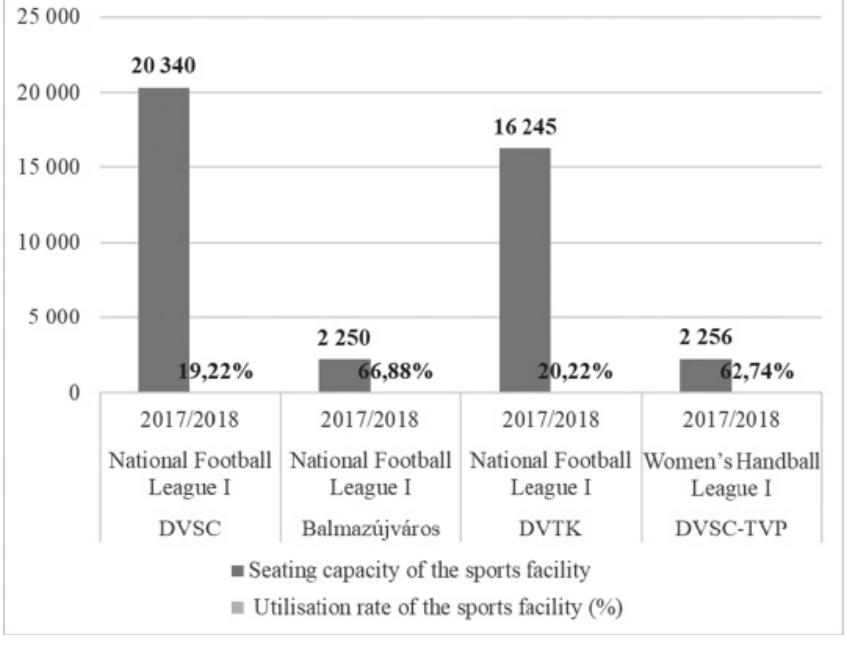


Figure 2: Utilisation rate of sports facilities in the 2017/2018 championship season



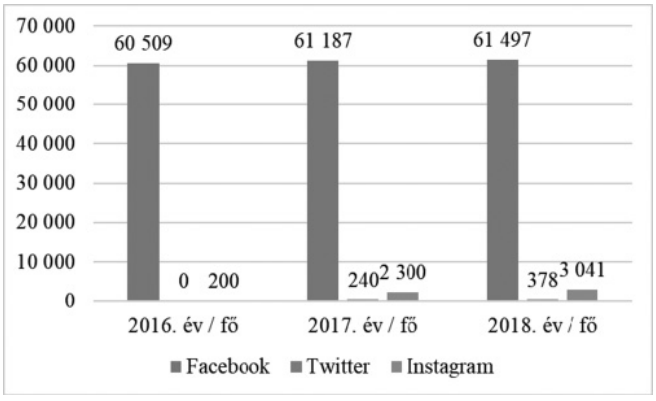
Source: Own editing based on LANG (2018)

The following index numbers refer to the popularity of the online platforms. As mentioned earlier, the consumers are in constant change, and thus consumer needs also keep changing. It is not entirely sure that

the currently growing new generation is interested in the games of the teams only, nor is it sure that the current young generation intends to sit in the stadium for 90 minutes or spend 90 minutes watching their favourite team on TV. It needs to be accepted that in the accelerated world of our age and due to the diverse social media, new types of consumers and fans have appeared who only want to follow their favourite teams or their favourite players on digital platforms. Consequently, DVSC also largely focuses on social media. In addition to the DVSC website, it also has its own Facebook, Twitter, Instagram pages, and it is also present on various video sharing websites with its own produced programme called Loki TV.

Figure 3 shows the follower and visitor data of the Facebook, Twitter, and Instagram social media platforms of the DVSC football club.

Figure 3: Followers and visitors of DVSC on social media platforms



Source: Own editing based on DVSC FUTBALL Ltd. (2018)

Figure 3 illustrates that the Facebook social media page of DVSC has the largest number of followers; it has more followers every year and this growth can be seen in the case of both its Twitter and Instagram platforms. Popularity data of the social media platforms of DVSC prove that the club has numerous fans who follow the team and the events surrounding the team through different social media. The reason for this is that the marketing department of the club places great emphasis on keeping these sites up-to-date and providing new information, interesting topics and news for the fans about their favourite team. The interest in these online platforms might encourage potential and existing sponsors to support the DVSC football club, as it has a substantial follower base, therefore existing or potential new sponsors will not only reach the people watching games in the stadium through the club but also reach the young generation who follow the team on the internet.

Table 4 shows that the DVSC football club had the 3rd highest number of Facebook followers in 2018.

Table 4: Facebook followers of the National League I football clubs in 2018

Facebook followers of the National League I football clubs in 2018		
No.	Club	2018. year/person
1.	Ferencváros	229 975
2.	Videoton	68 037
3.	DVSC	61 497
4.	Diósgyőr	59 976
5.	Budapest Honvéd FC	39 870
6.	Újpest FC	36 315
7.	Puskás Akadémia	15 744
8.	Haladás	14 160
9.	MTK	12 297
10	Paks	9 263
11.	Mezőkövesd	6 939
12.	Kisvárda	4 781

Sources: Own editing based on the Facebook pages of the football clubs.

The third index number is the number of games broadcasted by national media. Table 5 and Table 6 show games of the DVSC football club that were broadcasted by national media in the last two championship seasons.

Table 5: TV broadcasted games of DVSC during the 2016/2017 National League I championship season

TV broadcasted games of DVSC during the 2017/2018 National League I championship season					
No.	Date	Home team	Visitor team	championship season	TV channel
1.	2016.07.24	Vasas	DVSC	2016/2017	M4 sport
2.	2016.08.13	DVSC	MTK	2016/2017	M4 sport
3.	2016.08.17	DVSC	Haladás	2016/2017	M5
4.	2016.08.21	Videoton	DVSC	2016/2017	M5
5.	2016.09.10	DVSC	Újpest Fc	2016/2017	M4 sport
6.	2016.09.17	Ferencváros	DVSC	2016/2017	M4 sport
7.	2016.09.20	DVSC	Budapest Honvéd FC	2016/2017	M4 sport
8.	2016.09.24	Diósgyőr	DVSC	2016/2017	M4 sport
9.	2016.10.22	DVSC	Vasas	2016/2017	M4 sport
10.	2016.12.03	DVSC	Videoton	2016/2017	M4 sport
11.	2016.12.10	Újpest FC	DVSC	2016/2017	M4 sport
12.	2017.02.18	DVSC	Ferencváros	2016/2017	M4 sport
13.	2017.02.25	Budapest Honvéd FC	DVSC	2016/2017	M4 sport
14.	2017.04.15	DVSC	MTK	2016/2017	M4 sport
15.	2017.04.29	Videoton	DVSC	2016/2017	M4 sport
16.	2017.05.13	Ferencváros	DVSC	2016/2017	M4 sport
17.	2017.05.20	DVSC	Budapest Honvéd FC	2016/2017	M4 sport

Source: Own editing based on DVSC FUTBALL Ltd. (2018)

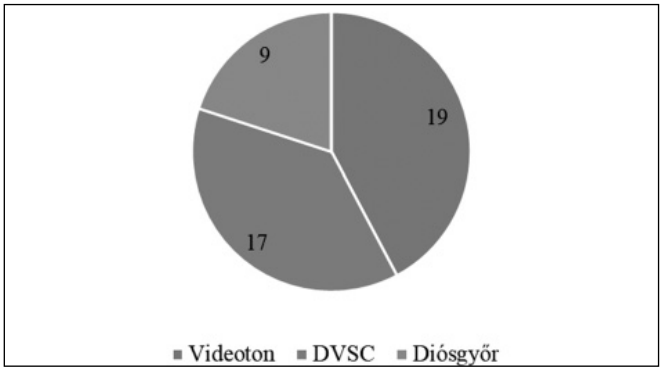
Table 6: TV broadcasted games of DVSC during the 2017/2018 National League I championship season

TV broadcasted games of DVSC during the 2017/2018 National League I championship season					
No.	Date	Home team	Visitor team	championship season	TV channel
1.	2017.07.22	Haladás	DVSC	2017/2018	Duna World
2.	2017.08.06	DVSC	Ferencváros	2017/2018	M4 sport
3.	2017.08.12	Videoton	DVSC	2017/2018	M4 sport
4.	2017.08.18	DVSC	Vasas	2017/2018	M4 sport
5.	2017.08.26	Budapest Honvéd FC	DVSC	2017/2018	M4 sport
6.	2017.09.16	Balmazújváros	DVSC	2017/2018	M4 sport
7.	2017.11.04	Ferencváros	DVSC	2017/2018	M4 sport
8.	2017.11.18	DVSC	Videoton	2017/2018	M4 sport
9.	2017.12.02	DVSC	Budapest Honvéd FC	2017/2018	M4 sport
10.	2017.12.09	Diósgyőr	DVSC	2017/2018	M4 sport
11.	2018.03.03	Puskás Akadémia	DVSC	2017/2018	M4 sport
12.	2018.03.10	DVSC	Újpest FC	2017/2018	M4 sport
13.	2018.03.31	Haladás	DVSC	2017/2018	M4 sport
14.	2018.04.14	DVSC	Ferencváros	2017/2018	M4 sport
15.	2018.04.21	Videoton	DVSC	2017/2018	M4 sport
16.	2018.05.12	DVSC	Diósgyőr	2017/2018	M4 sport

Source: Own editing based on DVSC FUTBALL Ltd. (2018)

Tables 5 and 6 show that approximately half of the 33 games played by DVSC football club during a championship season are broadcasted by one of the national TV channels, of which the M4 sports channel broadcasts the most. TV broadcasting rights of clubs in the Hungarian football league are sold centrally by the Hungarian Football Federation. In order to be able to decide whether 16-17 broadcasted games per season is outstanding or low, it needs to be compared to the TV broadcast data of other teams. This case, comparison is based on the 2017/2018 champion Videoton and Diósgyőr, their relevant data are shown in Figure 4 and Figure 5.

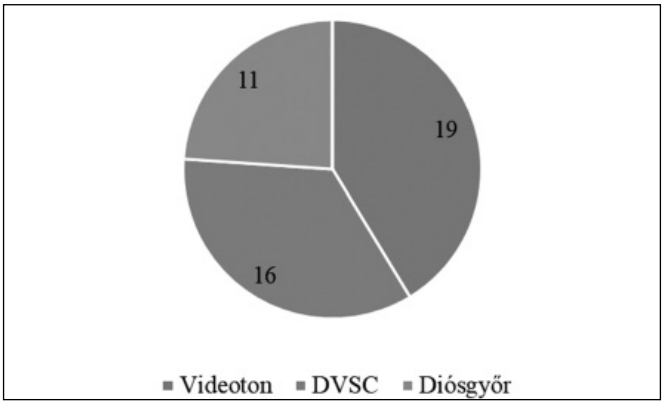
Figure 4: Number of TV broadcasted games of the selected clubs during the 2016/2017 championship season



Source: Own editing based on DVSC, DVTK, Videoton (2018)

Figure 4 shows that 19 games of Videoton FC were broadcasted by one of the national TV channels during the 2016/2017 championship season.

Figure 5: Number of TV broadcasted games of the selected clubs during the 2017/2018 championship season



Source: Own editing based on DVSC, DVTK, Videoton (2018)

Figure 5 reveals that during the 2017/2018 championship season, Videoton FC had 19 TV broadcasted games again. Figures 4 and 5 show that in the case of Diósgyőr FC, the number of TV broadcasted games increased by two from the 2016/2017 championship season to the 2017/2018 championship season, while in the case of DVSC, one game less was broadcasted in the 2017/2018 season than in the previous one. It can be seen that DVSC had only three less broadcasted games than Videoton, which is a good result, since Videoton was competing for the championship title throughout the season and they have finally won it. Based on the above, it can be stated that the games of DVSC are frequently broadcasted on national TV channels, which might be attractive for sponsors. The club and the management do their best to increase this indicator, which is mostly influenced by the game performance and its quality. In the event that a football club is constantly competing for the championship title, there is a good chance that most of its games will be broadcasted by a TV channel, since in most cases, viewers are primarily interested in the games of another championship aspirants besides the games of their own favourite teams.

The final set up indicator in this perspective is the number of sponsorship contracts. The number of sponsorship contracts of the DVSC football club are shown in Table 7.

Table 7: Advertising/Sponsoring contracts of DVSC FUTBALL Ltd

Advertising/Sponsoring contracts of DVSC FUTBALL cPlc	
Number of Advertising/Sponsoring contracts (pcs.)	Championship season
24	2016/2017
22	2017/2018
21	2018/2019

Source: Own editing based on DVSC FUTBALL Ltd. (2018)

Table 7 clearly demonstrated that the number of advertising contracts shows a declining tendency, which does not necessarily mean that advertising-related revenue also decreases. The number of advertising contracts for the 2018/2019 season may still change as there is a possibility to sign new contracts during the season, either for a single occasion or for half of the season. The marketing department of the club constantly works to conclude as many new sponsorship contracts as possible and to extend existing contracts year after year. As mentioned earlier, the Hungarian market is unfortunately not willing and able to run football clubs on a business basis. The table also shows that there is a willingness on the part of the sponsors, as the club has already concluded 21 advertising contracts for the current season and there are still contracts that are under continuous negotiations.

The question is whether there is sufficient capital from the sponsors. The decrease in the number of sponsorship contracts is partly due to the less impressive performance in the championship season. However, it can be seen that the further efforts and the results of the last and current season might increase the number of potential sponsorship contracts. The 2018/2019 championship season lasts from July 1, 2018 to June 30, 2019, so there are still plenty of opportunities for signing new contracts, with potential new sponsors (DVSC FUTBALL Ltd.., 2018).

Sponsors have multiple options in terms the form of their appearance:

- shirt sponsors,
- main sponsors,
- stadium sponsors,
- advertisement placed along the field on advertising boards (DVSC FUTBALL Ltd., 2018).

Currently, the sports equipment sponsor of the DVSC football club is Adidas; the team plays in jerseys and sports equipment manufactured by the company. Most of the club sponsors choose to appear on the LED wall alongside the field and to be displayed on billboards or the various online platforms of the club. The aim of the club and management is to have as many main sponsors as possible (DVSC FUTBALL Ltd. 2018). Summarizing the index numbers of the customer perspective leads to the conclusion that there are areas where the club requires improvement but it performs well in most cases compared to its competitors.

CONCLUSION

Based on the findings it has been concluded the National League I football clubs in Hungary should also set up a controlling system to be able to develop and to operate on a market basis, just as large companies in the business sector. In the course of the research, the lack of a controlling system was clear; in order to associate results to index numbers set up in the scope of the study, the required data had to be requested from each of the divisions of the Ltd. This relatively long process is a disadvantage, and should not be acceptable, because information relevant to the decisions of the managers is needed as quickly as possible. In many cases, speed overwrites precision. Due to the lack of the system, these data do not match and do not form a complete system, so they are unable to serve as information for decision makers one by one. The reason the data does not work as a system is on the one hand that the club requires more professionals, so that it could operate more professionally and systematically.

The other reason is the lack of proper IT background that could be mitigated by a business management system or a business intelligence software.

By examining a possible BSC index system, it can be stated that the examined club has started to achieve its objectives. In the scope of the index system, figures of the club for the 2016/2017 season and the 2017/2018 season were compared. Examination the indexes set in the scope of the customer perspective of BSC shows that the analysed football club is still developing in certain areas, such as its stadium utilization rates and the number of sponsorship contracts. However, compared to competitors, the football club has the second highest attendance in the case of its home games.

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SCIENTIFIC PAPER

L'ANTICA PIZZERIA DA MICHELE AS A CASE STUDY OF TRADITIONAL SPECIALITY GUARANTEED AND INTERNATIONAL FRANCHISING

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Abstract: *This work explores the case study of L'Antica Pizzeria da Michele as a best practice of traditional speciality guaranteed and international franchising. Besides being one of the most ancient and successful pizzerias in Naples, da Michele is renowned all over the world for the quality of its raw products, dough processing, and output. In the last years, da Michele also started pioneering the pizza production and commerce industry with an innovative franchising model and a new company appointed to managing this latter business. This work makes use of in-depth interviews and data collected on the field. For such scope, top managers and employees of both the local and the international companies were interviewed. The study finds that da Michele managed to become a benchmark for territorial food products and, more recently, for high-standard franchising, jumpstarting a successful brand-new company and food business project.*

Keywords: *traditional speciality guaranteed, franchising, in-depth interviews, labelling, food business, da Michele, Neapolitan pizza*
(JEL Classification: *O13, Q13, Q16, Q17*)

INTRODUCTION

Pizza in the history of Naples

Neapolitan pizza is one of the most renowned and sold foods in the world. The business of pizza in 2017 reached 134 billion dollars in terms of worldwide pizza market (Euromonitor, 2017). Pizza can also be classified as one of the most ancient street foods ever, having been sold in the streets of Naples since the XVI century, although its origins are praised for being even more ancient (Helstosky, 2008). Evidence comes from the fact that most ancient pizzas were sold from vendors roaming around the city and carrying heavy containers for preserving the product heat (Niceforo, 2019). Lately, proper bakeries producing pizza spread all over the city. These populated Naples in the XVIII and the beginning of the XIX century but were usually not provided of dining rooms: these earliest pizzerias resembled more bakeries than restaurants, working for the sole take-out of products (Mattozzi, 2015). The pizza bakeries used to prepare and sell pizzas to be eaten standing-up, on outdoor, high, wooden supports, as it was typical for other foods as pasta (Serao, 2016).

Pasta was another popular food that was widely sold in the streets of Naples, shaping another ancient street food and a distinct food trade job – maccarunari (Basile, 2019). Cohorts of lazzaroni and poor, as described by Alexandre Dumas, were struggling to avidly eat their scorching pizzas (Dumas, 1843). An entire pizza was usually not affordable from the people – the amount of purchased pizza varied, instead, depending on the customer's budget (Helstosky, 2008). Only lately, basic tables, benches, and chair were introduced, and

first pizzerias – as we know them – were established and spread all over Naples. The pizza toppings used were basic, and the final product was a humble food that varied according to the season and the harvests.

Today as centuries ago, pizza is a simple, genuine dish, rooted in the Neapolitan and Italian diet. Even if it is often packed with calories, its products are deemed to be healthy and nutritionally important – with some variations, pizza could even become a balanced food. Besides reaching the tastes of the vast majority of consumers since centuries, pizza also meets new food exigencies and trends, including intolerances, allergies, vegetarian, and vegan diets – and most of the pizzerias are equipped to offer varieties and variations that meet modern dietary requirements.

Neapolitan pizza and its imitations: tutelage and labelling

The international and domestic success experienced by the Neapolitan pizza started from the second half of the XX century. This fact led to a divulgation of pizza as international food, but the drawback was that the original product started suffering from many attempts of imitation. Throughout the years, new types of pizzas in the world multiplied foods that nowadays claim their own identities. Some examples are New York-style pizza, Chicago pizza, California pizza, and even Roman pizza. On one hand, this must be welcome as a sign of the times and of the greatness of the product (Sanchez, 2008). On one other hand, it must be noted a scaring fact connected with traditional foods, culture, and identity preservation, both as a social and artistic case, and in terms of profits.

More than being traditional, typical, or variations of pizza, these products – even when of good quality – are not assimilable with the food characteristics of the Neapolitan pizza and what is and has been associated with pizza, configuring as different products in the best case. This is also confirmed from the traditional speciality guaranteed (TSG) protocol, that requires to use a limited range of ingredients and only two types of pizzas – margherita and marinara (EC, 2010). With the objective of preserving its value and tradition, the Neapolitan pizza has been recognised by several labels and certificates that aim at preserving its tutelage. In terms of labelling, the Neapolitan pizza is one of the two registered traditional speciality guaranteed (TSG) from the European Union – along with mozzarella di bufala campana (EC, 2010). Nationally, Neapolitan pizza is recognized as one of the core traditional agri-food products (PAT) from the Italian Ministry of Agricultural, Food and Forestry Policies (MIPAAF 2015). Another effect is that often, when the quality of the products is scant, the imitations damage the reputation of the original product, besides subtracting income from the original product.

Pizza in the international markets and franchising

Food business and agribusiness are prior industries to be enhanced for market boosting (Drago & Gatto, 2018). These industries are a central element of the Italian economy and society, pervading the Italian culture and habits (Briganti & Gatto, 2015). The international dimension is nowadays often a requirement for keeping business profitable. In the US, as in many overseas markets, a big discrimen exist between local pizzerias (having a limited number of branches) and chains. The formers are usually less profitable, less stable, less updated and innovative, and more vulnerable to crises and thus to failure with respect to the latters (Technomic, 2017; CHD, 2017). The market is mainly dominated by a few massive chains, retaining market power. Often, both local pizzerias and, above all, big chains, opt for franchising, being one of the most used and less risky business strategy and legal form for expanding locally or internationally a food business.

Many food franchising have been spreading out in several countries in the last decades, and the pizza industry is not exempt. Franchising is not an alien principle for small business economics and development; some of these businesses were successful in putting forward franchising as a development strategy, holding the small sizes of both the franchisees and the franchisor (Stanworth et al., 2004). Innovative models recalling sustainable business are a fundamental element of firm success, especially in start-ups and sectors related to natural and behavioural aspect – as for food and pizza industries (Franceschelli et al., 2018). This is confirmed from the fact that, nowadays, food and nutritional sustainability is notably considered a policy prior (Agovino et al., 2018), along with agricultural and rural aspects, calling for development action (Gatto et al., 2016).

This work uses the following structure: this section introduced the business and commercial relevance of pizza in the international and local food industry, emphasising the uniqueness and authenticity of the Neapolitan pizza as a product – verace pizza napolitana. Here is also explored the role of labelling and the phenomenon of franchising in an international breadth. The next section explores the methodology adopted for conducting the research – namely the in-depth interviews obtained in the field. Following, results are commented along with a discussion session. On one hand, it is stressed the importance of certificates obtained by da Michele's suppliers in guaranteeing the high quality of raw products. On the other hand, it is examined the success of the internationalisation policies, that in the last years allowed da Michele to launch high-standard franchising all over the world.

MATERIALS AND METHODS

Data and methods used

This work uses qualitative research methods to obtain new data for analysing a good practice of the Italian food industry. With the objective of analysing a case study, selected interviews with key staff of both da Michele and da Michele in the world were conducted. The in-depth interviews were realised to explore the main historical facts, the managerial policies, and understand the overall socio-cultural and exogenous factors that determined the company achievements and figures at both the local and international levels.

Besides the scopes of understanding the companies business drivers, the in-depth interviews were also realised to generate and present new data on these issues. For these scopes, staff from da Michele and da Michele in the world were detected as target and therefore interviewed. Open-ended questions were conducted. All of the interviews were realised vis-à-vis. Data were collected on-site and eventually cleaned and electronically processed; it was first confirmed the validity and coherence of data, that were then arranged and organised according to specific topics categorisations. Thus, information was clustered, analysed, and interpreted. The main outcomes were synthesised, sketched, and presented.

The interviewees' panel included top managers and specialists from the two companies – especially from marketing and internationalisation departments –, pizzaioli, bakers, and further workers. The interviews took place in da Michele and da Michele in the world headquarters, in the historical branch of Naples, and in further selected places. Being a small, (quasi-)family-run business, for confidentiality reasons, the identity and appointments of people involved in the study will not be disclosed.

RESULTS AND DISCUSSION

L'Antica Pizzeria da Michele: a history of a traditional product

The origin of L'Antica Pizzeria da Michele is intertwined with the history of Naples, through 150 years of changes and millions of pizzas baked, which have contributed making Neapolitan pizza one of the most recognisable and exported food in the world. The Antica Pizzeria got a long history: born in 1870, Condurro family, led by the founder Salvatore, was one of the first pizzerias in the historical centre of Naples. Salvatore jumpstarted the first business in 1844 when he served Nicholas I, Zar of Russia, inventing for the occasion the "cosacca" pizza. Salvatore also became an adjunct pizzaiolo at the Court of the Bourbons during the Kingdom of the Two Sicilies.

Salvatore's son, Michele Condurro, perfected his technique by combining the wisdom of tradition with the secrets of Torre Annunziata masters, an old, reputed school in the pizza-baking dough processing. Learning the craft, Michele opened the first pizzeria in 1906 and moved to the current location in 1930. Michele had the great intuition of believing in the mission and vision that have allowed the corporate success – notably the quality and simplicity of local products and the technique of dough processing.

Da Michele is worldwide famous for preparing only two simple types of pizzas: Margherita – made of tomato sauce, fiordilatte, extra-virgin olive oil, basil, and pecorino cheese, and served as normal, medium, or double mozzarella – and Marinara – made of tomato sauce, oregano, garlic, and extra-virgin olive oil, and served in normal, medium, or maxi size. This way, Antica Pizzeria aims at preserving the ancient procedures and techniques that qualified da Michele as a best practice.

Da Michele's pizza has gone through all these years keeping intact the secret of the dough that gives the two pizzas produced lightness, high digestibility, and an unmistakable taste, due to the combination of the ingredients, the dough maturity and leavening. The number of customers generates itself a small business for tourism and the local economy. The success of the Antica Pizzeria must be attributed to various factors: above all, the will to preserve the ancient flavours of the tradition of Neapolitan pizza makers, and the result of a mixture of ancient crafts and a cautious openness to the innovations brought by the global integration of the markets.

At the basis of the good output, two factors emerge: the products quality and the mastery skills. Pizza has humble origins and traditionally uses simple products: water, flour, salt, tomato, cheese, and oil. Therefore, it is fundamental to ensure the quality and origin of the products and controlled processing. Most of the success of da Michele is due to the pizza makers skills. It is not a surprise the fact that, on December 4-9, 2017, UNESCO inscribed the art of the Neapolitan pizza maker, pizzaiuolo, on the Representative List of the Intangible Cultural Heritage of Humanity (UNESCO, 2017).

Da Michele's suppliers and their certifications

Da Michele's suppliers achieved important certifications, that confirm the quality of the raw materials. The dough is prepared in the old laboratories of Via Cesare Sersale 1/3, where over the years the right balance of temperature and humidity, essential for obtaining optimal leavening, has been perfected. The preparation starts from the Antico Molino Caputo flour, red quality in the warm months and blue quality in the cold months; the flour is mixed with water, mother yeast – criscito –, and small amounts of brewer's yeast, which dosage is pondered depending on the season. The dough is prepared manually with the aid of a mixing machine that amalgamates the ingredients. The sorting dough is homogeneous, lumps-free, ready to be divided into small pieces of 250 – medium – or 300 grams – maxi. The pieces are rolled – arrotati – wide to preserve the softness of the dough and left to rise. Da Michele kept a slow leavening, following the old recipe indication to let the dough to rest twenty-four hours to make it reach the maximum leavening. This step is fundamental to guarantee lightness and high digestibility. Depending on the season, the preparation undergoes small variations. Caputo has been operating in Campania since 1924, and in San Giovanni a Teduccio since 1939, using slow grinding and avoiding additives. The basic wheat is Italian, coming mostly from Central Italy (especially Marche and Umbria). Once the grinding is finished, the product is mixed with wheat from Central-Northern Europe. The soft wheat flour "00" Caputo was designed as one the ingredients for pizza as a Guaranteed Traditional Speciality (STG), a certification promoted by Associazione Verace Pizza and Associazione Pizzaiuoli Napoletani, certified by Is.Me.Cert (EC, 2010).

Da Michele's tomato is a San Marzano prepared and stored by Solea, a company operating in agro nocerino-sarnese,

using tomatoes from Campania, Puglia, and Emilia Romagna. The puree used for pizza is made of the homogenized peeled tomato. Solea obtained the ISO 9001 Quality Certification for stringent checks regarding raw materials, processing, and canning, that assures quality, genuineness, hygiene and safety. In 2011 Solea obtained the Global Standard for Food Safety certification from BRC and UKAS.

The fresh cheese used for Margherita is fiordilatte. This cheese is preferred to the alternatives – provola and mozzarella –, being its consistency more compact and less watery; fiordilatte ensures a dry and well-baked pizza, fundamental for taste and presentation. The brand is Fior d'Agerola, produced by Fusco Brothers. Fior d'Agerola is a gastronomic excellence of the Monti Lattari (Sorrento Peninsula), that attributes to the pizza a distinct and recognisable flavour. Fusco has been working in Agerola since 1840, producing mostly fiordilatte PAT. Fiordilatte is obtained with raw whole cow's milk coming from several milking, made in a maximum of sixteen hours, freshly delivered for processing, and produced with a portion of milk from the Agerola cow that makes it particularly tasty.

The choice of oil is notably widely debated. The recipe of the Antica Pizzeria foresees the use of seeds oil in reason of its lower body compared to olive oils: in da Michele's pizza, the oil has the role of seasoning and accompanying the other ingredients without covering them, leaving space to the taste of fiordilatte and dough. Moreover, the seeds oil is considered more suitable for the high temperatures of the wood oven (almost 400°C). Antica Pizzeria chose another quality brand, Masturzo, established in Naples in 1913 and working in Campania since 1870. The firm achieved quality certifications such as: IFS standards, BRC Global Standard for Food Safety, and UNI EN ISO 9001. The cheese used to garnish da Michele's pizzas and bind the flavours is the pecorino romano IGP, preferred to parmigiano reggiano for its less invasive flavour and greater salinity, which allows to not add salt on the finished product, that would alter the final flavour. Basil, oregano, salt, and garlic are added to the main ingredients.

Da Michele in the world srl: ingredients for an international franchising success

Condurro family business reached its fifth generation, composing a team of pizza makers and bakers, managers, consultants, and experts. The international expansion of the business starts in 2012 with L'Antica Pizzeria da Michele in the World srl (Condurro, 2017). The new company was conceived to create a limited quantity of pizzerias in the world, in strategic places showing demand, robust commercial proposals, and the willingness to spread the culture of verace pizza napolitana throughout training and strict periodical checks. Thanks to modern production systems, ICT, trade, and transportation technologies, the great-grandchildren of Michele have developed a production system that recreates the historic Neapolitan workshops in different corners of the world, to use the same ingredients, and to produce the same dough. Despite numerous proposals for commercial affiliations, Condurro family has always been cautious in embarking commercial expansions, to protect the family brand and keep the trust of millions of customers. Numerous environmental factors increase the difficulty to reproduce the same blend out of Naples: temperature and humidity of the laboratories, water properties, logistical and regulatory reasons for food shipping. The risk was to create a chain of pizzerias sharing uniquely the name, serving products qualitatively different, with no standards.

The historic headquarters remain the only branch in Naples despite numerous imitation attempts. Japan has been the first country where the company jumpstarted the project in 2012, following a consolidated tradition of high standard customers, pizza makers, and product, due also to the phenomenon of Neapolitan pizzaiuoli migration (Ceccarini, 2010). In Japan, da Michele has implanted stably in Tokyo (since 2012) and Fukuoka (2015), whereas a Yokohama branch opened in October 2019. Other branches established in Europe were located in London – Baker Street (2017) and the new unit of Soho (2019) –, and Barcelona (2017). More recently, the franchise enlarged in the United States – Los Angeles, in Hollywood (2019) –, and the United Arab Emirates – Dubai – (2019). In Stockholm, it was jumpstarted the first international firm consulting project in 2017. Some new branches were opened in Italy too: in Rome – two branches (2016 and 2018) –, Milan (2017), Florence (2018), Verona, and recently in Bologna (both in 2019).

The essential phases of the start-up are designed as:

- the apprenticeship of the new employees at the mother company;
- a strict application of the quality manual, followed by periodical quality checks;
- monitoring healthiness and financial and structural growth from the start-up phase to business consolidation.

Franchisees are required to use the same raw materials utilized in Naples, shipped fresh all over the world by plane or ferry. Further directive strategies have been developed to internationalise the project, especially in marketing: the brand registration, a new logo, merchandising and commercial campaign by the mother company and the franchises; constant directive exchanges and stakeholders' meetings.

In order to better meet local customers' satisfaction, the franchisees – both the foreign and the Italian – are allowed to propose to the mother company slight variations in the menus with respect to the Neapolitan one. This is the case of some enlargement in the pizza choice – that include the addition of some other pizzas from the Neapolitan tradition – and in the sides and drinks – where some traditional Neapolitan food and beverages were included. For this scope, and to ensure high-quality standards, some partnerships have been signed with targeted brands, commercialising finished products – from coffee and pastry-making to mineral water, beer, and wine; these partnerships complete the existing agreements on the use of raw products – as for wheat, tomatoes, fiordilatte, and extra-virgin olive oil.

Franchisees are also required to stick to a minimum of four-years contract and can benefit from the exclusivity in

the area, that allow them to be the only brand restaurant in the business zone. Entrance fees and royalties vary according to the country, the area, and the negotiation. The franchising must meet the requirements of being implanted in commercially relevant areas of minimum 15000 inhabitants; its size should be no less than 300 square metres, whilst the personnel number can vary.

Da Michele in the world developed the strategy of providing the following professional benefits to its franchisees:

- start-upping support, paramount from the first months to the second operative year;
- training and know-how transfer, ensured by experienced executives, pizzaioli, and bakers;
- quality checks and technical consulting, to ensure the high standards of quality and a rigorous similarity amongst the products coming from the different branches and countries and technical support;
- customer service, held by the mother company;
- events, to push the franchising, the brands, and the name of da Michele, building new synergies in Italy and abroad.

Discussion: an appraisal of international franchising and business models for the pizza industry

Business models amongst pizza chains and smaller, traditional franchising as da Michele, considerably vary. One of the main differences lays in the fact that in the big chains takeaway or delivery is often the core – or even the unique – business target and the main source of income. This is also due to the productive model, where these businesses propose pre-assembled/pre-prepared pizzas to be warmed up/de-frozen, to be quickly taken away in a few minutes. Finally, the size and characteristics of these businesses define them as proper chains. Instead, da Michele proposes a small, increasing number of franchising, where the mother company is able to monitor and know all the businesses. Also, it proposes restaurants instead of deliveries and take-away shops. The target is also different, being foodies instead of people that simply want to get quick food. Prices may also vary, but this depends on the place of delivery. Da Michele proposes a specific product: to provide the real Neapolitan pizza experience to its customers in the world as if they were in the centre of Naples.

As compared to most renowned pizza franchising, da Michele has diverging objectives, figures, targets, strategies and managerial models. Last but not least, big chains and the case study produce totally different products, that only share the same name – arguably. Most of these franchising are American – hardly Neapolitan or even Italian –, although often Italian sounding is easily detectable in their names and products. Often, the range of products from these chains is decisively broader with respect to da Michele, serving dozens of varieties of pizzas – including unusual or exotic genres –, but also sandwiches, kebabs, pasta, deep-fried foods, and other dishes not even remotely associable with products served in Neapolitan pizzerias. Most of the pizza franchising are chains, counting on thousands of franchisees in hundreds of countries, hundreds of thousands of employees, billion-dollars revenue, and are even quoted in the stock exchange.

This is the case of Domino's Pizza, that declared reaching over 1,7 billion dollars revenue per year, having around 150000 employees spread over 12000 franchisees in more than 80 countries. If it is true that the sector comes from a traditional product, Domino's has found the necessity to reinvigorate its business by promoting a "radical, deep-seated change in a traditional, slow-to-change business" employing a vast amount of employees and resources in software and analytics (Taylor, 2016). This business targeted improving its brand, including the change in the name from Domino's Pizza to Domino's. Though more remarkable recent business innovations for Domino's pointed at providing better IT and delivery solutions, more fungible options for its customers. These strategies lead to different business models, but also different missions.

Further major pizza chains that internationalised their businesses with franchising are notably Pizza Hut and Papa John's Pizza. The first is the world leader when it comes to the number of countries covered (more than 110) and locations (more than 18000). Pizza Hut implemented both the delivery and the restaurants. It diversified its product, producing a vast variety of pizzas, also in terms of cooking, including the Italian-style typology. However, differences in franchising and overall business models with respect to our case study should arise clearly. As remarked previously in the literature: "Pizza Hut played a major role in turning pizza from an Italian speciality into a mass-market, mainstream food." (Mike & Slocum, 2003). Nevertheless, also Pizza Hut has passed through deep revisions of the company culture, that include brand values, re-branding, HR changes, overall updates, and effectiveness measurement policy. Papa John's Pizza as well got both delivery and restaurants. It diverges from our case study in many regards, including the core target of delivery, the final product, the size, and the target.

There exist as well Italian franchising cases, such as Rossopomodoro or Fratelli La Bufala. However, the units of these companies considerably vary amongst each other in terms of business models, objectives, and identity. If da Michele aims at providing a homogeneous, high-quality standard, the former businesses display a broad variety of both characteristics and quality from branch to branch. This is because these pizzerias were conceived for franchising from their very first years of operation, having in their agendas the purpose of implementing food business chains. This fact is confirmed from the personal data: they are all recently born. Another difference between these companies and da Michele concern the size – notably smaller for da Michele –, and the exclusivity of the Neapolitan branch – not respected from the other businesses. What is mostly resembling the business model of da Michele are other renowned, traditional, high-quality pizzerias, that are opening branches in other cities in Naples or abroad. Though, in most cases, these did not opt for franchising, managing directly the new branches.

CONCLUSIONS AND PROSPECTS

Preparing traditional Neapolitan pizza is considered an art and is due to a complex mix of factors: respecting a strict set of rules, observing the indicated ingredients list, methodologies and techniques, equipment used, and characteristics of the final product that are strictly regulated (EC, 2010). For instance, wooden hoven is a requirement for a Neapolitan pizza TSG, and many businesses out of Naples lack this fundamental element. Improper use of the names and the labels lead to detrimental economic and reputation effects for the authentic product and brand.

This research aimed at proposing business models alternative to the leading pizza franchising. The final objective of the case study examined, da Michele, is challenging and enthralling: differently from other pizza and food/restaurant franchising, da Michele aims at keeping high qualitative standards and close similarity to the final output of their products being them implanted in Naples, Italy, Europe, or worldwide. This is due to the application of rigorous rules, controls, and the use of best-quality, local raw products. Intuitively, over 150 years of know-how of pizza baking is a further relevant added value, to be coupled with a new managerial imprint. These factors, typical of a pioneering practice of traditional food franchise, should be able also to solve the franchisor-franchisee divide in terms of learning capacity and experience, typical of food and pizza franchise (Kalnins & Mayers, 2004). In these regards, size and ancient knowledge can be strong drivers of success.

The strategy of combining high-quality standards and franchising might be less straightforward in the start-upping phase of the new branches but the model will be more likely to ensure a long-lasting business success to both the branches and the mother company. Besides targeting a different market segment, this is mainly attributable to the fact that both expatriates and local people all over the world are increasingly raising the bar when it comes to food quality requirements, refining their tastes toward more qualitative, finer food. Successful pizzerias and restaurant, especially when dealing with an international franchise, will have to consider and analyse this trend, targeting their future business policies toward this goal. This fact should also relate to the evidence that pizza consumption is affected by socio-demographic characteristics, qualitative attributes of pizza, and subjective beliefs (Di Vita et al., 2016).

There is another important factor in favour of human touch and qualitative internationalisation of traditional food business: technological innovation is changing the way food is consumed, improving the delivering service, supplying new food experiences, and paving the way for new markets. Though informatisation by now still relies on on – and will be likely to rely for many upcoming years – on the human component, it is connected with deliveries, IT services, or further functions. For the food industry, space is still a thing. Therefore, spatial economics and regional development dynamics will still favour the traditional food industry with respect to technological innovation for many years (Couclelis, 2004). Another central discriminant penalising the quality of pizzas delivered comes again from the TSG protocol, that prescribes that pizza must be consumed in the place where is baked (EC, 2010). These implications leave room for new business and scholarly explorations in the field.

The first results and the long-term goals of da Michele are encouraging for the family firm and the model defended and envisage the possibility of creating economic and social value both for the company and for the local areas where the pizzerias are being opened. Above all, the application of the qualitative standards and the managerial processes of the franchising implemented will ensure income and outlets to the mother company, contributing to the local development of Naples and the affirmation of the authentic, traditional Neapolitan pizza.

Concluding, the entrepreneurial project of da Michele in the world aims at creating a long-lasting business, as well as economic and social value for the territory, throughout the valorisation and export of a proud cultural, socio-economic, and culinary tradition proper of the Neapolitan identity – pizza and the art of baking it. The goal is to preserve the quality of the historic craft, opening to innovation. The remaining ingredients of the secret recipe are know-how, hard-work, quality, and dedication for mastery and a profession carried out with passion over 150 years, never forgetting own identity and a popularly recognised tradition.

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SCIENTIFIC PAPER

GOAT KEEPING AND GOAT MILK PRODUCTS IN HUMAN NUTRITION – REVIEW

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Abstract: *The aim of this paper is to review the status quo and future perspective of goat keeping and goat milk products, particularly emphasising the role of goat milk products in human nutrition. Across the globe, goats can be kept almost anywhere, even in poor surroundings. Considering the deteriorating geographical conditions due e.g. to global warming, the importance of goat and goat products will probably further increase. Goats can play an important role in the nutrition of the continuously increasing human population. The wool, meat and milk of goats are all valuable products. Goats are able to provide high quality products under diverse climate conditions and in extreme environments. Globally, more people drink milk from goats than from any other animal. Due to the components and profile of goat milk, it can be processed and a wide range of high quality and healthy value added products can be produced from it. Goat milk plays a decisive role in feeding starving and malnourished people in developing countries. In developed countries, a significant segment of many populations suffers from gastro-intestinal disorders and cow milk allergy. Goat milk plays an important role in the treatment of certain health problems. Moreover, due to its favourable effects on human health, goat milk has found a niche for itself in the trend towards healthy nutrition in developed countries, where connoisseur consumers are ensuring goat milk products a growing market share. In these countries, goat milk products, e. g. cheeses are also recognised as gastronomic and festive products.*

Keywords: *Goat, goat milk products, human health*
(JEL Classification: *Q13*)

1. Climate change, global warming and the (dairy) goat sector

The environment is rapidly changing due to climate change. Countries in the temperate zone are also affected by changes in global warming. These changes are associated with extreme high temperatures and seasonal changes. The number of days with a temperature humidity index above a specific comfort threshold has remarkably increased in recent years in European countries located in the temperate zone. The rate of global warming is expected to continue in the future. Agricultural production (plant production and animal husbandry), and thus global food security, is already affected by climate change and will continue to be influenced by global warming. Thus, these changes will continue to affect the dairy industry, directly and indirectly. Among domestic ruminants, goats are the most adapted species to heat stress in terms of production, reproduction and resistance to diseases. Climatic change would negatively affect the dairy industry and the importance of goats to the dairy industry would increase (SILANIKOVE and DARCAN, 2015).

The economic importance of goat production has increased worldwide during the last few decades, especially in countries that are often exposed to harsh environments. Goats have many advantages that enable them to maintain their production under extreme climate and geographic conditions. Among domestic ruminants, goats have the highest capacity to effectively convert feed into meat and milk. Furthermore, goats emit less methane than other domestic ruminants. Based on these advantages, DARCAN and SILANIKOVE (2018) came to the conclusion that goat breeding would play an important role in mitigating and adapting to climate change in harsh environments.

STEINFELD et al. (2006) underline that the total amount of greenhouse gas emissions is closely related to animal husbandry. The use of goats with better efficiency to convert feed resources into products may become an important strategy for alleviating greenhouse gas emissions originating from livestock (STEINFELD et al., 2006).

DARCAN and SILANIKOVE (2018) emphasizes the importance of benefiting from the genetic potential of local goats, which are the most resistant breeds to diseases, drought and local climate conditions. These physiological factors relate to the goat's ability to maintain productivity under severe

conditions. Low metabolic heat production, tolerance to lack of water, morphologic and anatomic structure enabling efficient utilization of poor quality feed, reproductive capacity, sweat gland capacity, as well as resistance to diseases and parasites have been identified by DARCAN and SILANIKOVE (2018) as the advantages of goats to future adaptation to climate change.

PEACOCK and SHERMAN (2010) highlights that a number of significant global trends are likely to impact goat production systems negatively or positively in the future. These trends include global warming, the rising costs of non-renewable energy, the rising cost of grain, human population growth, changes in human diet, livestock population growth, and degradation of the environment.

2. Goat keeping and goat milk production

Except for in the Antarctic, goats providing milk for human consumption can be found all over the world (HAENLEIN, 2017). The number of goats has reached 1 billion. The population has increased by more than 50% during the last 40 years, especially in Africa and Asia (HAENLEIN, 2001). The number of goats is stagnant in the Americas and slightly decreasing in Europe, but increasing in the Mediterranean countries, which reflects dairy goat increases against dual purpose, meat, brush and fibre goats (HAENLEIN, 2017). There are almost 500 goat breeds in the world, but only a half dozen are raised for their milk. Currently, some 600-700 million dairy goats are being kept (KRIS, 2008). More than 95% of the goat population can be found in developing countries. Worldwide trends of the evolution of the goat population and their products between 1969 and 2010 show a continuous and rapid increase, especially in developing countries THORNTON (2010).

About 95 percent of the world's goat population is found in Asia, Africa and Latin America. Asia's share is the largest, with approximately 60 percent of the total. Most dairy goat is raisesd in the Mediterranean region, South Asia and parts of Latin America and Africa. The countries with the largest dairy goat populations are Bangladesh, India and Mali. The Near East region has the highest sheep and goat milk production per inhabitant. Major goat milk producers are India, Bangladesh and Pakistan. The average milk yields of goats vary significantly among major milk producing countries. In Bangladesh, the average goat milk yield is about 80 kg/year, while in India and Pakistan, it is higher than 140 kg/year. Goat milk contributes significantly to the total milk production in sub-Saharan Africa (13%) and parts of South, East and Southeast Asia (excluding China) (FAO, 218).

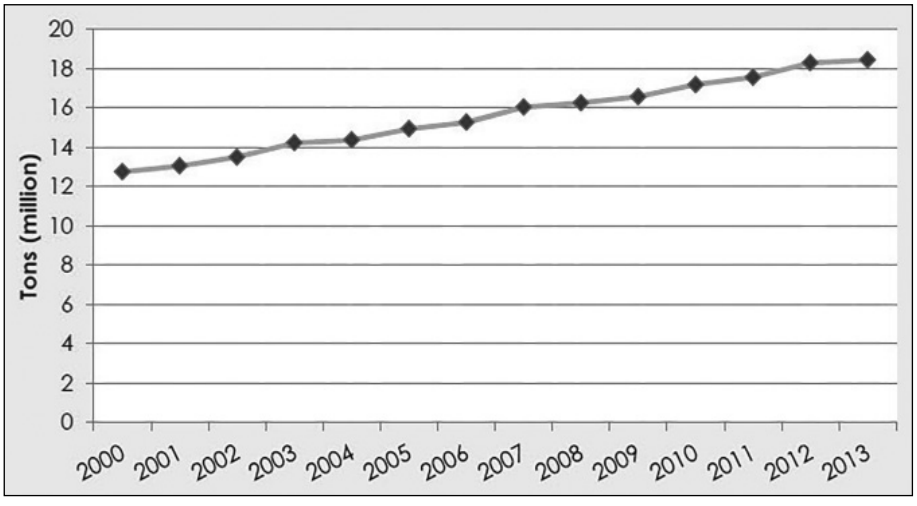
ZENEBE et al. (2014) emphasise that goats are an important component of the livestock industry, as they can adapt to harsh climates, which make them suitable for landless and marginal farmers. SILANIKOVE (1994 and 2000) also mentions their ability to provide high quality food under diverse climatic conditions. Their resilience in extreme and capricious environments makes goats so popular. The contribution of goats in supplying milk and milk products is high and plays an important role in rural economies and health. GARCÍA et al. (2014) also mentions that goat production constitutes an important part of the national economies of many countries, especially in the Mediterranean region and the Middle East. In Europe, such activity has particular importance in France, Italy, Spain and Greece. Furthermore, goat milk is an excellent food source.

MORAND-FEHR (2003) also reports that the number of goats has been increasing over the previous 20 years. Their number has increased by almost 50% worldwide, while the number of cattle has only increased by 9%, and the number of sheep decreased by 4% (MORAND-FEHR and BOYAZOGLY, 1999; DEVENDRA, 2001). Therefore, among these ruminants, goats seem to be one of the major livestock species rising in number (ANAETO et al., 2010).

Over the previous 20 years, a new and growing interest has occurred all over the world towards goat milk and goat milk products (DUBEUF, 2010). The goat milk production of the world showed an increase of 62% from 1993 - 2013 from 11 to 18 million tons (HAENLEIN, 2017). As Figure 1 shows, global goat milk production increased between 2000 - 2013. Regarding continents, most goat milk is produced in Asia (10.65 million tons), followed by Africa (4.65 million tons), Europe (2.53 million tons) and the Americas (0.59 million tons). After cows, the animal that is most widely used to provide milk for human consumption is the goat (HARREN, 1994).

Table 1 shows the top 10 global goat milk producers in 2017. The country producing the most goat milk is India (5 million tons) followed by Bangladesh (2.6 million tons) and Sudan (1.5 million tons). It has to be added that actual goat milk production is likely to be much higher than what is seen in official statistics, because of the large amounts of unreported home consumption, especially in developing countries (HAENLEIN, 2004 in YANGILAR, 2013).

Figure 1: Goat milk production in the world, 2000-2013, Million tons



Source: Department of Agriculture, Forestry and Fisheries, Republic of South Africa, 2016

Table 1: Top 10 goat milk producing countries of the world in 2017

Rank)	Country	Production (tons)
1	India	5.000.000
2	Bangladesh	2.616.000
3	Sudan	1.532.000
4	Pakistan	801.000
5	Mali	720.000
6	France	580.694
7	Spain	471.999
8	Turkey	415.743
9	Somalia	400.000
10	Greece	340.000

Source: worldatlas, 2017

As MOWLEM (2005) and SEREGI and KOVÁCS (2016) conclude, in developed countries with sophisticated food industries, goat products fit into two niches, that of health foods and that of products for use by gourmet cooks. In the developing world, goats can mean the difference between malnourishment and a healthy sustaining diet. PIRISI et al. (2007) also mention that goat milk and its products are fashionable in some parts of the world, where medical needs and connoisseur interests drive these markets. Nevertheless, consumer interest in the great variety of goat milk products, especially those of 'organic' origin or of traditional labels, has seen considerable growth in recent years (PANDYA and GHODKE, 2007).

2.1. Goat keeping and goat milk production in developing countries

The world's human population size increased from 5.5 to 7.2 billion from 1993 to 2013. Goats have had a superior growth rate in numbers compared to other milk producing domestic animals, especially in developing countries with large human population increases and high rates of under nutrition and malnutrition. The large goat number increases in Asia and Africa were an attempt to keep pace with the need to feed more people, and more people are exposed to goat milk worldwide than to any other milk (HAENLEIN, 2017).

DEVENDRA and MCLEROY (1982) point out that, due to the rapidly increasing human population, the demand for milk and milk products is on the rise in tropical developing countries. DEVENDRA (1999) reports that the contribution of small ruminants in general and goats in particular in meeting this demand will be very high. Goats are important milk producers in several parts of the tropics and contribute significantly to human nutrition in many developing countries.

The current world population of 7.6 billion is expected to reach 8.6 billion in 2030, 9.8 billion in 2050 and 11.2 billion in 2100, according to a United Nations report launched on 21 June 2017. With roughly 83 million people being added to the world's population every year, the upward trend in population size is expected to continue, even assuming that fertility levels will continue to decline. From 2017 to 2050, it is expected that half of the world's population growth will be concentrated in just nine countries: India, Nigeria, the Democratic Republic of the Congo, Pakistan, Ethiopia, the United Republic of Tanzania, the United States of America, Uganda and Indonesia. The concentration of global population growth in the poorest countries presents a considerable challenge to governments in implementing the 2030 Agenda for Sustainable Development (UN, 2017).

As Table 1 also indicates, more than 95% of the goat population can be found in developing countries (PEACOCK, 1996). Goats are the main suppliers of meat and dairy products for rural people in these countries (KRIS, 2008). In developing countries, goats are often kept in marginal environments under unfavourable climatic and scarce grazing conditions. Goats are the dairy animals of the poor because of the lower capital investment and production costs required, and the animals' rapid generation turnover (earlier milk production in comparison with other dairy animals), short pregnancies and milk supply in quantities that are suitable for immediate household use (DEVENDRA, 1999). Similarly, ANAETO et al. (2010) point out that goats not only provide families with protein, but can also be a source of livelihood generating income for the family. Goats are the major source of milk and meat for many subsistence farmers in tropical regions. Goats are common in arid and semi-arid areas and are generally kept in small flocks (2 to 10 animals). Goat milk is widely produced in West Africa, but also in the Caribbean and Central Africa, usually for household consumption, although it is sometimes traded within the community (FAO, 2018). DUBEUF et al. (2004) also emphasise that the greater portion of goat milk is still not widely traded, but is consumed locally. Although most dairy goats are kept in developing countries, breeding programmes are concentrated in Europe and North America. Genetic selection of dairy goats has resulted in considerable increases in yields and longer lactation periods. The specialized dairy goat breeds used in developed countries have higher genetic potential for milk production than breeds kept in the developing world. In recent decades, specialized breeds have been exported to many developing countries and crossed with local breeds, in order to improve milk production (FAO, 2018).

DUBEUF (2010) writes in more detail on the situation of dairy goats and goat milk in developed and intermediate countries. He also refers to the fact that most of the milk is auto-consumed or sold locally through the informal sector. Thus, it is difficult to determine the amount of goat milk produced and auto-consumed or sold in the local market because of the lack of global statistical data on goat milk and generally very little national data. Cultural habits and tastes regarding goat milk differ from country to country and cultural groups to cultural groups within countries. For instance, Middle Eastern and Central Asian peoples have old traditions of consuming goat milk, while such traditions are rather non-prevalent in Far Eastern or Western African countries, where some populations have taboos for this type of milk. At the opposite extreme, the statistics confirm the importance of goat milk in Central and Southern Eastern Africa. It contributes significantly to the milk supply of the population in such poor countries as Mali, Niger, Kenya, Tanzania or Sudan, although the data are probably not precise due to the informal very traditional conditions. Several projects in East Africa have shown that dairy goats can contribute significantly and improve the incomes of village

people (PEACOCK, 2008). The dairy goat sector in India is rather marginal, despite India being the most important goat producer and the main goat milk producer. Goat milk is not only 3.2% of the national milk production, but most of it is auto-consumed by the rural population. Goat milk is not well priced, its products do not have a lucrative market and it is generally produced by lower castes. South America, with its Hispanic tradition for consuming goat milk cheeses, has several regional collecting points for goat milk in Brazil, Mexico, Argentina and Chile, even if the economic importance of the sector is still very low (DUBEUF, 2010).

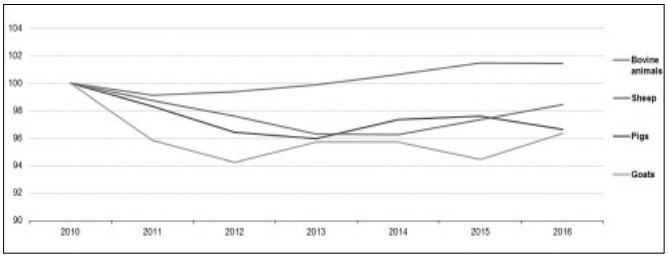
Regarding developing countries, IDACHABA (2000) and ANAETO et al. (2010) summarise the advantages of goat keeping:

- They refer to goats as 'walking factories' producing food for man as they graze on pastures and eat farm by-products, thus reducing the costs of weeding and feeding. Goats can utilise feed which is difficult to consume for cattle.
- Goat keeping provides a source of income for the family.
- Goat products greatly contributes to the protein intake of the family.
- Goats have short generation interval. They are early maturing and can reach puberty as early as 4 months.
- There are no religious restrictions regarding the keeping of goats and consuming their products; rather, they are favoured by religious festivals and other social engagements.

2.2. Goat keeping and goat milk production in Europe

Figure 2 shows the livestock population in the EU-28 from 2010 to 2016. Of the reported animals, we focus here on the number of goats. The largest relative decrease in the livestock population was reported for goats for this period, with a fall of 3.7%. However, in 2016, the population of goats increased by 2.0% compared to the year before (EUROSTAT, 2017).

Figure 2: Livestock population, EU-28, 2010-2016 (Million heads) (2010 = 100%)



Source: Eurostat, 2017

As KUKOVICS (2008c) reports, in Europe, most of the goat population were held in the Mediterranean countries (Greece, Spain, Italy, Portugal and France), in the Netherlands and Romania. Regarding dairy goats, 40% of the European dairy goat population was held in France, the Netherlands and Spain. These three countries were the biggest goat milk producers within the EU.

In 2016, Greece (3.89 million head) held the largest population of goats in the EU-28, as shown in Table 2. In 2016 Greece, Spain, Romania, France and Italy had the largest goat populations (EUROSTAT, 2017).

Table 2: Goat population in EU-28 countries in 2016

Country	Million head
EU-28 (1)	12.78
Belgium	no data
Bulgaria	0.24
Czech Republic	no data
Denmark	no data
Germany	0.14
Estonia	no data
Ireland	no data
Greece	3.89
Spain	3.09
France	1.20
Croatia	0.08
Italy	1.03
Cyprus	no data
Latvia	0.01
Lithuania	0.01
Luxembourg	no data
Hungary	0.08
Malta	0.00
Netherlands	0.50
Austria	0.08
Poland	no data
Portugal	0.35
Romania	1.48
Slovenia	no data
Slovakia	0.04
Finland	no data
Sweden	no data
United Kingdom	0.10

(1) EU-28 EUROSTAT Estimates
Source: Eurostat, 2017

In some European countries (Greece, Albania, Bulgaria, Bosnia and Herzegovina, Croatia and Slovenia), the contribution of goats and sheep to dairy production is remarkable, around 40%, and in some of them (e.g. Greece) it even exceeds that of cows (FAO, 2018 and HAENLEIN, 2001 in SILANIKOVE and DARCAN, 2015). The main reason for this situation relates to the ability of goats to uniquely and effectively exploit the vast scrublands and woodlands characterizing these countries (SILANIKOVE, 2000 in SILANIKOVE and DARCAN, 2015).

DUBEUF (2010) writes precisely on the situation of goat milk products in Europe. He points out that Europe owns only 2.5% of the world goat population, but its share in the world's goat milk production is 18%. It is the only continent where goat milk has such an economic importance and organisation; however, the situation varies between countries. Most of the production is marketed, although an informal sector still remains active in southern European countries. Goat milk products are nearly exclusively cheeses. Recent sales of UHT

goat milk have increased due to its dietetic quality. Globally, the goat sector is clearly positioned on quality dairy products for rather high income consumers. He adds that goat milk consumption has a long tradition in Southern Europe. Despite this and producing more than 80% of the total European yield, goat milk and cheese is often less appreciated than ewe milk and cheese and is in direct competition with sheep products in Spain, Greece and Portugal.

MOWLEM (2005) reviews the dairy goat sector of the UK in his study. He states that goats have always been part of the fringes of agriculture in the UK. Goats were probably introduced by the Romans 2,000 years ago. During the Middle Ages, goats were seen as undesirable probably because they did not conform to the new agricultural revolution. Since those times and, in fact, as recently as the previous 30 years, there has been an increase in interest in goat production which - as may be expected - has followed increased market possibilities for the products. He also adds that in the UK, goats had a 'very bad press' for many years and, as a result, considerable prejudice against all goat products existed. He assumes that goat milk would be described by almost everyone who was not a goat enthusiast as 'strong, smelly, salty or sweet'. With such a reputation, it was almost impossible to persuade anyone to taste goat milk, even if offered to them at no cost.

2.3. Goat keeping and goat milk production in Hungary

Goat breeding in Hungary has a history of prohibitions and regulations. During the Middle Ages, goats were prohibited on certain territories. At the end of the XVIIIth century, a law was made that only poor people and people with health problems were allowed to keep goats. Thus, goats became the cows of poor people. The goat population was 270.000 at the end of the XVIIth century and 17.317 in 1885 (MUCSI, 2004 in KOCSISNÉ GRÁF, 2011).

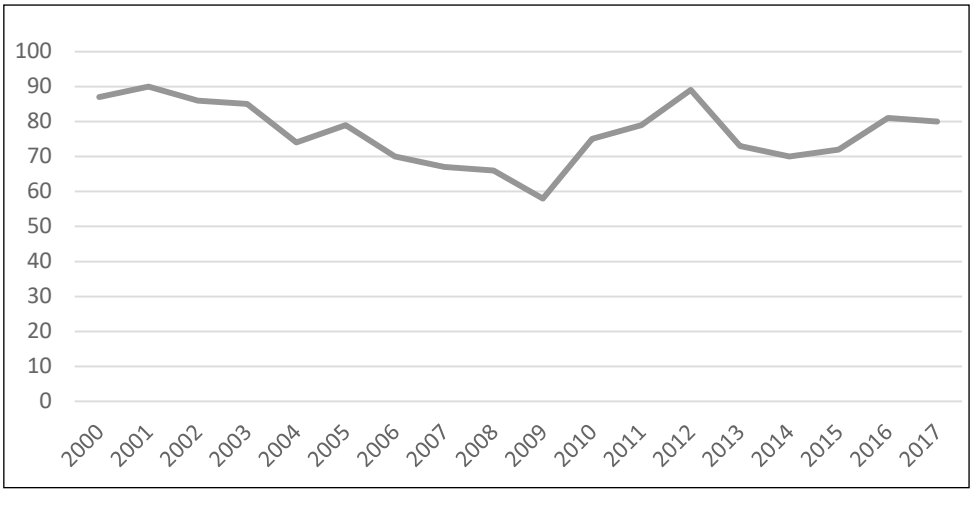
Until the end of the 1990s, goat breeding in Hungary was relatively unimportant. However, new demand for so-called alternative products meeting the requirements of healthy nutritional programmes began to appear in the country, as well. Initially, this new demand was met with imported products, since the national goat population and goat dairy products could not compete with imported products (MARTICSEK et al., 1999). Due to many efforts, today, local goat milk and manufactured goat milk products can meet any and all market requirements (SZIGETI, 2004).

2000 - 2017. The number of individuals and companies keeping goats as a livelihood generated income or business reasons is probably a few hundred in Hungary. The number of farmers keeping some goats as a hobby or providing the family with goat milk is probably a few thousand (KUKOVICS, 2007a). There are around 3-5.000 goat keepers in Hungary (the exact number is not known) and less than 80% keeps less than 10 goats. The breeds mainly belongs to Hungarian breeds, but 10% stem from imported breeds, such as Saanen, Alpine, Boer or Anglo-Nubian (KUKOVICS, 2008a). Many poor people keep goats in Hungary, in mainly underprivileged regions (KUKOVICS, 2007b). The production level (and number of animals), as well as keeping conditions are lagging behind the data for France, Spain, Italy, Greece and the Netherlands (KUKOVICS, 2008b). Production level of the sector is weak and has been struggling with several problems for many years. The number of goat breeders and goats continuously fluctuates and the data are patchy. With the growing importance of healthy nutrition and lifestyle, growing demand is expected for goat milk and goat milk products, that could contribute to the development of the goat sector (KOCSISNÉ GRÁF, 2011).

Although goat breeding has seemed to be more organized since 2009, the number of goats in nucleus herds was still much lower in 2013 than before 2008. Most goats still do not belong to any specific breed, and most herds and animals are not registered or individually identified. The Hungarian Sheep and Goat Dairying Public Utility Association has assisted milk production and processing, and product marketing, but organized sales of meat products (slaughter kids and adult goats) were still lacking in 2013. The quality of breeding work should be improved and product marketing has to be developed to ensure a brighter future for goat farmers in Hungary (KUKOVICS and BARANYAI, 2016).

The main product of the goat sector is milk. The estimated goat milk production is around 3-5 million litre per year, but only 0.6 million litres are manufactured by milk factories. The main income of milk producing farmers comes from milk and manufactured goat milk products. It is common in the sector that goat breeders sell the produced goat milk and self-made dairy goat products directly (HUNGARIAN CHAMBER OF AGRICULTURE, 2017). Figure 4 shows the goat milk production in Hungary between 2000 - 2016.

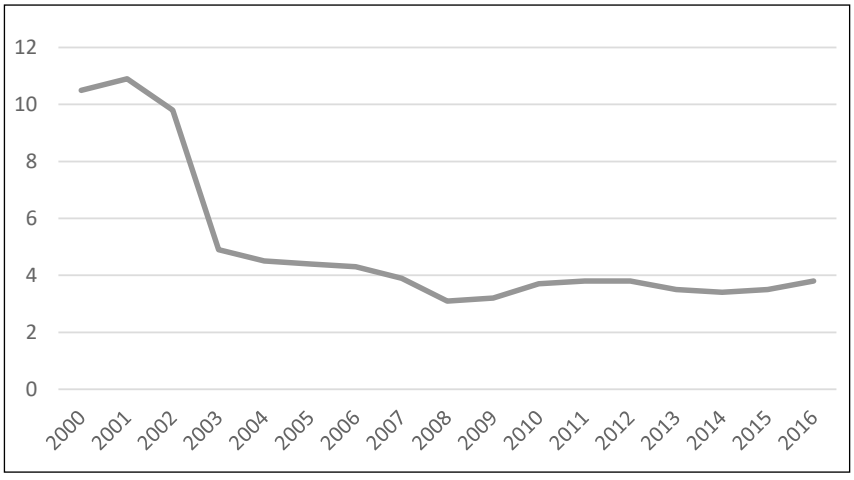
Figure 3: Goat population in Hungary between 2000-2017 (thousand heads)



Source: KSH, 2018a

Goat milk is processed by only a few small or larger dairy plants in Hungary. Processing plants have to overcome several difficulties, such as the dispersion of breeding farms, and competition with products imported from other EU and neighbouring countries (Slovakia and Romania), which are readily accepted by Hungarian consumers (SEREGI and KOVÁCS, 2016).

Figure 4: Goat milk production in Hungary between 2000-2016 (million litres)



Source: KSH, 2018b

FENYVESSY (2009) reports that goat milk and its role in human nutrition came into fashion in the Hungarian press only in recent years. The articles emphasise the role of goat milk and goat dairy products in preserving health, although the statements are sometimes contradictory.

Goat cheeses made from domestically produced milk are available in the Hungarian market, together with more expensive imported (e.g. French, Greek) goat cheeses. Many of the Hungarian cheeses are of excellent quality, having a clear taste and proper texture, with adequate shelf-life and a "goat flavour" that is not as intense as that of imported cheeses (SEREGI and KOVÁCS, 2016).

SZIGETI (2004) and SZIGETI et al. (2005) report on the results of an empirical research study carried out in Hungary. Only a small ratio of respondents reported only very rarely buying and consuming goat dairy products. The most often purchased product was cheese. The main reason for refusing goat dairy products were: they did not like the taste of goat dairy products, they did not even know these products, these products are not easy to find and buy. The main reasons for buying these products are: healthiness, taste and quality. The respondents were concerned that goat dairy products were expensive. The research revealed that respondents were not familiar with the available brands and nutritional benefits of goat dairy products. Another empirical research study (SZIGETI el al., 2014) revealed that the opinion of Hungarian respondents had not changed much since the time of the previous studies. Goat dairy products are still rarely consumed. The most preferred products are cheeses, followed by cottage cheese. Goat dairy products should not be considered as mass products; rather, its niche should be strengthened. When promoting them, their tastiness, healthiness and traditional nature should be emphasised, but their reliable Hungarian origin, as well as their quality should also be pointed out (CSAPÓ and CSAPÓNÉ, 2019).

2.4. Goat keeping and goat milk production in developed countries of other continents

DUBEUF (2010) gives a rather detailed outlook of the goat milk sector in the developed countries of other continents. In the USA and Canada, goat milk is clearly a niche product. Between 1960 – 1970, goat milk was considered only as a minor substitute of cow milk. An enthusiastic interest for goat cheeses started in the early 1980s, when goat cheese became a gourmet item. In other developed countries, the goat sector is small, although it could be well organised. In New Zealand, the NZ dairy goat co-operative has 85 breeders with an average herd size of 250. Most of the milk is used as milk for kids or UHT milk and exported to countries such as Taiwan. Israel also has a well organised intensive dairy goat sector with a significant part of the production exported as frozen curd to the USA (BERINSTAIN-BAILLY, 1997 in DUBEUF, 2010).

Goat cheese in the US has gained popularity among ethnic groups, gourmet and health food lovers and goat farmers (RIBEIRO and RIBEIRO, 2010; PARK, 2011).

3. The nutritional and medicinal importance of goat milk

One of the most decisive factors in the growth in the consumption of goat milk and derived products is their perceived beneficial effects on human health which, moreover, are fully recognised by the scientific community (GARCÍA et al, 2014).

The use of goat milk as an excellent food source is undeniable. It has beneficial effects for health maintenance, physiological functions, in the nutrition of children and elderly people (BILLION, 2003; ALBENZO et al., 2006; DOMONKOS and GEINER, 2009; YANGILAR, 2013).

BARNA (2009) emphasises that the folic acid content of goat milk is relatively low (the folic acid content is 5 times higher in human milk and 6 times higher in cow milk, while the folic acid content of sheep milk is the same as human milk). In mixed diets, goat milk can be applied but the folic acid need of the body has to be ensured by other foods (e.g., oat flakes, green peas, dry beans, almond, orange, banana). Due to its nutritional value, goat milk and manufactured goat milk products are recommended in the healthy diets of children. When devising a healthy children's menu, balance, diversity and self-restraint have to be considered.

Goat milk differs from cow or human milk in having better digestibility, alkalinity, buffering capacity and certain therapeutic values in human nutrition and medicine (HAENLEIN and CACCESE, 1984; PARK and CHUKWU,

1989; PARK, 1994; LIMA et al., 2018).

The unique characteristics of goat milk have been fairly well surveyed regarding nutritional value and health effects. The superior digestibility of goat milk, the proper composition of fatty acids, protein and its content of bioactive compounds seem to give properties suitable for treating or preventing certain medical conditions. Goat milk has beneficial effects on malabsorption disorders and inflammatory bowel diseases. Goat milk contains higher amounts of calcium, magnesium and phosphorous than cow and human milk. Medium chain triglycerides and proteins occur more in goat milk, and have been recognised as unique lipids and proteins with unique health benefits. The soft curd of goat milk may be an advantage for adult humans suffering from gastrointestinal disturbances and ulcers. Goat milk is important for prevention of cardiovascular disease, cancer, allergy and microorganism and used for stimulation of immunity. Goat milk is recommended for infants, old and convalescent people (HAENLEIN, 2004; ZENEBE et al., 2014).

Comparing the biological value of goat, sheep and cow milk protein, FENYVESSY (2009) stated that the protein of goat milk was the most valuable, followed by the protein of sheep and cow milk. The ratio of essential amino acids was 46.7% in cow milk, 48.0% in sheep milk and 52.5% in goat milk (AGNITHORI et al., 1993 and FENYVESSY et al, 2001 in FENYVESSY 2009).

Goat milk has predominantly smaller fat globules compared to cow milk and is easier to digest (FEVRIER et al., 1993; JANDAL, 1996; LÓPEZ et al., 2003; RAMOS et al., 2005; OLALLA et al., 2009; YANGILAR, 2013). Thus, goat milk is a valuable alternative for babies, adults and nursing mothers, also (BALDO, 1984; HOST et al., 1988).

JENNESS (1980) reports that one of the most important contributions of goat milk to human nutrition is the calcium and phosphate that it supplies. Human milk contains much less of these minerals. Goat milk provides a great excess of Ca and P, in relation to energy to human infants. Both calcium and phosphorus of goat milk are absorbed by the human infant. Building on the comparative laboratory test results of O'CONNOR (1994,) where the composition of the minerals and vitamins in human and goat milk was investigated, ANAETO et al., (2010) states that the mineral content of goat milk is higher, and these properties help to prevent iron deficiency anaemia and bone demineralisation. Regarding vitamins, in comparison with cow milk, goat milk has lower amounts of vitamin E, folic acid, and vitamin B12, which can result in "goat milk anaemia" if additional sources in these vitamins are not present in the diet LIMA et al. (2018).

Goat milk has been recommended as a substitute for patients allergic to cow milk (TAITZ and ARMITAGE, 1984; PARK, 1994; GUO et al., 2004; YANGILAR, 2013). 40-100% of patients allergic to cow milk proteins tolerate goat milk (ZEMAN, 1982; PARK, 1994). The uniqueness of goat milk, yoghurt and cheese in human nutrition has several aspects: goat milk can be used for the treatment of direct or indirect cow milk allergy (GREZESIAK, 1989 in ANAETO et al., 2010). YANGILAR (2013) and LIMA et al. (2018) also emphasises that the goat's milk nutritional properties and lower allergenicity in comparison to cow milk, especially in non-sensitised children, has led to an increased interest in goat milk as a functional food, and now it forms part of the current trend to healthy eating in developed countries. However, POLGÁR (2009) and DOMONKOS and GEINER (2009) indicate that the research results on this issue are rather contradictory.

Goat milk contains much taurine (6.62 mg/100 ml in general, but the milk of Mediterranean goat contains even more, 6.90-11.37 mg/100 ml, which is 10 times more than the taurine content of cow milk). It can be assumed that with goat milk, health problems with taurine deficiency can be influenced favourably (PASQUALONE, 2000 IN BARNA, 2009). There are reports that goat milk contributed to the treatment of diabetics (ANAETO et al., 2010).

The higher proportion of medium-chain fatty acids in goat milk are known to:

- be anti-bacterial,
- be antiviral,
- inhibit development and dissolve cholesterol deposits, and
- be absorbed rapidly from the intestine (SHINGFIELD et al., 2008)

Thus, these characteristics undoubtedly contribute to the specific health promoting properties of goat milk (SILANIKOVE et al., 2010).

When analysing the characteristics of goat milk, JANDAL (1996) reports on its several aspects:

Physicochemical aspects: Goat and sheep milk is white in colour compared with cow milk, which is yellowish because of the presence of carotene. Goat milk has a stronger flavour than sheep milk, and is alkaline in nature, which is very useful for people with stomach acid problems. This alkalinity is due to the higher protein content and a different arrangement of phosphates.

Medical aspects: Goat milk is prescribed by many doctors for children who are sensitive to cow milk, and is an alternative for people who are allergic to cow milk. Goat milk is very useful for people suffering from problems such as acidity, eczema, asthma, migraine, colitis, stomach ulcer, digestive disorder, liver and gallbladder diseases and stress-related symptoms, such as insomnia, constipation and neurotic indigestion.

Nutrition aspects: The fat of goat milk is more digestible than milk, and the fat molecules are smaller and have a greater surface area. Lipases in the gut are supposedly able to attack the lipids more rapidly. The proteins in goat milk are digested more readily and their constituent amino acids absorbed more efficiently than those of cow milk. Goat milk is recognised for its superior nutritional quality.

Biological aspects: Goat milk is easier to digest because of its natural homogenization, which is superior to the mechanical homogenization of cow milk. It takes approximately 20% less time to digest goat milk.

Immunological aspects: The non-allergenic properties of goat milk are due to the fact that most of the milk proteins are unable to pass through the walls of the digestive tract in their original, undigested, allergenic states.

The medicinal value of goat milk has been documented in Nepalese Ayurveda (Nepalese Traditional Medicine), Indian Ayurveda and goat milk was recommended as an affective dietary item for patients suffering from tuberculosis, dysentery, cough and cold and certain gynaecological disorders (BAJRACHARYA et al., 2010 and PAL et al., 2011 in BHATTARAI, 2012).

MOWLEM (2005) examines the goat milk market of the UK in his study. He found that, in spite of the poor reputation of goat milk, the benefit of goat milk as a replacement of cow milk, when the latter has caused medical problems such as infantile eczema, has long been recognised. Many hospitals and medical practitioners kept a list of sources of goat milk that they could recommend to patients. The term 'universal foster mother' was often used to describe the goat. He emphasises that the UK is a strong milk drinking culture. It is vis-a-vis this milk drinking culture that they consider two main markets for goat milk and goat milk products in the UK: the 'health market' and the 'specialty food market'. The 'health market' is created by the demand for goat milk as an alternative to cow milk for people with a health problem and when goat milk is believed to be beneficial. He tells that one of the first scientific reports to suggest that goat milk may have health benefits was in the South African Medical Journal in 1956 (he refers to WALKER, 1956), when it was shown that a child with infantile eczema recovered when its diet was changed to include goat milk instead of cow milk. Walker had already written on the subject 8 years earlier in a paper titled "Goat's Milk as a Therapeutic Agent" (WALKER, 1948 in MOWLEM, 2005). Goat dairy products as specialty food products are to be found in many countries, including the UK. Cream and butter manufactured from goat milk are almost entirely consumed by those seeking to avoid cow dairy products on for health reasons. Both markets (health and specialty food) do not seem to be price sensitive. People buying goat products for health reasons are unlikely to worry too much about the cost, particularly if they can see some benefit from the consumption of these products. The speciality food market is also not particularly influenced by price. It can be seen as a luxury market where products are bought by those who can afford to buy out of interest rather than necessity. In the case of goat products, the higher profile these now receive in the press has done much to generate interest. Most newspapers have a food section, particularly in the coloured magazine supplements, and many of these have a regular recipe and menu section. There are very few weeks when goat products, particularly cheeses, do not get a mention. This encourages people to try these products and to include them when e.g. entertaining friends with dinner parties. To some, existing goat products have become 'trendy' (MOWLEM, 2005).

Goat milk and manufactured goat milk products have a three-fold significance in human nutrition, as HAENLEIN (2004) summarises:

- feeding more starving and malnourished people in the developing world than from cow milk;
- treating people afflicted with cow milk allergies and gastrointestinal disorders, which is a significant segment in many populations of developed countries;
- meeting the gastronomic needs of connoisseur consumers, which is a growing market share in many developed countries.

4. The nutritional and medicinal importance of goat milk products

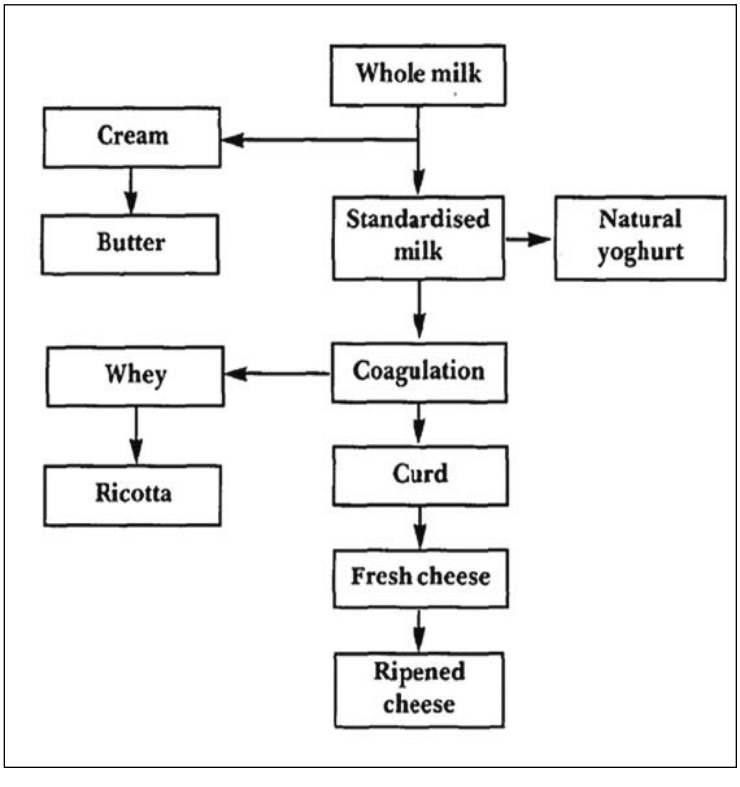
GARCÍA et al. (2014) points out that the scientific quality of research on goat milk products is patchy, but is continuously improving.

In the last decade, there has been an increased interest in goat milk production and its conversion to value added products as well as a renewed interest in goat milk as an alternative milk source for people with cow milk intolerance (TZIBOULA-CLARKE, 2003; ALBENZO et al., 2006).

Goat milk products are considered to be the dairy products with the greatest marketing potential. Fermented goat milk incorporating live probiotic cells represents a group of products with great prospects in the future with regards to their nutritive and therapeutic properties (ZENEBE et al., 2014).

The chemical characteristics of goat milk can be used to manufacture a wide variety of products, including fluid beverage products (low fat, fortified, or flavoured) and UHT (ultra-high temperature) milk; fermented products, such as cheese, buttermilk or yogurt; frozen products, such as ice cream or frozen yogurt; butter; condensed/dried products; sweets and candies (RIBEIRO and RIBEIRO, 2010; YANGILAR, 2013; PAL et al., 2017). Figure 5 shows the conversion of goat milk into main dairy products.

Figure 5: Conversion of milk into dairy products



Source: Peacock, 1996

4.1. Nutritional value of manufactured goat dairy products

CHEESE

Cheese is a fermented dairy product, which has hundreds of varieties. It is probably the most popular and well known value added dairy product (PAL, 2014 in PAL et al., 2017). The high fat-content of goat's milk makes it very suitable for cheese-making, and some delicious cheeses can be made (PEACOCK, 1996).

Chesses hold the greatest economic value among all manufactured goat milk products. Agricultural Handbook No. 54 of the USDA describes over 400 varieties of goat cheese and lists over 800 names of cheeses, many of which are made from goat milk or combinations of goat with cow, ewe, or buffalo milk (PARK, 1990 and SANDERS, 1969 in PARK, 2010).

Cheese may have been one of the first manufactured foods consumed by humans. History records its usage more than 4,000 years ago, but no one really knows when the first goat milk was made into cheese (LOEWENSTEIN et al., 1980). Goat milk, and the cheese made from it, was venerated in ancient Egypt, with some Pharaohs supposedly placing these foods among the other treasures in their burial tombs (SMITH, 2006). As far as we know, goat cheese originated in Mesopotamia. The milk was probably made into soft cheese, and then hard, ripened goat cheeses were later developed in the Mediterranean basin countries (PARK, 2001). The production of cheese from goats' milk has a very long history and is an important source of protein for people in several countries (KALANTZOPOULOS, 1993; SEIFU et al., 2004; YANGILAR, 2013).

There are goat cheeses made from raw and pasteurized milk. In many countries, the manufacture of goat cheese from raw milk is prohibited due to food safety issues (e.g. brucellosis). The type of milk used significantly influences the finished cheese (LOEWENSTEIN et al., 1980).

Hundreds of types of cheese are made around the world. Northern and Southern European countries have developed many types of goat's milk cheese, and the recipes for some have spread outside Europe. Few countries in the tropics traditionally make cheese, and even fewer make cheese from goat's milk. This reflects local traditions and the small quantities of milk produced by most goats in the tropics, rather than any lack of potential. India and Central and South America are the main areas in which goat's cheeses are produced. About 7.5 litres of milk are needed to produce one kilo of fresh cheese, but over 10 litres are needed to make a kilo of hard cheese. The harder cheeses often become popular with urban residents as they become richer and are able to afford them. It is good for poorer farmers to take advantage of the increase in wealth of urban dwellers and sell them valuable products, provided that the farmers get a fair price for their products (PEACOCK, 1996).

Main goat cheese types can be classified as follows: fresh and soft cheese; blue-veined cheese; semi-hard cheese; hard cheese (LIMA et al., 2018). In European countries, goat cheeses are marketed as premium cheese. Greece and France are the most important goat milk cheese producing countries in Europe. In India, goat milk has been used for making hard cheese. Goat cheese is easier on the human digestive system and lower in calories, cholesterol and fat than its bovine counterpart. Goat milk cheese is rich in calcium, protein, vitamin A, vitamin K, phosphorus, niacin and thiamin (ANON, 2012 in BHATTARAI, 2012).

In developed countries, sheep and goat cheeses are very well recognised by connoisseurs as gastronomic and festive products (RIBEIRO and RIBEIRO, 2010; MORAND-FEHR, et al., 2007).

Yoghurt and other fermented milk products

Yoghurt is made when milk is soured by certain selected bacteria, and not by other bacteria (PEACOCK, 1996). Currently, yoghurt is growing in popularity throughout the world, as people are now become aware of health benefits of probiotics in yoghurt. It is a fermented milk product that can be prepared with milk, cream, and skim milk. It is proven that fermented goat milk products are ideal food for people allergic to cow's milk. Goat milk is naturally homogenized. Its consumption helps improve slow digestion and absorption. Regular consumption of goat milk significantly improves weight and skeleton mineralization and also increases the level of vitamins, minerals and haemoglobin in blood serum. All these traits are significant advantage compared to human milk. Many studies have been conducted on fermented goat milk types. Goat milk yogurt is an excellent source of fatty acids, protein, and minerals; however, it is not well accepted by many consumers, due to its typical flavour (PAL, 2014 and PACINOVSKI et al., 2015 in PAL et al., 2017).

Kefir is a viscous, refreshing drink, with high acidity and varying amounts of alcohol and carbon dioxide. Health benefits of kefir were stated by FARNWORTH (2005), including stimulation of the immune system, inhibition of tumour growth, antimicrobial properties, gastrointestinal tract benefits and positive effects on cholesterol metabolism. Many traditional fermented goat milk types are made in developing countries (RIBEIRO and RIBEIRO, 2010).

MILK POWDER

Milk powder is prepared by removing the water from liquid milk. Milk powder has better keeping quality, requires less storage space and involves low transport cost (Pal, 2014 in PAL et al., 2017).

DESSERTS AND SWEETS

Ice cream made from goat milk is an attractive alternative for children and other consumers, due to its nutritional and antiallergenic properties and creamy organoleptic properties. Ice cream and frozen yogurt manufactured from goat milk are usually flavoured. Vanilla, chocolate, and premium white chocolate mix are the most commonly used flavours (PARK, 2010). KONAR and AKIN (1997) and PANDYA

and GHODKE (2007) compared the chemical, physical and organoleptic qualities of ice cream made from cow, goat and sheep milk for their suitability for ice cream production. Goat milk proved to be the most acceptable ice cream followed by cow milk. CORREIA et al., 2008 in RIBEIRO and RIBEIRO, 2010 agreed and added that goat milk ice cream has a softer texture and specific melting characteristics.

'Cajeta' is a Mexican goat milk candy. It is a rich caramel sauce made from goat milk. Some Brazilian producers make goat milk 'Rapadura', mixing goat milk and sugarcane. It can include peanuts, coconut or chocolate. Chocolate goat milk can be produced, including organic chocolate goat milk in some countries. Cookies can also be made from goat milk. Each region has some typical cookies made from cow milk adapted to use goat milk. In Brazil, we can find 'Beliscăo' and 'Sequilhos' (RIBEIRO and RIBEIRO, 2010).

BUTTER LIKE PRODUCTS

Cream is produced by mechanical agitation of the whole milk to separate the fat globules. The fat globules are aggregated to form a semi-solid mass with 80–85% fat, transforming into butter. Cream and butter are manufactured from goat milk, but are almost entirely consumed by those seeking to avoid cow dairy products for health reasons (MOWLEM, 2005 in RIBEIRO and RIBEIRO, 2010). The production of butter from goat milk is not very common. It is artificially coloured sometimes in order to look similar to cow butter (LIMA et al., 2018).

WHEY PRODUCTS

MICHAELIDOU (2008) emphasizes that the co-product of cheese manufacture, whey, is currently being viewed as a valuable source of bioactive components. Goat milk whey has higher levels of alpha lactalbumin, but is often discarded, or given to animals as a nutritional supplement, and little information on it is available. However, presently there are many products made from whey goat milk, among them are whey goat milk flavoured beverage, tablets, whey protein concentrate, and athletic supplements (PANDYA and GHODKE, 2007 in RIBEIRO and RIBEIRO, 2010).

As regards the marketing goat milk products, there are two formidable barriers :

- negative public perception of goaty flavour,
- seasonal milk production, which prevents year-around uniform marketing.

To overcome these problems and achieve a sustainable dairy goat industry, effective strategies have to be sought (PARK, 2010).

The flavour goat milk is more intense in comparison to cow milk, which can restrict the acceptance of its derivatives by consumers (PARK and DRAKE, 2005; RIBEIRO and RIBEIRO, 2010; GOMES et al., 2013). While the typical goat taste is considered as a quality component in certain goat cheese products, for other products, the absence of characterising flavour is favourable (MORGAN and GABORIT, 2001; RIBEIRO and RIBEIRO, 2010; YANGILAR, 2013).

CONCLUSIONS, SUMMARY

Over the coming decades, the world will face important challenges related to environmental problems, global warming and human population growth. More people have to be fed with less external CO2 or NH4 emission. Animal husbandry is said to be the human activity most responsible for high gas emission and deforestation. Meanwhile, within the next 50 years, milk and meat production should be doubled. Goats are expected to play an important role in the future of milk production worldwide.

Furthermore, the demand for goat milk due to

- special health conditions,
- the growth in lifestyle markets, ethical, fair trade and sustainable products,
- eco/agro-tourism, new environmental and biodiversity markets,
- the growing market share of connoisseur consumers is expected to grow continuously.

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SCIENTIFIC PAPER

INTERRELATION OF LARGE-SCALE PROPERTY DEVELOPMENT PROJECT AND THE LOCAL REAL ESTATE MARKET. EVIDENCE FROM HUNGARY

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Abstract: *The Hungarian real estate market has gone through a widely fluctuating phase in the new millennium, which has not missed periods of surge, crisis-driven gloom and recovery. Amidst these conditions, an international developer engaged in a large-scale, long-timeframe residential property building project (Sasad Liget Residential Complex) in District XI of the Hungarian capital. The article examines the exposures and impacts of the development project to the external factors. The deployed quantitative statistical methods reveal that despite the considerable weight of the project, the in-market performance of SLRC has been the function of the general swings of the sector. Further, although the project generated higher demand than the bulk of other properties in the vicinity, its weight has not been enough to impact the property market of District XI at a statistically significant degree.*

Keywords: *Residential property development, quantitative, real estate market conditions*
(JEL Classification: *E31, R31*)

INTRODUCTION

The development of Sasad Liget Residential Complex (SLRC) was launched in 2005 by Biggeorge Property Zrt. (Biggeorge) in District XI in Budapest. Amidst fierce competition among the potential buyers for the property development area in the booming real estate sector, the company had to pay 5 billion HUF (over 18.1 million USD at current exchange rate) for the spot of land, which was considerably higher than the budgeted 3 billion HUF cost of acquisition. The development project of 800 – 1200 flats was scheduled to be completed by 2019 in six stages. The development of the property has been completed by and large according to plan and selling the homes has followed with a natural lag.

The SLRC development (be it as large scale as it is) has not taken place in isolation. It is embedded in the widely fluctuating global, Hungarian and District XI of Budapest property market, where the prices are determined by multifaceted factors (Fernandez-Duran et al., 2011). From the global perspective, several sources (e.g. Bhardan & Kroll, 2007; Jacobides, 2007; Edge, 2001) call attention to the internationalization of the value chain of the real estate industry, while the Norges Bank (2015) recognize the effects of globalization, technological evolution, sustainability concerns, demography and urbanization that fundamentally impact the local property markets. To supplement the megatrends, empirical studies underscore the relevance of local transportation infrastructure (So et al., 1997; Lewis-Workman & Brod, 1997), environmental qualities (Ridker & Hanning, 1967), availability of quality education (Hayes et al. 1996), criminal safety (Gibbons & Machin, 2008), the legal framework and policy (Karanikolas et al.,2011) in shaping the segment. Further, certain empirical studies provide evidence that large-scale development projects tend to impact the local property market by shifting prices. Wiley (2015) and Rusert (2017) describe such effects regarding commercial property developments, and Zahirovich-Herbert & Gibler (2014) report a positive influence of large-scale residential investments on local home prices. At the same time, while certain data seems to support a long-term positive influence of real estate FDI on local home prices (e.g. Kim and &, 2011), Gholipour et al. (2014) fail to isolate such price-distorting effect in the framework of OECD countries.

The SLRC homes compete with the community of private sellers in this composite space. With the assumption that the vast array of dimensions of the external conditions exert a uniform impact on the local real estate sector, the investigation uses the national and Budapest home price indices as proxies of the external conditions. The article seeks to place the SLRC project in the local property market and observe how it performed against and impacted the scattered competition of local sellers of existing homes.

MATERIALS AND METHODS

The investigation relies solely on quantitative data from professional sources to apply statistical methods to deliver quantified measures of the subject. Since the quality of the analysis (and consequently that of the outcome) is the function of the credibility of the sources, great emphasis is placed on the selection of data supply. Official data sources (the Hungarian Tax Authority, financial institutions in the primary and secondary levels) as well as first-hand sources (Biggeorge Property ZRT) are preferred.

The research approach involves the standard steps, which includes data cleaning, outlier detection, compatibility checks, with the aim of generating a bias and foul-free starting stage. Missing, incomplete and erroneous data, as well as not-relevant data are cleansed listwise, which resulted a palpably truncated but integral dataset.

The analysis utilizes the following structure:

- Descriptive assessment of the SLRC project, which primarily constitutes the observation of means and the patterns of outliers of the most relevant attributes (carpet area, selling prices, sqm selling prices).
- Descriptive analysis of the evolution of the local (i.e. District XI residential property market) in terms of the attributes relevant for comparison with the SLRC project.
- Identification of the relevant markers (i.e. home price indices) of the conditions of the real estate market in Hungary.
- Exploring the quantitative proxy of the macroeconomic conditions. Through correlation analysis of District IX and SLRC performance against a set of home price indices, it is feasible to pinpoint the index that most closely describes the state of the local real estate market.
- Removing the time component of the timely evolution of selling prices by adjusting the selling price with the proxy of the macroeconomic conditions. Through the exercise, the real demand for SLRC flats and for flats in District IX are established. As the adjusting index is the same, the comparison of real demands becomes feasible.
- Identifying periods of similar and dissimilar periods in real demands and quantifying the impact of extra high SLRC real demand periods on the real demand of its immediate competitive space (District IX).

RESULTS AND DISCUSSION

1 The SLRC project

Table 1 and Table 2 tabulate the timing of SLRC development and the statistics of the sales of homes in the residential complex. At this point it is worth noting the most relevant data cleansing processes and their impact. First, the sales of 2 homes prior to the completion of the first phase of the SLRC project proves to be atypical pre-sales. Omitting these transactions discards the year 2007 from the analysis, which frees the distorting effect of having minimal amount of SLRC data in a sea of information from other data sources. Second, the dataset provided by Biggeorge contains zero transactions in the period 2013 – 2014. To establish comparability, these years are dropped from the input of all other data sources. It is well understood that by doing so, the continuity of the time series data is compromised. This shortcoming is overcome by interpreting the data as individual autocorrelated data points.

Table 1: Timing of SLRC development

	SLRC I	*SLRC II*	*SLRC III*	*SLRC IV*	*SLRC V*	*SLRC VI*
Year of completion	2008	2011	2017	2018	2019	2019
Number of flats	215	275	213	299	217	187
Flat size range (sqm)	31 – 110	28 - 90	42 - 141	28 - 128	28 - 130	28 – 131

Source not disclosed at the request of data owner Biggeorge

Table 2: Statistics of sales of homes in the SLRC project

	Number of transactions	Average sales price (HUF)	Average carpet area (sqm)	Average carpet area price (HUF / sqm)
2007	2	28,793,610	61.61	469,787
2008	50	29,756,748	61.91	482,913
2009	78	30,340,883	65.86	512,863
2010	58	28,677,109	61.13	477,160
2011	31	25,341,053	61.39	413,713
2012	22	26,548,597	59.15	445,980
2013	N/A	N/A	N/A	N/A
2014	N/A	N/A	N/A	N/A
2015	3	49,249,433	68.60	709,620
2016	566	37,715,451	60.56	625,378
2017	260	41,198,764	55.05	745,481

Source not disclosed at the request of data owner Biggeorge Holding

Interpreting the raw data reveals that after the years of relatively sluggish in-market performance, Biggeorge has been able to break out of the narrow range of HUF / sqm selling prices (410,000 - 510,000 HUF), and arrived to the much more lucrative 620,000 – 750,000 range (~+50 percent).

The spur of demand is reflected in the triple-digit number of transactions in the period.

2 District XI real estate market

Table 3 tabulates the home sales statistics of the immediate vicinity (District XI of Budapest) of the SLRC project. The data is compiled from the Hungarian Tax Authority (NAV) database of property sales in the district. For the sake of comparability, only those sales transactions are included in Table 3 that match the year that Biggeorge reported home sales in (i.e. 2008 – 2017, excluding 2013 and 2014). In addition, the database is cleansed to contain only residential property transactions. The latter condition is approximated by filtering out all items that fall out of the carpet area boundaries (i.e. between 8 and 150 sqm) reported in the SLRC project. So cleansed, the District XI database is made up of 4,496 fully classified and relevant transactions.

Table 3: Statistics of sales of homes in District XI in Budapest

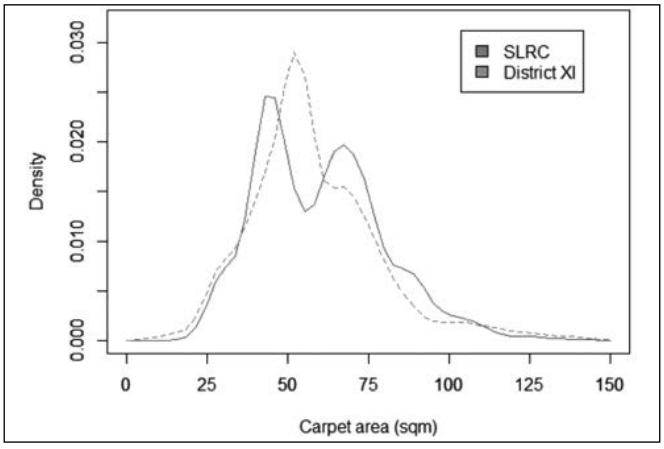
	Number of transactions	Average sales price (HUF)	Average carpet area (sqm)	Average carpet area price (HUF / sqm)
2007	omitted	omitted	omitted	omitted
2008	920	19,451,808	59.40	319.264
2009	1,562	20,764,517	59.13	349.067
2010	426	17,281,435	59.91	283.910
2011	494	16,853,608	58.70	278.996
2012	416	12,941,262	52.72	237.021
2013	omitted	omitted	omitted	omitted
2014	omitted	omitted	omitted	omitted
2015	273	18,816,398	54.89	337.239
2016	101	25,455,792	56.08	458.487
2017	304	27,353,396	54.82	484.624

Source not disclosed at the request of data owner AXA Bank

The data reveals that although the number of completed transactions remained subdued and the size of flats sold slightly shifted south, the price per average carpet area received a healthy boost. Albeit the number of closed deals did not, the pace of price increase (+60 percent) surpassed that of SLRC flats.

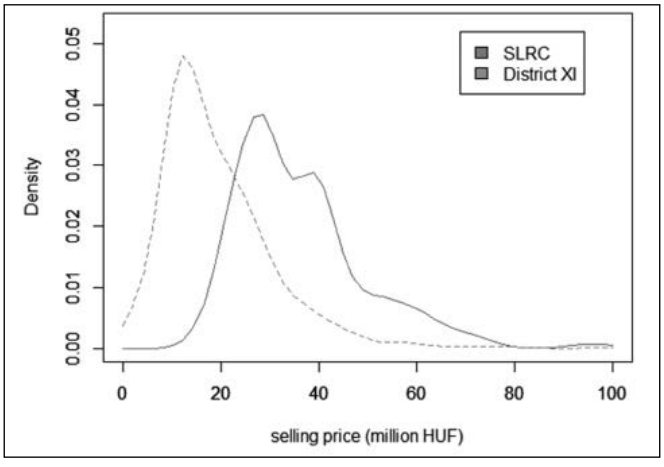
The graphical representation of the distribution of characteristics of the flat transactions in Figure 3 through Figure 5 aid the recognition that while the typical size of the residential property only marginally differs in SLRC (mean: 59.76 sqm) and in District XI (58.00 sqm), the flats in SLRC have been sold on considerably higher prices (mean: 36,611,454 HUF) than in the district in general (mean: 19,444,911 HUF), which translates to 618,313 HUF / sqm and 329,634 HUF / sqm (in SLRC and District XI, respectively).

Figure 1: Distribution of carpet area of property sold (SLRC vs. District XI)



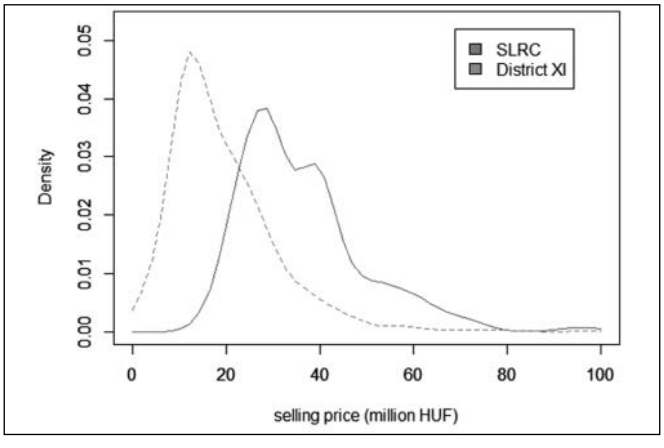
Source not disclosed at the request of data owners AXA Bank and Biggeorge Holding

Figure 2: Distribution of selling price of property sold (SLRC vs. District XI)



Source not disclosed at the request of data owners AXA Bank and Biggeorge Holding

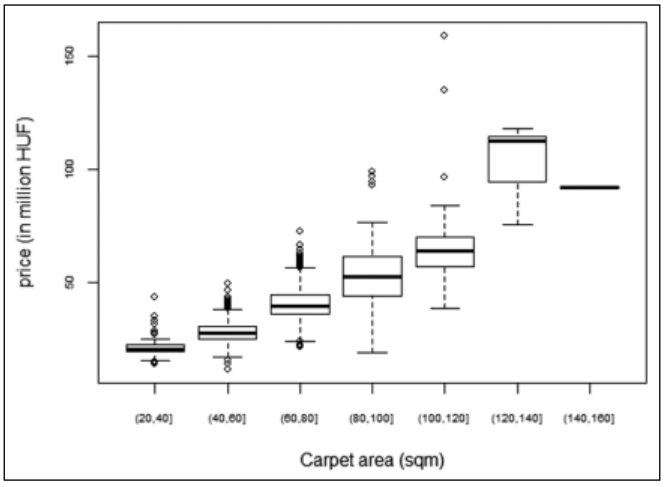
Figure 3: Distribution of price / sqm of property sold (SLRC vs. District XI)



Source not disclosed at the request of data owners AXA Bank and Biggeorge Holding

Throughout the now-completed phases of the SLRC project, the correlation between carpet area and sales price (0.7897) is stronger than in the greater District XI (0.6588), which conceivably can be attributed to the fact that the flats available in SLRC are relatively homogeneous compared to those sold in the rest of the district in terms of non-tested properties such as quality, location or used / new. In addition to depicting the close to linear relationship between carpet area and sales price, Figure 6 also shows that outlier ratios have been habitually on the positive side, which adds evidence for the higher demand for SLRC real estate.

Figure 4: Relationship between carpet area and sales price in SLRC (2008 - 2017 aggregate)

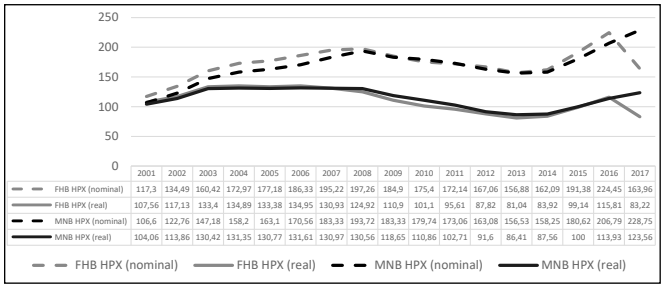


Source not disclosed at the request of data owners AXA Bank and Biggeorge Holding

1.3Development of the real estate market

The ambitious SLRC development project was kicked off in a prospering Hungarian real estate market in 2005. Throughout the course of the 14-year span of the project, the sector has undergone considerably fluctuating market conditions, which has been faithfully captured by the price indices. (Figure 1)

Figure 5: Notable national level house price indices

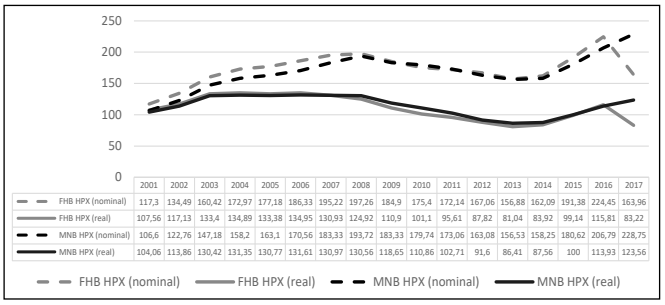


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
FHB HPX (nominal)	117,3	134,49	160,42	172,97	177,18	186,33	195,22	197,26	184,9	175,4	172,14	167,06	156,88	162,09	191,38	224,45	163,96
FHB HPX (real)	107,56	117,13	133,4	134,89	133,38	134,95	130,93	124,92	110,9	101,1	95,61	87,82	81,04	83,92	99,14	115,81	83,22
MNB HPX (nominal)	106,6	122,76	147,18	158,2	163,1	170,56	183,33	193,72	183,33	179,74	173,06	163,08	156,53	158,25	180,62	206,79	228,75
MNB HPX (real)	104,06	113,86	130,42	131,35	130,77	131,61	130,97	130,56	118,65	110,86	102,71	91,6	86,41	87,56	100	113,93	123,56

Source: MNB (2018a), FHB (2018)

Both the real and the nominal house price indices of the FHB Bank and the Hungarian Central Bank (MNB) clearly reflect the negative impact of the international financial crisis of 2008 and the fast recovery of the segment since 2013. Discounting the opening gap in the publishers' data in 2017, the indices depict a uniform pattern in the observation timeframe. Breaking down the markers by settlement type evince that each section of the market has experienced similar fluctuations on the grand scale, although the external impact has been relatively muted in municipalities, while property prices have reacted more positively to recovery in urban areas, especially in the capital.

Figure 6: Aggregate nominal home price index

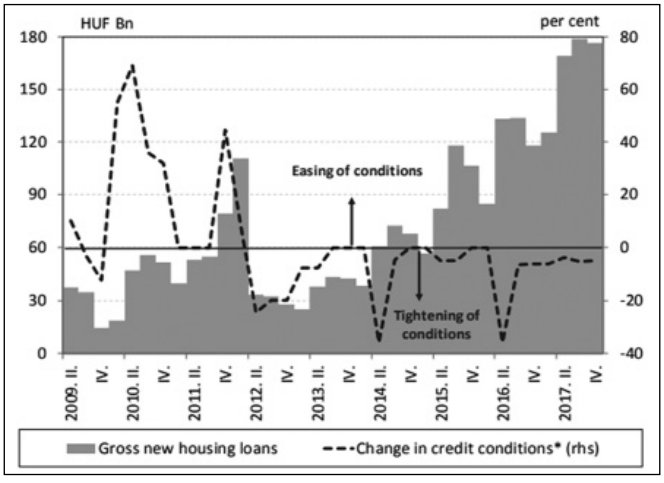


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
FHB HPX (nominal)	117,3	134,49	160,42	172,97	177,18	186,33	195,22	197,26	184,9	175,4	172,14	167,06	156,88	162,09	191,38	224,45	163,96
FHB HPX (real)	107,56	117,13	133,4	134,89	133,38	134,95	130,93	124,92	110,9	101,1	95,61	87,82	81,04	83,92	99,14	115,81	83,22
MNB HPX (nominal)	106,6	122,76	147,18	158,2	163,1	170,56	183,33	193,72	183,33	179,74	173,06	163,08	156,53	158,25	180,62	206,79	228,75
MNB HPX (real)	104,06	113,86	130,42	131,35	130,77	131,61	130,97	130,56	118,65	110,86	102,71	91,6	86,41	87,56	100	113,93	123,56

Source: MNB (2018a)

The evolution of the Hungarian real estate market has been subject to policy amendments by monetary and political governance. To aid the post-crisis recovery, policy makers launched initiatives to spur both demand and supply. Among the most relevant initiatives were (1) subsidizing home purchases of families with the CSOK program (Tóth and Kökény, 2018); (2) through easing home purchase credit conditions (MNB, 2018b); and (3) to increase supply through reducing the value added tax for home builders (Hegedűs, 2015). Per the qualitative assessment of Plöchl (2018), the CSOK program was successful in expanding the buyer's financial means by extending access to loans in the populace and by channeling non-refundable funds to the buyers. This resulted in growing demand throughout the quality and price scales of homes. The positive impact of adjusting the credit conditions is captured quantitatively by MNB (2018b), establishing that easing credit conditions has given an initial impetus to the growth in gross housing loans (Figure 7)

Figure 7: Gross volume of housing loans and change in lending conditions

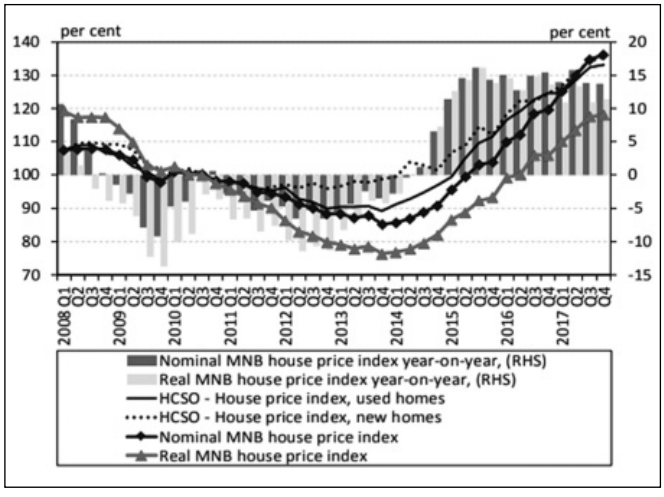


Source: MNB (2018b) pp.7

The evolution of the market conditions hints about the empirical performance of SLRC and District XI real estate sector. The listless post-crisis years have been replaced by the rapid increase of prices in all settlement niches, which (coinciding with the movements reported in SLRC and District XI) provides a plausible hypothesis to explain the local uptrend.

Regarding the macroeconomic conditions' affecting the trend in prices, the net impact is debated. While Plöchl (2018) claims that due to administrative and conditional constraints, CSOK beneficial demand impacts primarily manifested in the new home market, this claim is only partially supported by MNB data (2018). As Figure 8 depicts, the price gap between new and used homes has not had a clear direction; it opened in the 2012 – 2014 period and closed since. In this complex framework, the empirically higher prices attained by the SLRC project through its selling years vis á vis its neighboring local market is unlikely to be fully attributed to CSOK or its position in the new home segment.

Figure 8: Home price indices - incl. new and used



Source: MNB (2018b) pp.11

4 Correlation of Home Price Indices and Realized Sales

The goodness of fit between the SLRC and District XI home prices and the available home price indices are summarized in a correlation matrix. Perhaps not surprisingly, the MNB HPX with a Budapest focus demonstrates higher correlation with the sales prices than the FHB HPX that has a broader scope. At the same time, it is curious that the realized flat prices both in the district and in the SLRC project are more strongly correlated with the nominal indices than the CPI-adjusted real indices. The reason behind this phenomenon is out of the scope of this paper; the current relevance of the correlation matrix is that the nominal HPX of MNB is the most suitable for decomposing the time series of the sales prices in SLRC and in the district.

Table 5: Correlation matrix between selling price and home price

	Average selling price in SLRC	Average selling price / sqm in SLRC
	SLRC	**SLRC**
FHB nominal HPX (national level)	.2886	.1868
FHB real HPX (national level)	- .1112	- .2373 .2373
MNB nominal HPX (Budapest)	.6600	.8500
MNB real HPX (Budapest)	.0529	.1763
	District XI	**District XI**
FHB nominal HPX (national level)	.3670	.3755
FHB real HPX (national level)	.1251	.0495
MNB nominal HPX (Budapest)	.9368	.9686
MNB real HPX (Budapest)	.6621	.5535

Source not disclosed at the request of data owners AXA Bank and Biggeorge Holding

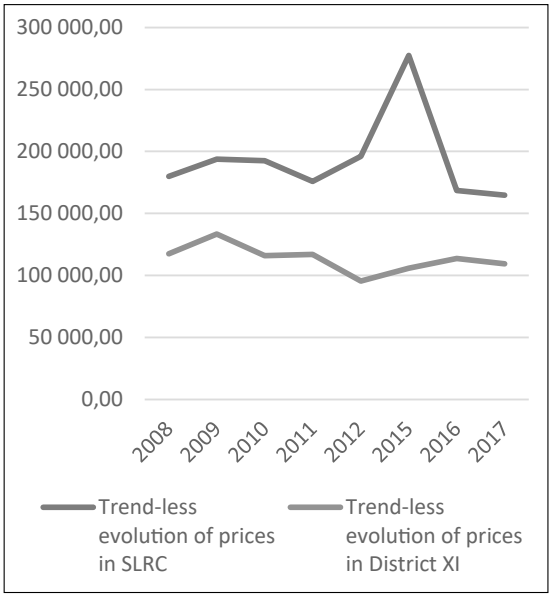
1.5 Net Price Evolution of Residential Real Estate in SLRC and District XI

In order to establish the potential impact of the SLRC project on the local residential property market, it is due to strip off the price evolution time series of the known external factors, because the impactful universal conditions would introduce distorting multicollinearity to the assessment. The conventional approach to identifying the stationary information in a time series is not applicable for the current data about the evolution of the prices, fundamentally because the relevant series of data does not contain enough elements to recognize trends and seasonality. At the same time, it has been established above that the MNB nominal home price index is strongly correlated with the home prices of the realized sales in both SLRC and District XI. Since the MNB nominal HPX captures the overall home price trend of a bigger radius, it seems safe to establish that it reveals the grand scale sectoral trend. Therefore, by removing this trend from the sales prices, the analysis can pinpoint the residual pattern in the annum-to-annum price changes.

It is worth noting that the resulting stationary time series of prices lose their natural scales. Thus, the series cannot be interpreted as the annual average monetary value of property transactions.

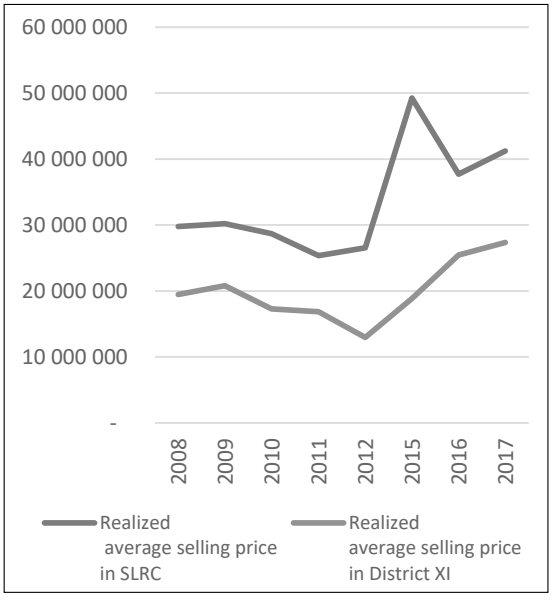
As shown in Figure 7 through Figure 8, the trend-removed evolution of prices visually reveals a flat demand for residential property in District XI, while removal of the trend does not smooth out the exceptional peak of demand for SLRC properties after 2011.

Figure 9: Trend-less evolution of selling prices



Source: own calculation (2018)

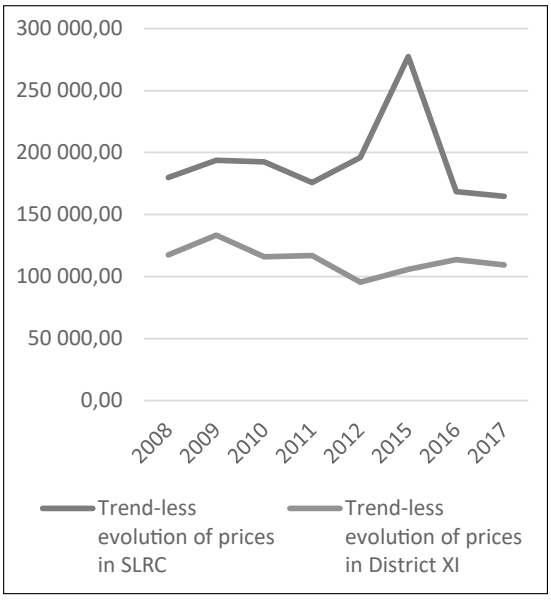
Figure 10: Realized evolution of selling price



Source: own calculation (2018)

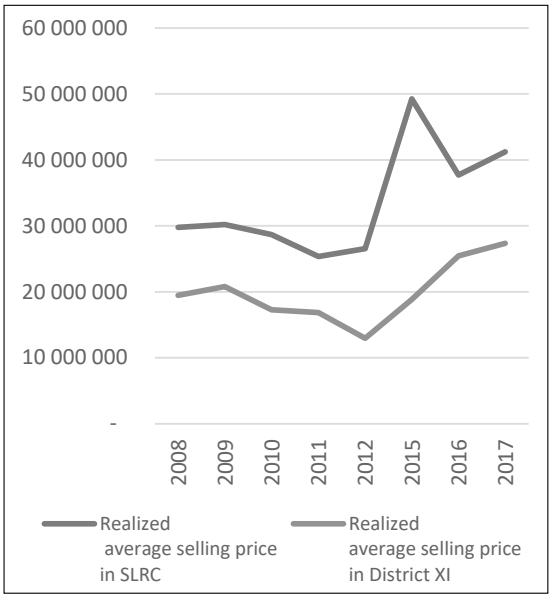
The exercise repeated on the carpet area price paints a very similar picture. The sqm prices in District XI seem to have been purely aligned with the larger market trends, but Biggeorge met a considerable positive deviation from the trends after 2011.

Figure 11: Trend-less evolution of sqm prices



Source: own calculation (2018)

Figure 12: Realized evolution of sqm prices



Source: own calculation (2018)

Whether the opening scissor of prices between the SLRC and the District XI residential properties in the post 2011 period denote a statistically verified effect of SLRC, is tested via multivariate analysis of variance. The trend-less evolution of the price of properties sold (SLRC and District XI) and the trend-less evolution of sqm prices of properties sold (SLRC and District XI) are assessed in pairs as dependent variables in the MANOVA exercise. The independent variable is uniformly a dummy variable (arbitrarily named spot) that separates years through 2012 from the post-2012 period.

1.5.1 Selling prices

Terms:

	spot	Residuals
Resp 1	114789293	8877418033
Resp 2	365763857	460286116
Deg. of Freedom	1	6
Residual standard errors:	38465.17	8758.673

Estimated effects may be unbalanced

Source: own calculation (2018)

Neither the post-hoc Pillai nor the Wilks test confirm ($p < 0.2287$) the significance of the difference in means between the tested periods.

Pillai test

	Df	Pillai	Approx. F num	Df den	Df	Pr(>F)
Spot	1	0.55429	2.0103	2	5	0.2287
Residuals	6					

Wilks test

	Df	Wilks	Approx. F num	Df den	Df	Pr(>F)
Spot	1	0.55429	2.0103	2	5	0.2287
Residuals	6					

Source: own calculation (2018)

1.5.2 Price / sqm

Terms:

	spot	Residuals
Resp 1	55141.1	1014025.9
Resp 2	23094.5	117027.4
Deg. of Freedom	1	6
Residual standard	411.1013	139.6587

Estimated effects may

Source: own calculation (2018)

Similar to the outcome of the MANOVA test regarding the selling price of the properties, the difference in the price / carpet area proves fail the significance test.

Pillai test

	Df	Pillai	Approx. F num	Df den	Df	Pr(>F)
Spot	1	0.16874	0.50749	2	5	0.63
Residuals	6					

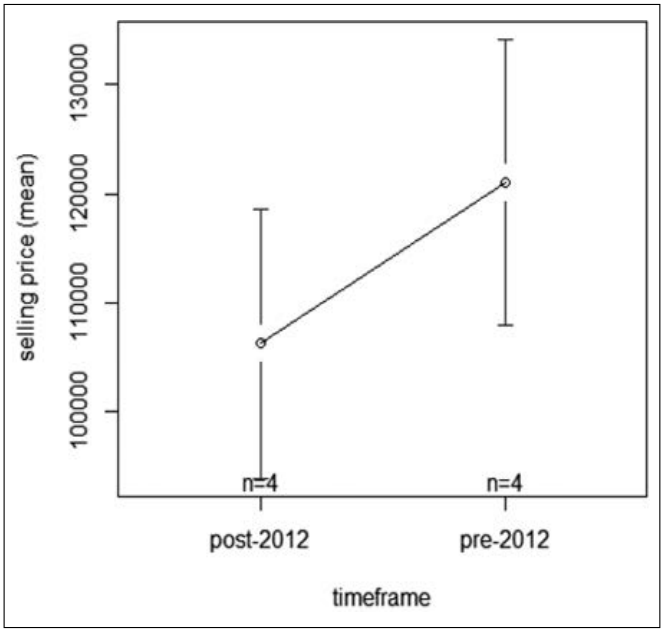
Wilks test

	Df	Wilks	Approx. F num	Df den	Df	Pr(>F)
Spot	1	0.83126	0.50749	2	5	0.63
Residuals	6					

Source: own calculation (2018)

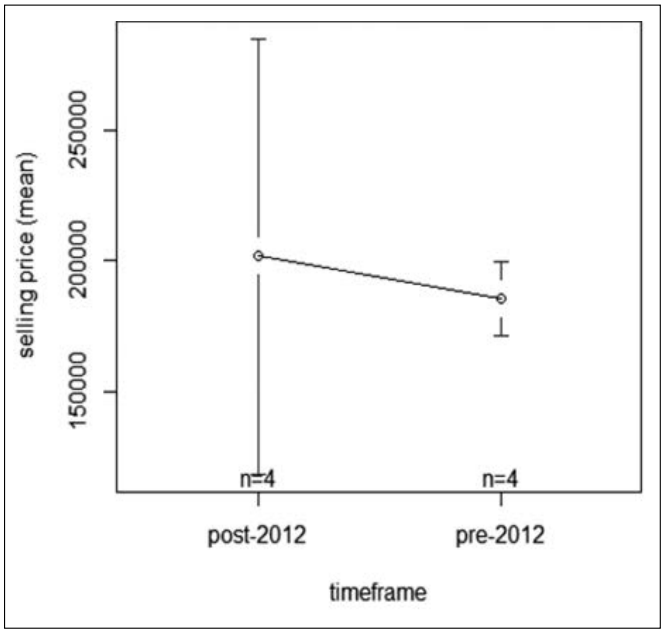
The graphical representation of the means of the selling price in the pre and post 2012 period is telling; it suggests that while the SLRC prices have grown less predictable (Figure 9), sales prices in the local district have lost momentum – albeit not to a degree that would be confirmed with statistical rigor.

Figure 13: Comparison of the means of selling price in distinct timeframes (District XI)



Source: own calculation (2018)

FIGURE 14: COMPARISON OF THE MEANS OF SELLING PRICE IN DISTINCT TIMEFRAMES (SLRC)



SOURCE: OWN CALCULATION (2018)

BRIEF CONCLUSION

The investigation revealed that the multi-year long large-scale Sasad Liget Residential Complex home development project has been more successful in generating demand than the community of sellers in the immediate competitive space, which materialized in higher absolute and sqm prices as well as in more rapidly expanding number of transactions with the sectoral recovery. Higher demand has been consistent through varied market conditions, which has been spackled with crisis and recovery periods as well as policy conditions. By removing the timely effect of the external conditions (that have arguably uniformly impacted SLRC and the rest of the neighboring selling universe), it was established that while real demand for SLRC has been consistently higher than the mean in District IX, particular comparative high-demand prevailed in the post-2012 period. Detecting the impact of the high demand period on the performance of the general real estate market in District IX revealed that the impact did not reach a statistically significant level.

The results suggest that the scale of the Sasad Liget Residential Complex development business project does not surpass the weight of the external conditions of the market. The in-market performance of selling the SLRC properties has largely been in line with the overall market trends captured by home price indices.

The outcome of the investigation supports the findings of Gholipour et al. (2014) and Kim & Yang (2011), that fail to isolate price distorting effects of large-scale development projects. However, it needs to be stated that the observed SLRC project has taken place in turbulent times real estate market. Thus, it cannot be rejected that the market has been dominated by commanding external conditions, which superseded the effect of single (however large-scale) development projects. To account for this circumstance, it is recommended either to repeat the investigation in a more stable economic milieu or explore the impact of an even larger scale development project (relative to its surrounding market) that overwrites the macroeconomic conditions.

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SCIENTIFIC PAPER

TOURISTIC MOTIVATION AND LIFESTYLES OF HUNGARIAN DOMESTIC TOURISTS CORRELATION STUDY

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Abstract: *Motivations are closely interwoven with personality theories. According to researchers the object of motivation theory is primarily to describe what is common in people, whereas lifestyle theories highlight the individual differences among people. Tourism travel decisions constitute a special type of consumer decisions in which case the tourist has to make a choice among the personal tourism services on offer according to his/her individual needs, but still as a segment specific product corresponding to common motivations. Consequently, certain elements of lifestyle and motivation theory appear in touristic decisions as well. Having perused the relevant trade literature, I came to the realisation that there have been very little research done in the area of travel motives in recent years. The examination of the correlation between motivation and lifestyle complemented with model application is a field belonging to applied marketing science which can be regarded as uncharted territory in tourism research. Domestic tourism accounts for a significant portion among the national income sectors. That is why it is of key importance to be aware of the correlation between the habits and needs of the local population and the factors influencing travel decisions. Applying the results of my research I endeavoured to define and model the lifestyle, needs and motivations of domestic tourists as the factors influencing their decisions. With the results of the investigation, I also wished to provide some guidelines for the creation of tourism supply in view of product development and communication.*

Keywords: *Motivation, lifestyle, hungarian domestic tourism, correlation*
(JEL Classification: *Z32 tourism and development*)

INTRODUCTION

The definition and interpretation of lifestyle is primarily related to sociology. Sociology offers two interpretations. One is that lifestyle reflects a kind of result and is a consequence of some social affiliation, position in the hierarchy. The other approach claims that lifestyle is an indicator of a given and coveted social status that you want to acquire and maintain.

The first definition of lifestyle in Hungarian can be linked to Max Weber (WEBER (1964)), who formulates two types of social stratification in his book: completing classes and estates that may be closest to lifestyle definition: "... classes are stratified by their relationship to production and acquisition of goods, while estates are stratified by the principles of commodity consumption represented by their particular lifestyles" (WEBER, 1964, p. 93).). Max Weber does not refer to any group of lifestyles, but only treats the hands of ruling status groups as a means of power and power. UTASI (1984), SOBEL (1981). In his view, lifestyles can be interpreted in two dimensions: One dimension expresses lifestyle and is closely related to the way individuals live their lives, where their place in society is limited. The other dimension in the Surroundings is the outside world seeing consumers where their public behavior is perceptible.

Many researchers have attempted to define lifestyles, taking into account various aspects and factors. The first research on lifestyle and the resulting definition comes from Max Weber. An important mention and the following researchers are those who have defined lifestyle in various ways and who have sought to illegally use a system of consumer behavior. The scientific work of BELL (1958), Rainwater - COLEMAN - HANDEL (1959), HAVIGHURST - FEIGENBAUM (1959) lasted until the late fifties. Bell focused his attention on examining the relationship between consumption and consumer behavior. Rainwater, Coleman and Handel highlighted the importance and relationship between energy consumer behavior and lifestyle. The success of these scientific researchers remains constant, but the concept of lifestyle has not been precisely defined. LAZER (1963) for the precise definition of a published article which is widely accepted and accepted. In his view, the lifestyle system. This is the distinctive and distinctive purpose of life, which

enables society to respect its segments. Shopping habits and consumer behavior realistically reflect individual lifestyles and lifestyles. (P. 130)

From a marketing perspective, KELLEY (1963) takes a close look at the concept of lifestyle. Not only do people sell and deliver consumer prices, they symbolize a consumer consumer price / consumer lifestyle. VEBLEN (1975) observes a way of life in observing the social elite. The sheer physical superiority of the prehistoric community, the bloodthirsty of the weaker individuals, and the preservation of its leadership constituted courage and heroism. Later, this theory changed. Opportunity and inactivity have begun to be largely represented, so these luxury items are only available if they are managed with enough wealth. Of course, this was a feature of the elite. By deploying the Industrial Revolution, the wealthy and knowledgeable social class can afford to buy luxury goods, making it a special energy use. Therefore, one's own consumer behavior represented and characterized a benevolent lifestyle.

In addition to the concepts described above, other attempts have been made to define the concept of lifestyle. It is believed that lifestyle cannot be described and described in a single word, and that it is a much more complex concept. The definition published by the researchers is a disclosure requirement for a variety of heterogeneous and uniformly contradictory characteristics, such as sociology and marketing research, which are not available to define the concept of lifestyle. This is understandable because the lifestyle reflects our public behavior, our values, our attitudes, our opinions, our personalities, and completely determines our consumer habits and behaviors.

The realization of the importance of lifestyle analysis and deeper research can be traced back to the early seventies. This is when the research begins to discover that the demographic characteristics used to analyze consumer behavior and identify lifestyle groups are inadequate. Other factors should be considered for everyone in order to better analyze consumer decisions and understand the underlying content factors behind them. The aim of the evolving psychographic analysis is consumer behavior, a deeper understanding of travelers in this article.Although researchers' opinions split over the elaboration of the particular models, methods, as well as their dimensions and details, in general it can be established that lifestyle research divides into two larger factions. The two groups are configured on the basis of what their research focuses on in respect to consumption. These two options are as follows:

- the FAMILY as consumption unit, and the exploration of its types;
- the INDIVIDUAL as consumption unit, and the recognition of its unique characteristics (VERES - HOFFMANN - KOZÁK, 2009.).

Human needs are inexhaustible and become motivated at optimal intensity. An individual may have multiple demands at the same time, while being ranked among psychological characteristics and becoming individually derived from psychological stress. Referring to Maslow's "hierarchy of needs", it is likely that somewhere it is likely that recognition and recognition will require the e-category. After a while, it is needed and becomes motivated directly by the internal factors. Motivation motivates the individual to act through which the tension is reduced or completely eliminated. So motivation can be written with an inner feeling that encourages and enables motivation. In the same way as income and social status are determined, the individual occupies a place in the hierarchy, motivation definition and choice criteria (VERES, 2007).

There are many theories in the interpretation of motivation. In Sigmund Freud's psychoanalytic theory, the iceberg metaphor aims at the human mind; one part above water is responsible for conscious thinking, one part above water is responsible for conscious thinking. Why claim that people don't know what drives them. His soul-related speculations support the idea of thinking and testing, of having a soul choice, and of changing soul behavior. Defining Attitude Choice, We Predefine It (FREUD, 1923)

OBJECTIVES AND TASKS

Basic objective

The basic objective of the present dissertation is the description and characterisation of the travel behaviour of domestic tourists.

Additional objectives

- A review of consumer and touristic behaviour models that can be connected to the research theme, an examination of their applicability in the area of tourist consumer behaviour.
- By applying secondary research, an exploration of the characteristics of tourism in Hungary, a description of domestic travel habits of Hungarian citizens.
- By applying primary research, a description of the travel habits of the traveller sample surveyed, an exploration of the correlations between lifestyles, touristic motivations and other factors influencing travel decisions.

Tasks to be solved

Following the logic of theory – methodology – and empirical examination, the following tasks were defined:

From the theoretical aspect:

- Review of the relevant trade literature. The research extends into several fields of science including tourism, consumer behaviour, touristic behaviour, lifestyle research. Accordingly, the objective was to familiarize myself with and process the relevant national and international literature.
- A review of the factors influencing touristic consumer behaviour that have an impact on travel decisions and may provide foundation for the standardization of tourists.

Empiric research:

- Secondary research: exploration of the characteristics of domestic travel of the Hungarian population.
- Primary research: exploration of the habits of the traveller sample surveyed, identification of the segments based on touristic motivation and lifestyles generated by the application of multivariate mathematical and statistical methods.

Research hypotheses

H1: It is hypothesized that the primary aim of the Hungarian population for domestic travel among the push factors is "rest and relaxation".

H2. The travel behaviour of individuals following different lifestyles is characterized by the use of different types of leisure tourism activities as primary motivation.

H3: Based on the sample surveyed, certain homogenous groups can be identified that are suited for the purpose of characterizing respondents according to their lifestyles.

H4: Based on the sample surveyed, certain homogenous groups can be identified that are suited for the purpose of characterizing respondents according to their touristic motivations.

H5: Belonging to different lifestyle groups have an impact on the travellers' different touristic motivations.

H6: Based on the demographic features of respondents, certain homogenous groups can be identified showing diverse touristic motivations and habits.

H7: The travel habits of individual demographic groups are defined by diverse characteristics of lifestyle, differing motivations and factors.

In the course of my research, I followed a sequence thoroughly developed and circumscribed earlier. The secondary research constituting the basis of the dissertation was complemented by primary research.

METHODS OF DATA ACQUISITION

Secondary research was started by processing the relevant works of Hungarian and international researchers in tourism and consumer behaviour. The works of illustrious representatives of Hungarian and international trade literature were used to ensure theoretical foundation for the theme. Furthermore, Hungarian and international tourism trade journals, and online publications on the theme available on websites were also employed to substantiate certain topics of the dissertation. The provision of up-to-date information was also assisted by drawing from the tables of statistical databases. The information databases of CSO, UNWTO, and EUROSTAT provided the main indicators on tourism.

The examination and analysis of trade literature was followed by the exploratory research and test interviews. The survey was conducted through a questionnaire in the town of Szolnok in April 2016, at the venue of the Travel Expo. The respondents were selected by simple random sampling with the help of interviewers. Before the personal completion of the questionnaire, we employed the background variable that the respondent is the resident of Jász-Nagykun-Szolnok (JNSz) County, and typically travels from home for tourism purposes at least once a year. The objective of the questionnaire survey was to explore the travel habits of JNSz County residents for domestic leisure tourism purposes.

Additional objectives of explorative research were:

- Definition of the most important variables and correlations with the aim of further examination.
- Acquiring an overview for approaching the problem.
- Establishing priorities for further research.

After analysing and assessing the results of the exploratory survey, the content of the questionnaire was modified to achieve easier interpretation and analysis, and this modified version was used in 2017 for a comprehensive research involving 1,596 respondents. Because of the large sample, according to trade literature, it may be classified as a national survey (MALHOTRA, 2009).

The objective of the research employing a large item-number sample was to identify and characterize the travel habits of domestic leisure tourists and, furthermore, to explore possible correlations between their touristic motivations and lifestyle factors and the likely lifestyle groups generated based on these factors. The background variable employed was whether it was typical of the respondents to travel at least once for one night for leisure purposes from home. Primary attention was paid to what type of groups can be generated based on the particular touristic motives and lifestyle characteristics featured in the questionnaire and whether a correlation can be detected between the resulting touristic motivations and lifestyles.

The survey was conducted using three sources employing combined electronic and personal queries. The three methods and sources were as follows:

- the questionnaires in google.docs format were sent to the e-mail address list of a domestic tour operator company,
- university students were asked to get the paper-based questionnaires filled in by their acquaintances in the largest possible number,
- online community sites were used to reach the audience who were able to give relevant answers concerning travel habits.

From the three sources, during a half-year period, 1,792 questionnaires were received of which 1,596 were fit for appraisal.

International trade literature offers a number of empiric research and results concerning the travel habits of leisure tourists. In these research the emphasis is often laid on the examination of the „push" and „pull" motivating factors. Nevertheless, several other factors are considered in examining how, and employing what means and methods, can the travel market be divided into homogenous groups. The travel habits of men and women, young people and students have all been examined. Beyond the classic

factor and cluster analysis, complex explanatory models and methods were used to establish correlations between touristic motivations and satisfaction, touristic motivation and propensity to return (OOM DO VALLE, 2006; YOON - UYSAL, 2005).

In Hungary, a similar survey examining travel behaviour complemented by an analysis of the correlation between touristic motivation and lifestyle has not been conducted yet. Based on the above, using the international and national trade literature research as foundation, quantitative means and methods were employed to examine the travel habits of a section of the Hungarian population.

RESEARCH RESULTS

Characteristics of domestic tourism

The Hungarian Tourism Agency Zrt., and its legal predecessors, have systematically been examining the travel habits of the Hungarian population since 2003.

H1. It is hypothesized that the primary aim of the Hungarian population for domestic travel among the push factors is “rest and relaxation”.

Performance of domestic tourism based on the 2016 annual report

For the verification of the hypothesis the 2016 annual report of the Hungarian Tourism Agency was used which contains an analysis of the performance of Hungarian tourism and the characteristic travel features of Hungarian households. The report serves as the most reliable data source for the analysis of the performance of tourism.

In 2016, almost half of the Hungarian population left their home for domestic travel at least for one day. The causes for not travelling were given primarily as scarce financial means, some health impediment and commitment to the job by the respondents.

Compared to the years 2014 and 2015, a slight setback could be detected in the number of several-day domestic trips. In 2016, Hungarians took 14.4 million several-day trips staying within their country. The main motivations for domestic travel were visiting friends and relatives (VFR), holidaying, entertainment, relaxation and some hobby-type work activity. Discounting VFR and hobby motivations, the number of leisure tourists increased by 3.4% compared to 2015. Altogether, Hungarians spent 58,967 thousand days travelling which was 4.9% less than in 2015-ben. For leisure purposes 58,122 thousand days (-4.5%), for business purposes 750 thousand days (-19.3%) were the total staying time among domestic travellers. The number of days spent by leisure tourists, not counting VFR and hobby motivations did not decrease, but showed a 2.7% increase. With the aim of holidaying, entertainment and relaxation 28,909 thousand days were spent; visiting relatives and friends accounted for 22,430 thousand days. Health preservation took up a total of 2, 638 thousand days, hobby-type work activities amounted to 2,288 thousand days; attending cultural or sports events came to 940 thousand days while school study trips and camp stays took up 917 thousand days (Table 1).

Table 1: Number of several-day domestic travel and length of stays according to main motivating factors

Motivation	2–4 days	5 and more days	Total	2–4 days	5 and more days	Total
	travel in thousand days			length of stay in thousand days		
Holidaying, entertainment relaxation	3 671	2 412	6 083	12 199	16 710	28 909
Visiting relatives and friends	5 525	935	6 459	15 895	6 535	22 430
School study trip or camp stay	96	78	174	264	653	917
Health preservation	500	128	628	1 692	946	2 638
Cultural and sports events	245	43	287	675	265	940
Hobby-type work activities	422	121	543	1 317	970	2 288
Official trips	182	39	221	459	291	750
Other	23	5	28	63	32	96
Total	**10 664**	**3 761**	**14 425**	**32 565**	**26 403**	**58 967**

Source: own editing based on CSO figures

The average overnight stays in case of domestic travel totalled 4.7 days (without VFR and hobby trips: 4.1 days). The longest stays typically resulted from school study trips and camp stays (5.3 days), though the overnight stays of travellers motivated by holidaying, entertainment and relaxation was also relatively high (4.8 days). In case of hobby-type work activities, the average time came to 4.2 days; health preservation was also 4.2 days; visiting friends and relatives: 3.5 days; business trips: 3.4 days; attending cultural and sports events averaged: 3.3 days. In 2016, in the course of several-day domestic travel, the Hungarian population spent a total of 308.9 billion forints, which represented a 0.5% increase compared to the 2015 figure.

The specific (one person per day) spending in the course of several-day domestic trips amounted to 5,239 forints (up by 5.6%). The highest specific spending resulted from health tourism (8,993 forints), and was also typical of travellers motivated by holidaying and entertainment (7,296 forints). (In case of longer, four and more night stays, again the specific spending of travellers motivated by health tourism was the highest (7,086 forints). Examining the above figures, excluding the VFR and hobby-type motivations, it can be observed that leisure tourist spending

in 2016, totalling 244.7 billion forints, grew by 3.7% compared to the previous year, while the specific spending reached 7,326 forints (up by 1.0%).

Travel characteristics of Hungarian households based on the 2016 report

Among the main motivating factors behind the domestic travel of households, visiting friends and relatives was the most important: one-third (33.3%) of the trips covered were motivated by this reason. Bathing, bathing in adventure pools featured as the main motivation in case of 19.8% of domestic travel, staying in holiday/second homes weighed in with 9.4%, wellness holidays accounted for 7.6%, while visiting historical towns and monuments followed with 6.8%. The destinations in the first five places altogether made up for 76.9% of all the trips taken by households in 2016 (Table 2).

Table 2: Distribution of domestic travel according to the main motivation

Main motivation of travel	N	%
Visiting friends relatives, acquaintances	716	33,3
Bathing, bathing in adventure pools, visiting aqua parks	425	19,8
Spending leisure time in holiday or second homes	203	9,4
Wellness	163	7,6
Visiting historical towns, churches and monuments	146	6,8

Source: Characteristics of Hungarian households in 2016

The research also examined in detail what activities the members of the household were doing during the major trip as the main motive for the trip does not fully describe the character of the travel.

The respondents, where the background variable required that they also took part in the trip, were aked to select from a list the activities they completed during the trip.

In the case of major domestic travel, according to the allusion rate, the hierarchy of activities began with passive relaxation (66.7%), closely followed by bathing, bathing in adventure pools and visiting aqua parks (65.2%). 44.4% of households visited historical towns, 35.5% enjoyed meals in restaurants, inns, coffee shops and confectionaries, 21.8% visited friends and acquaintances, 20.6% made use of wellness services, 18.9% went on hiking trips, and 18.4% spent leisure time visiting castles and mansions. 15.4% attended festivals and other cultural programs and the same ratio is represented by visitors of wineries and cellars for the purpose of wine sampling.

H.1. This hypothesis was only partly verified. The primary domestic travel motivation of the Hungarian population is visiting friends, relatives and acquaintances. However, the primary travel activity pursued in the course of the trip is resting and relaxation.

Exploratory research: description of travel behaviour of residents of Jász-Nagykun-Szolnok County

In the questionnaire of my own design targeted at residents of Jász-Nagykun-Szolnok County. besides covering questions on general travel habits, specific questions focusing on the respondent's lifestyle and demographic characteristics were also featured. The target group of the survey was the traveller with permanent residence in Jász-Nagykun-Szolnok County, characterized by taking at least one trip per year with the aim of leisure tourism. The sample size was: 322 people.

The structure of the questionnaire was as follows:

- Is it typical of you to travel for touristic purposes: this background variable was employed to screen the people who are less likely to travel or do not travel at all.
- Two questions referred to the length and frequency of the trip. Several answer options were offered for the purpose of descriptive statistics.
- Assessment of other factors influencing travel decisions was done employing a scale of importance. The question was intended to assist the analysis of the impact of the most and least important factors.
- Statements of the VALS2 type questionnaire: included 34 statements. Respondents could indicate on a Likert scale how accurate the statements were in their respect. The responses were interpreted as group generating criteria for the categorization of a travelling lifestyle.
- Question group for the types of leisure tourism: Respondents were asked to mark the type of leisure tourism they took part in most frequently staying inland in the past few years. The question was meant to identify their primary motivation. The questionnaire featured the types of tourism that proved to be the most frequent travel motivation according to the 2016 performance report of the CSO. Respectively, among travel motivations, the leisure tourism types were selected and complemented with the most popular forms including sports, nature and rural tourism. Demographic questions were also included referring to sex, age, and highest qualification. The responses were used as group generating criteria for the purpose of further analysis and examination of correlations.

The exploratory survey was conducted using the questionnaire in the town of Szolnok at the venue of the Travel Expo in 2016. Respondents were selected by simple random sampling assisted by the interviewers. Before the personal completion of the questionnaire, we employed the background variable that the respondent was a resident of Jász-Nagykun-Szolnok County, and typically travelled from home for tourism purposes at least once a year. The objective of the questionnaire survey was to explore the travel habits of JNSz County residents for domestic leisure tourism purposes. A background variable was employed whether the respondent typically travelled for leisure at least once a year spending at least one night away from home.

The objectives of the test interviews via questionnaire were summed up as follows:

- Definition of the most important variables and correlations with the aim of further investigations.
- Acquiring an overview to approach the problem.

- Establishing priorities for further research.
- Additional objectives:
- Exploration of the characteristics of domestic leisure travel habits of Szolnok residents.
- Lifestyle segmentation on the sample travel set.
- Definition of typical leisure tourism types corresponding to lifestyle groups.

Hypothesis based on the above objectives:

H2. The travel behaviour of individuals following different lifestyles is characterized by the use of different types of leisure tourism activities as primary motivation.

Consequently, it was hypothesized that travellers following different lifestyles would primarily prefer clearly identifiable types of leisure tourism. Based on the results gained, the primary motivations of the individual segments could be identified.

The results of the explorative survey served as foundation for further comprehensive research. For the purpose of gaining better results and completing further analysis, the questionnaire needed to be modified and made more accurate on the following points:

- Among the factors defining travel decisions motivation featured as the third most frequent influencing factor, therefore the analysis of the touristic motivation chosen as the theme of the research proved to be a relevant objective.
- The hypothesis that different lifestyle groups are characterized by pursuing clearly identifiable types of tourism did not prove to be true. Consequently, the understanding of further touristic motivations needed deeper investigation.
- In order to better understand touristic motivations and for the purpose of the correlation study constituting the theme of my research, the question group on tourism types was modified and divided into "pull' and 'push" question groups considering the motivations behind the decisions.
- In order to provide a wider demographic characterization for the individual lifestyle segments, a question on age was modified to age categories and the group-generating criteria were complemented with questions on income levels, economic activity and family life-cycle.

COMPREHENSIVE RESEARCH: QUERY OF TRAVELLERS AIMED AT EXAMINING THE CORRELATION BETWEEN LIFESTYLE AND TOURISTIC MOTIVATION

In the questionnaire of my own design targeted on the Hungarian population, besides the questions aimed at general travel habits, the respondents' lifestyles and demographic characteristics were also inquired about. Based on the experience gained, the questionnaire used during the exploratory survey was modified. The target group of the survey could be any individual who typically travels away from home with the purpose of leisure tourism at least once a year. Out of the 1,792 questionnaires completed, 1,596 were fit for processing and evaluation.

The structure of the questionnaire was as follows:

- Is it typical of you to travel for touristic purposes: this background variable was employed to screen the people who are less likely to travel or do not travel at all.
- Associative question: respondents were asked in an open question to give one word that comes to their mind when they hear the word 'tourism'. The aim of the question was to establish the positive or negative charge of the word.
- Two questions referred to the length and frequency of the trip. Several answer options were offered for the purpose of descriptive statistics.
- Assessment of other factors influencing travel decisions was done employing a scale of importance. The question was intended to assist the analysis of the impact of the most and least important factors.
- Statements of the VALS2 type questionnaire: included 34 statements. Respondents could indicate on a Likert scale how accurate the statements were in their respect. The responses were interpreted as group generating criteria for the categorization of a travelling lifestyle.
- Question group of touristic motivation: 64 „push" and „pull" touristic motivating factors assessed on a scale of importance expressing how important in general that motive was during a particular trip. The answers also served as group generating criteria for the purpose of setting up homogenous groups.
- Demographic questions referring to sex, age, permanent residence, highest qualification, economic activity, family life-cycle, and the category of net income per capita. The responses were used as group generation criteria for the purpose of analysis and examination of correlations.

RESEARCH OBJECTIVES, HYPOTHESES, SAMPLE AND STATISTICAL METHODS

The following were considered as research objectives:

1. The exploration of domestic travel habits, identification and generation of segments based on touristic motivation and lifestyle through the application of multivariate mathematical and statistical methods.
2. By employing primary research, characterisation of the travel habits of the sample surveyed, exploration of the correlations between lifestyle, touristic motivation and other factors influencing decisions.

The following research hypotheses were set up:

H3: Based on my sampling, certain homogenous groups can be identified that are characterized by their lifestyles.

H4: Based on my sampling, certain homogenous can be identified

that are characterized by their touristic motivations.

H5: Belonging to different lifestyle groups has an impact on different touristic motivations.

H6: Based on the demographic characteristics of respondents certain homogenous groups can be identified showing differing touristic motivations and habits.

H7: The travel habits of individual demographic groups are defined by different lifestyle characteristics, different motivations and factors.

The sampling unit was defined as the population with residence in Hungary. Before the sampling, the background variable was applied that respondents travel at least once a year with the purpose of domestic tourism spending at least one night away from home.

The sample size was 1,596 people, which can be considered a national survey (MALHOTRA, 2009.). A simple random sampling was employed avoiding any laws. This provided an opportunity for any individual with residence in Hungary to complete the questionnaire without restrictions on age.

Causality relationships in the full sample

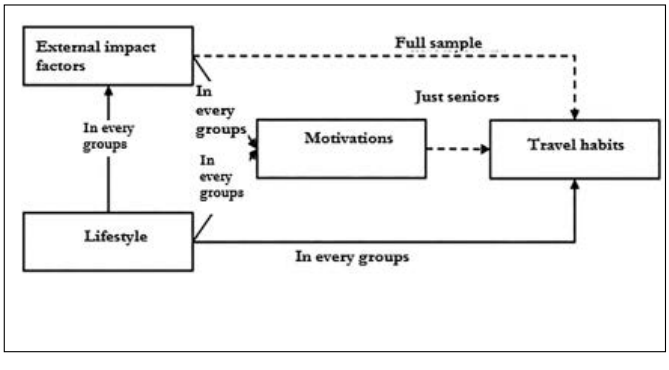
A description of the significant causality relationships in the path models was worked out from the full sample.

The verification of causality relationships was done with regression models. The methodology requirements were met in each causal relationship featured and described, namely:

- The regression models are significant (the significance level of the F-test: $p < 0.05$).
- The explanatory variables of the model are significant ($p < 0.05$).
- The standardised regression parameters (coefficients) are sufficiently high (< 0.1).

In the full sample, contrary to the conceptual model, none of the motivational factors had an impact on travel habits.

Figure 3: Comprehensive block diagram of the causality model derived from the four segments examined highlighting the differences between the groups



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CONCLUSIONS

In the first part of my dissertation, through the processing of the relevant Hungarian and international trade literature, an overview was given of the system and characteristics of tourism, and the specific features of touristic demand and supply. The examination of the general features of consumer behaviour research was followed by the exploration of consumer behaviour in tourism, the tourists' motivation and behaviour habits.

On this basis the following conclusions have been drawn:

- An understanding and analysis of consumer behaviour is getting an ever greater attention in scientific research and practical applications since the key to successful marketing is a profound knowledge of the behaviour of potential buyers and consumers living in national or international cultures.
- Consumer behaviour is influenced by innumerable factors, and various research projects have identified and explained them in different ways.
- Touristic demand and the accompanying touristic consumer behaviour is an extremely complex process, since it is not a single product or service that is offered to the travellers and tourist, but some aggregate of them.
- The major part of the world's tourist turnover can be connected to leisure tourism. Its specific feature is that people travelling together are usually belong to a family or group of friends and less often to the workplace.
- They lifestyle, social composition of the world's population and the development stage of individual countries are in a constant flux. These changes, among others, make an impact on tourism and its performance, too. It is advisable to get prepared thoroughly for these changes affecting tourism well before they befall. Former marketing strategy policies have to be revised, and the changes in consumer behaviour and habits have to be followed.
- Travel decision is the outcome of a very complex process. The factors influencing the decisions have been described by researchers in many different ways employing numerous methods. Summarily, it can be noted about the impact factors that travel decisions are influenced both by the characteristic features of the individual and both the external factors independent of the tourist.
- Travel decision cannot be made without touristic motivation, since according to the principle of the three-legged stool, motivation is one of the most important "coercive" forces.
- A deeper investigation into the importance of lifestyles goes back to the beginning of the 70s. It was then that researchers started to realize that the demographic factors applied earlier to the analysis of consumer behaviour proved insufficient. In order to analyse consumer decisions and recognize and understand factors with deeper content behind the decisions, further factors had to be taken into consideration.

The results of my own research, setting up new theses:

- The Hungarian Tourism Agency publishes a report on the performance of Hungarian domestic tourism very year. The accomplishments of domestic tourism can also be found in the database of the Central Statistical Office. Based on the data in the documents, it can be established that the primary touristic motivation for the Hungarian population in domestic travel is visiting friends and relatives, however, the primary activities pursued meanwhile are resting and relaxation.
- Based on the results of empiric research it can be established that the travellers interviewed can be characterized according to their touristic motivations. Five touristic factors were extrapolated, namely: safe adventure, active idyll, economical, prestigious and cultural.
- The travellers interviewed can be characterized according to their lifestyle. Eight different lifestyles were extrapolated that fully correspond to the results of the VALS2 research. Hungarian travellers can be divided into eight groups according to their lifestyle characteristics, namely: Survivors, Experiencers, Believers, Innovators, Achievers, Strivers, Learners and Thinkers.
- Belonging to a particular lifestyle group has a diverse effect on the different touristic motivations:
  - Survivors are motivated by low costs.
  - Experiencers are motivated by prestige.
  - Innovators are motivated by safe adventure, prestige and active idyll.
  - Achievers are motivated by active idyll.
  - Strivers are motivated by prestige.
  - Learners are motivated by safe adventure.
  - Thinkers do not show any dominant motivating factor.

- Based on the criteria of age, income, composition of household and frequency of travel, four clusters were identified, namely: impecunious tourists, country-trotters, childless young people and well-off middle-aged and senior citizens.

- The travel behaviour of the defined homogenous clusters are influenced by different external factors, lifestyle characteristics and different touristic motivations.

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SCIENTIFIC PAPER

CLASTERS AND CORRELATIONS AMONG THE EU MEMBER STATES REGARDING AGRI-FOOD FOREIGN TRADE

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Abstract: *The European Union has a significant role in international trade but this is largely in the area of industrial goods. However, in the case of some agricultural commodities the EU applies tariffs, bans, or different restrictive measures; it manages foreign trade in agricultural goods with many countries all over the world. On the other hand the member states do not contribute to the total trade of the EU to the same extent. In this study, a comparative analysis was performed in relation to the member states by means of data of Eurostat and Faostat. First, a multivariable correlation analysis was carried out in order to find the interrelation between the trade features of each country. In the second part of the study, a cluster analysis was carried out with almost the same component as in the foregoing, also in terms of the EU member states. It can be ascertained that the date of EU accession of a Member State as well as getting EU agricultural subsidies do not affect the agricultural foreign trade of the member states. Countries with significant agricultural production also export food commodities in larger quantities. Countries that have significant exports extra-EU also have larger imports in the case of both basic commodities and prepared food as well. As a result of the cluster analysis, it can be stated that the member states can be divided into specific groups according to the three examined aspects (food trade features, exports of commodities, imports of commodities). The following typical country groups can be divided as follows: non-trade countries, countries with larger trade extra-EU, agri-food exporter and importer countries, non-agri-food exporter and importer countries, primary commodity exporters and importers, and last but not least processed food exporters and importers as well.*

Keywords: *agri-food trade, EU member states, correlation matrix, cluster analysis, classification*
(JEL Classification: *F10*

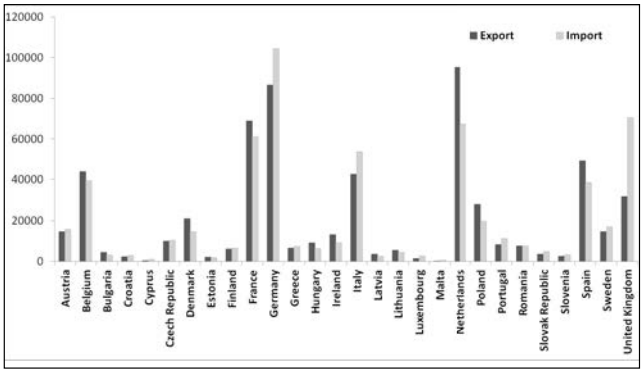
INTRODUCTION

The European Union is one of the most open economies in the world with a number of trading partners. It is the largest trading partner for almost 60 countries (MAZURE and TILTINA 2015) and its aim is to expand trade relations more widely. The EU trading partners benefit from preferential tariff access to the EU given that the EU has entered into free trade agreements with more than 30 countries. Approximately 46% of extra-EU trade is directed towards developed countries. (According to BRÜLHART and MATTHEWS (2007), if intra-EU trade is added to extra-EU trade with developed countries, then more than four fifths of the EU's trade is with countries of broadly similar income levels.) However, industry contributes to this most significantly because the EU exports of agricultural commodities make up about 8% of total exports. In the case of both industry and agriculture the main obstacles for further development are the numerous still existing nontariff barriers to trade. The reduction of tariffs on agriculture is the core issue regarding market access, while preserving special treatment for the EU's traditional sensitive products (EPP, 2015). According to the World Trade Organization (WTO) Statistics, the United States, China, Switzerland, and Russian Federation are the major EU co-partners (mainly importers) in agricultural goods, and the United States and China are the EU's key strategic commercial partners. The European Union and the United States jointly represent more than 30% of global trade. Although China is second only to the US, the volume of trade in goods with China has greatly increased in recent years (EPP, 2015).

In the EU, there is a single market for the member states, which works as a unique global market. There are set uniform rules under the Customs Union and the Common Customs Tariff and it governs trade relations of the member states with the non-member states. As a result, rates in international movement of goods are clearly decreasing (MAZURE and TILTINA 2015).

The establishment of the single market and tariff reduction have clearly had a positive impact on the EU's trade performance, which is the basis for its growth. EICHER AND HENN (2011) have supported this with concrete data in that the value of goods exchanged between EU countries has grown from 800 million EUR in 1992 to 2.8 trillion EUR in 2011, for trade between the EU and the rest of the world - from 500 billion EUR in 1992 to 1.5 trillion EUR in 2011 (MAZURE and TILTINA 2015).

Figure 1: Agricultural trade value of the EU member states in 2017 (Million USD)



Source: own based on data of WTO statistics

However, EU member states do not contribute to the total trade of the EU to the same extent (figure 1). In the EU, there are main agri-food exporter and importer countries, which position is relatively permanent. Based on the data of Eurostat, it can be found that during the period from 2000 to 2017, the five major agri-food exporter and importer countries have not changed their positions.

Germany is the European leader in international agri-food trade both in exports and imports and it is followed by Netherlands, Belgium, France, Italy, Spain, and the United Kingdom. In 2017, Germany retained the leading position in the field of foreign trade with exported farm products, amounting to 15% of agricultural goods that were exported to the third countries and imported these types of goods, which accounted for almost one-fifth (18%) of the EU-28 member states import volume. Furthermore, Germany is the fourth largest exporter and importer in the world (including the EU). (Although Netherlands' export share is somewhat higher (16%) than Germany's, it is due to the fact that Netherlands is a major re-exporter.)

As for the type of farm products involved in trade in the EU, there are main export and import goods but there are some type of commodities that are traded. Within the total agricultural exports, alcohol, wine, wheat, and malt extract are at the top of the list of farm exports by value (as of 10 January 2017, listed on the WTO's website).

Export and import quantities of some commodity categories by EU member states are indicated in table 1. The 2-5 largest values of commodities are shaded in grey. In almost all cases the same countries have roles in both exports and imports.

Food commodities are more important export and import products than other agricultural raw commodities. From that wine, cereals, fruits, vegetables, dairy products, and meat preparations are exported, while oilseeds, fruits, and vegetables are imported in larger quantities. As for dairy products, for European dairy farmers most of the gains are for

Table 1: Trade of agricultural commodities by EU member states in 2017 (thousand tonnes)

Member state	Exports					Imports				
	Cereals	Oilseeds	Sugar	Fresh milk	Wine+ vermouth	Cereals	Oilseeds	Sugar	Fresh milk	Wine+ vermouth
Austria	1194	1948	211	528	251	315	810	75	48	84
Bulgaria	6300	119	1601	46	188	285	7	24	54	7
Cyprus	16	463	0	4	0	20	1	9	1	7
Denmark	1578	879	161	130	308	370	256	61	48	206
Estonia	486	144	62	24	22	59	213	16	4	24
Finland	641	114	1	182	44	262	26	55	2	65
France	33625	1837	1795	2210	2022	1286	1147	819	1533	569
Germany	13732	8778	233	9096	1912	1942	2355	1775	434	1541
Greece	414	1424	236	404	70	409	2	158	27	19
Hungary	5342	341	835	457	550	366	394	97	53	47
Croatia	559	113	160	13	125	150	18	151	3	13
Ireland	114	1489	18	61	49	458	226	329	1	77
Italy	1261	10841	188	1932	401	1939	41	2269	2163	270
Latvia	1353	372	238	82	41	129	263	75	46	51
Lithuania	2524	326	374	29	163	98	161	421	83	117
Malta	1	133	0	1	0	33	0	5	0	5
Nether-lands	1616	10864	2636	6100	1147	1064	543	824	34	379
Czech Republic	2238	376	594	262	385	313	716	95	30	143
Poland	4079	1293	771	425	826	556	343	216	5	112
Portugal	139	3236	89	1303	240	633	229	163	307	163
Romania	9219	1402	1939	254	135	511	28	139	11	38
Slovenia	272	522	73	65	67	131	280	75	8	9
Slovakia	1090	257	693	52	467	221	250	120	16	56
Spain	1440	9904	115	3949	316	1675	201	445	1938	166
Sweden	856	483	52	199	130	194	73	44	8	207
United Kingdom	1912	6134	476	1021	395	2648	550	245	101	1286
Belgium	2258	7853	1042	2958	1030	1774	1045	1039	32	334
Luxem-bourg	105	140	14	10	1	11	164	30	5	22

Source: own based on data of Faostat

cheese, while other dairy products are not so important. Even despite increasing trade dairy prices are falling constantly, and in some member states (Austria, Benelux) the value of the entire dairy industry is predicted to decline. (BECKMAN, 2015; BUREAU, 2014)

Although, the US and EU are both major producers, their most important crops differ from each other (IGC, 2016). Consequently, trade in crops is minor between the two regions. The US is not an important destination for any EU cereals or oilseeds, and the only major US export to the EU is of soybeans and soymeal (DG AGRICULTURE AND RURAL DEVELOPMENT, 2015).

There is also a very little trade in poultry products and eggs between the US and EU because welfare standards are generally weaker in the US; there is mostly only voluntary regulations for animal welfare, while poultry farmers in the EU must conform to stricter legislative requirements. Although, US's pork production has stricter animal welfare standards, the EU does not allow the marketing of meat containing residues of growth promoters, such as ractopamine, due to concerns about its safety for consumers. As such US beef imports are restricted due to the EU's ban on beef hormones and limited import quota for hormone-free beef.

90% of GI exports outside the EU are of wines and spirits, domestic and EU markets are far more important for producers of GI foodstuffs. In fact, just three member states (France, Italy and the UK) accounted for 86% of GI exports in 2010, with a very small number of products accounting for much of this trade (CHEVER et al. 2012).

MATERIALS AND METHODS

Taking into account each EU member state's numerical data related to foreign agricultural trade, a multivariable correlation analysis (with correlation matrix) and a cluster analysis were carried out. The aim of the correlation analysis was to determine whether there is any correlation between the foreign trade level of EU member states (with third countries) and other economic factors, such as components of national accounts, agricultural production and subsidies as well as export and import totals and also by product groups. (A further aim was to confirm or reject the statement of the USA according to which the EU's subsidization and anti-liberalization policy in agricultural production are the greatest obstacles to a fully-opened agricultural world trade.) The cluster analysis was carried out in order to ascertain whether the EU member states could be divided into groups according to their trading features. The question is: whether homogeneous or similar country groups or regions may be separated according to the variables? So the aim of the analysis was to categorize the similar member states according to their foreign trade. In both cases data was provided by Eurostat and Faostat for the year of 2017.

In the correlation matrix the cases were the EU member states, while variables were the above-mentioned economic and foreign trade features of each member state. A total of 34 variables were examined and from these variables the main ones were as follows:

- GDP and its main components (GDP, domestic demand, gross value added, share of agricultural gross value added in total gross value added)
- Agricultural production and subsidies (crop production and subsidies, animal production and subsidies)
- Food trade features (export and import values, trade balance, share of exports and imports by partner in total trade, share of exports and imports by product type)
- Export and import value by product groups (cereals, oilseeds, fruit and vegetables, meat, fresh milk, dairy products, prepared food, and sugar)
- Years since becoming a member state

In the cluster analysis the cases were the EU member states, while variables were the foreign trade features of each Member State. The cluster analysis was carried out for each of the food trade features, each of the exports of commodities, each of the imports of commodities. So EU member states were categorized in three ways. In the case of food trade features, a total of 7 variables were examined. These variables were export and import values, trade balance, share of exports and imports by partner in total trade, share of exports and imports by product type. The other two classifications of member states were carried out based on the export and import value and the export and import quantity by product groups. In these two cases a total of 16 variables per model were recorded (cereals, oilseeds, fruit and vegetables, meat, fresh milk, dairy products, prepared food, and sugar). In all three analyses the cases were represented by EU member states. The calculation was carried out by the 'Statistica 13.2 Dell©' computer program based on a tree clustering with complete linkage and with Euclidean distances. This method is in a preference with small diameters over long, straggly clusters, because in this case the similarity of two clusters is the similarity of their most dissimilar members. This is equivalent to choosing the cluster pair whose merge has the smallest diameter. Complete linkage tends to find compact clusters of approximately equal diameters.

The graph of the amalgamation schedule was used to establish the optimal cut-off for the tree diagram. (This graph shows the linkage distances at successive clustering steps.) This diagram was made in all three analyses (figure 2).

Figure 2: Linkage distances across steps

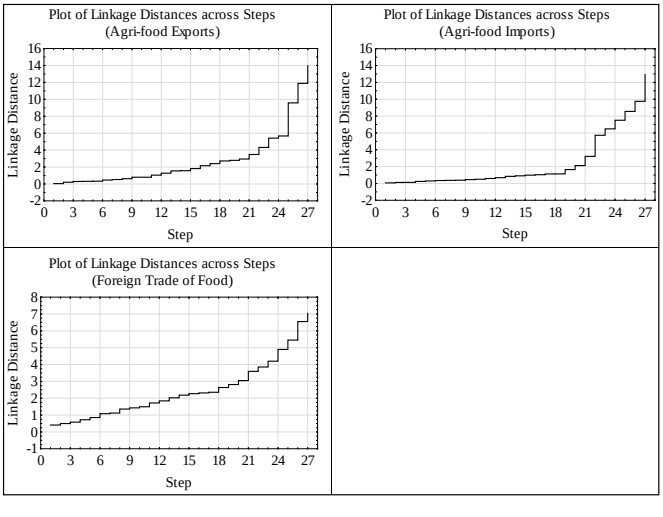


Table 2: Correlaton Matrix of economic and foreign trade features of the EU member states (0.05 significance level)

Imports	Sugar																	0.82					
	Oilseeds						0.73	0.83		0.77	0.89							0.82	0.85	0.80			
	Fresh milk		0.75-0.78	0.76-0.78			0.75					0.84						0.81					
	Meat		0.94	0.74 (crop) -0.88			0.85	0.89				0.80						0.77	0.92	0.86		0.75		
	Fruit and vegetables						0.78			0.82	0.83	0.78	0.86						0.77	0.87	0.86			
	Prepared food		0.83	0.59 (crop)-0.77 (animal			0.80	0.84			0.80		0.83						0.83					
	Dairy products	0.76	0.92	0.77-0.87			0.83	0.88			0.78		0.80					0.87						
	Cereals						0.74	0.89																
Exports	Sugar						0.78		0.85															
	Fresh milk										0.82													
	Meat									0.99	0.81													
	Prepard food						0.86	0.84																
	Dairy products																							
	Cereals																							
	Total food imports		0.80-0.83				0.87																	
	Total food exports		0.83-0.85	0.88-0.92																				
	Agricultural subsidies																							
	Agricultural production		0.84-0.94																					
	GDP and components																							
	Year of EU accession																							
		Year of EU accession	GDP and components	Agricultural production	Agricultural subsidies	Total food exports	Total food imports	Cereals	Dairy procucts	Prepard food	Meat	Fresh milk	Sugar	Cereals	Dairy products	Prepared food	Fruit and vegetables	Meat	Fresh milk	Oilseeds	Sugar		
		Exports												Imports									

According to these, it needs approximately 18-21 steps to form many clusters at essentially the same linkage distance. In this case the optimal cut-off distance is approximately 1.5 - 2.5 (it varies in each analysis).

Based on the calculated optimal cut-off distances, different country groups were formed in all three analyses. After that, standard deviation and coefficient of variation were calculated within each group and with each variable in order to establish the variable of data in a group. Based on this calculation it can be proved that data within a group are relatively homogenous or their dispersion are medium in most cases, that is the Coefficient of Variation (CV) is less than 20% (CV shows the extent of variability in relation to the mean of the variables) so these data are adequate to characterize the set country group.

RESULTS AND DISCUSSION

In table 2, there is a part of the complete correlation matrix (at significance level of 0.05). Since it is a matrix in which rows and columns contain the same elements, the same result can be seen above the diagonal. Therefore, in this matrix only the numbers located above the diagonal are displayed. Those variables are indicated in the table lie between being strong ($r>0.75$) and function-like ($r>0.9$) correlations. Only those values are given that belong to this kind of relations. Nonetheless, neither the crop subsidies nor the animal subsidies correlated with any of the examined variables. This means that agricultural subsidies do not influence the agricultural foreign trade of the member states, so those have no trade-distorting effects.

Current foreign trade of member states is not affected by the year of EU their accession. The accession date is in a medium-strong ($r=0.76$) relationship only with the imports of dairy products, but this phenomenon can also be caused by random effects.

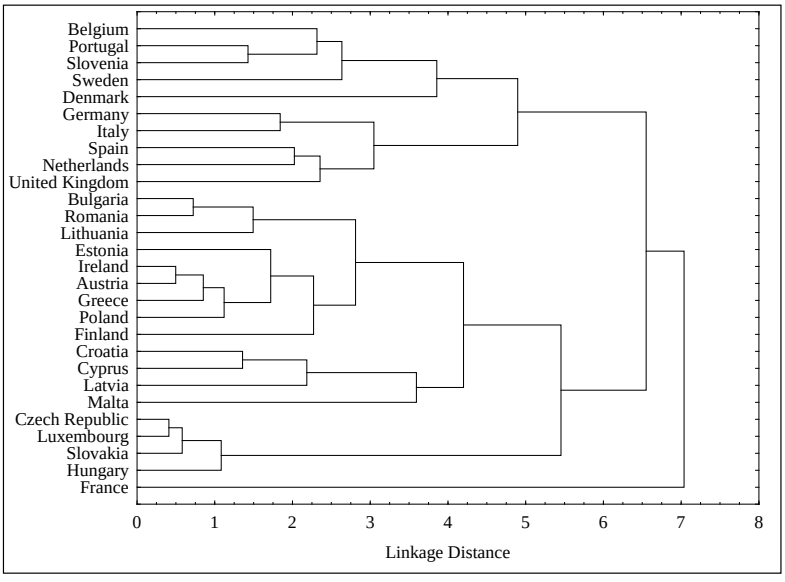
The share of exports and imports by partner and by products as well as the export value of sugar, fruit and vegetables are not shown in the table because these elements are not correlated with any of the other factors. The detailed components of the GDP can be treated as one variable because these components correlate with the other variables to the same extent.

There are only positive correlations between the variables this means that the higher the value of a factor in a country, the greater the value of another factor.

GDP and its components have strong positive correlation with agricultural production, and with total food exports and imports (especially with the imports of animal products). Agricultural production is also connected to the same variables. Total food exports and imports are in a strong relation with each other, so the country that exports more, also imports in higher quantities. Both of these two factors strongly correlate with the exports of prepared food and with the imports of almost all types of goods. The exports of cereals and the exports of sugar vary in the same direction and to the same extent. The country that exports more dairy products and fresh milk, also imports cereals and oilseeds in a higher quantity. While meat exporter countries have a higher demand for meat, fresh milk as well as fruits and vegetables. Prepared food exports strongly correlate with exports of meat and fresh milk, in addition to imports of dairy products, prepared food, oilseeds, fruits, and vegetables. While prepared food imports are in a strong correlation with the exports of prepared food and fresh milk, and the imports of dairy products, meat, oilseeds, fruits and vegetables.

Based on the clustering according to the food trade features, member states may be separated into five groups (figure 3, table 3).

Figure 3: Tree diagram for EU-28 (by foreign food trade)



To the first group belong those countries that have a relatively lower share of food imports in total food imports by partner countries and by commodities as well. On the other hand they have a relatively higher share of food exports in total food exports by partner countries and by commodities. So exports of food commodities in these countries are much larger than the amount of imports. These countries can be identified as “exporter countries” of food products. These are Ireland, Finland, Estonia, Lithuania, Poland, Austria, Romania, Bulgaria, and Greece. Furthermore, all of them have a positive trade balance. In Luxembourg, Czech Republic, Slovakia, and Hungary all of the features of food foreign trade are much lower than in other member states. These countries do not have a significant foreign trade in food commodities outside the EU. They trade mainly with other EU member states, so they may be designated as “intra-EU trader countries”. Compared with other (non-food) commodities, foods are the most important commercial goods in Latvia, Croatia, Cyprus and Malta because these countries have a relatively higher share of food exports and food imports than that of other commodities. So these are the “food trader countries”. A further feature of the two last groups is that they have mostly a trade surplus (except

Luxembourg and Cyprus). Compared with other member states, the "extra-EU trader countries" (United Kingdom, Netherlands, Germany, Italy, and Spain) have the most significant foreign trade (outside the EU) in food products. In these countries, the export and import value as well as the share of foreign trade by partners in total foreign trade are much higher than in other member states. While Sweden, Denmark, Belgium, Portugal, and Slovenia are the main trade partners of the third countries because they have a relatively higher share of food foreign trade in the total food foreign trade by partner countries. It must be mentioned that all of these countries from the last two groups are coastal countries with many big ports, so this is the reason that they can manage such a high level of foreign trade. Furthermore, that is exactly why they have mostly a negative trade balance (except Denmark and Italy).

Table 3: Division of EU member states by foreign trade of food products

Exporter countries	Intra-EU trader countries	Food trader countries	Extra-EU trader countries (coastal countries)	Main trade partner countries of the third countries (coastal countries)
Ireland Finland Estonia Lithuania Poland Austria Romania Bulgaria Greece	Luxembourg Czech Republic Slovakia Hungary	Latvia Croatia Cyprus Malta	United Kingdom Netherlands Germany Italy Spain	Sweden Denmark Belgium Portugal Slovenia
A relatively lower share of food imports in total food imports by partner countries and by commodities. A relatively higher share of food exports in total food imports by partner countries and by commodities. Positive trade balance (surplus)	Not significant foreign trade in foods (extra-EU) All features of food foreign trade are much lower than in other member states. Mostly positive trade balance (surplus) (except Luxembourg)	A relatively higher share of food exports and food imports (in other commodities). Mostly positive trade balance (surplus) (except Cyprus)	The most significant foreign trade in foods (extra-EU). The export and import value as well as share of foreign trade by partner countries in total foreign trade are much higher than in other member states. Mostly negative trade balance (deficit) (except Italy)	A relatively higher share of food foreign trade in the total food foreign trade by partner countries. Mostly negative trade balance (deficit) (except Denmark)

Based on the clustering by the export quantity and value of commodity groups member states may also be separated into five groups (figure 4, table 4).

Figure 4: Tree diagram for EU-28 (by agri-food exports)

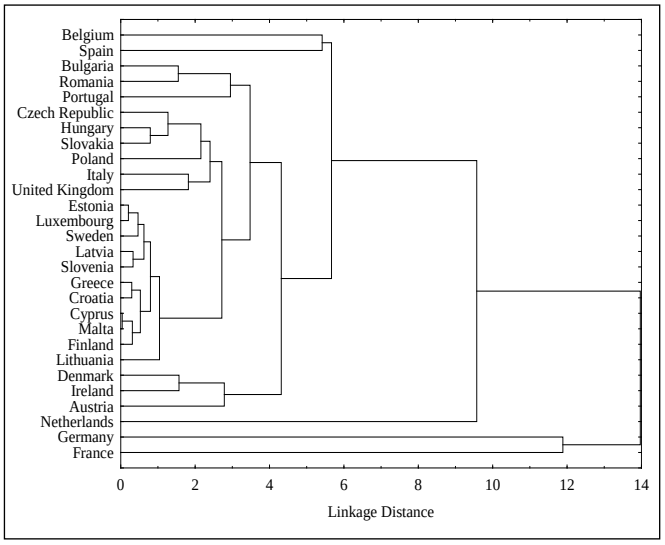


Table 4: Division of EU member states by agri-food exports

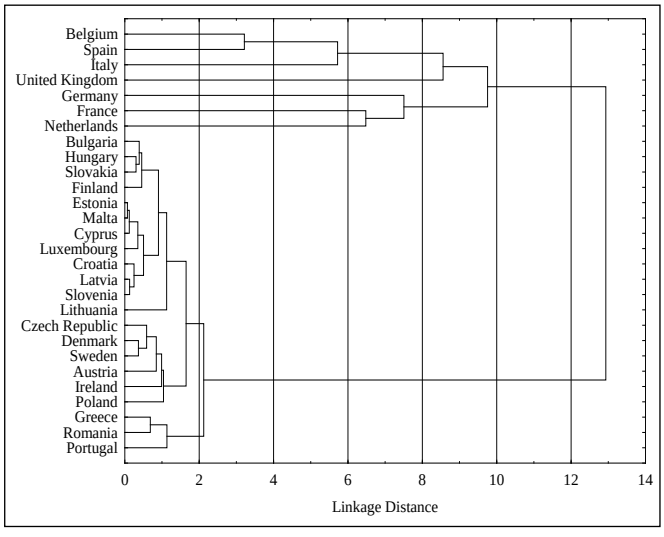
Non-agri-food exporter countries	Primary commodity exporter countries	Crop exporter countries	Processed food exporter countries	Main agri-food exporter countries
Finland Estonia Latvia Lithuania Slovenia Croatia Greece Cyprus Malta Luxembourg Sweden	Poland Czech Republic Slovakia Hungary	Romania Bulgaria	United Kingdom Italy	Ireland Denmark Austria
All commodities are exported in the lowest quantity and value within the EU.	Mainly cereals, oilseeds, fresh milk, fruits and vegetables (in some cases sugar as well) are exported.	Cereals and oilseeds are exported in the largest quantity and value within the EU.	Mainly dairy products (in the largest quantity), meat and meat preparations, processed food, fruits and vegetables (in the largest quantity) are exported.	Almost all commodities are exported in the largest quantity and value within the EU.

There are some countries in that exports of agri-food products do not play a significant role. They export mainly non-food goods. These countries are Finland, Estonia, Latvia, Lithuania, Slovenia, Croatia, Greece, Cyprus, Malta, Luxembourg, and Sweden. Poland, Czech, Slovakia and Hungary are similar in that they export mainly primary commodities (such as cereals, oilseeds, fresh milk, fruits,

and vegetables), while Romania and Bulgaria are typical crop exporter countries (with their largest export quantity and value being cereals and oilseeds). Processed foods are the most important part of the export structure in the United Kingdom and Italy. These countries export mainly meat, meat preparations, and dairy products as well as fruits and vegetables (these two last ones are exported in the largest quantity and value by the UK and Italy from the EU). However, Ireland, Denmark and Austria are the main agri-food exporter countries because the largest quantity of almost all agri-food commodities are exported by these three countries.

Based on the clustering by the import quantity and value of commodity groups member states may be separated into three groups (figure 5, table 5).

Figure 5: Tree diagram for EU-28 (by agri-food imports)



Similar to the export structures, in the case of import structures there are also some countries that the imports of agri-food products do not play a significant role. They import mainly non-food goods. These are Finland, Estonia, Latvia, Lithuania, Slovakia, Hungary, Slovenia, Croatia, Bulgaria, Cyprus, Malta, and Luxembourg. These countries are almost the same countries as the non-agri-food exporter countries. In this classification the processed food importer countries also appear such as Sweden, Denmark, Ireland, Poland, Czech Republic, and Austria. They import dairy products, meat and meat preparations, fresh milk, prepared food, fruits and vegetables in the largest quantity and value within the EU, while primary commodities (such as cereals, fresh milk, and oilseeds) are imported mainly by Portugal, Romania, and Greece.

Table 5: Division of EU member states by agri-food imports

Non-agri-food importer countries	Processed food importer countries	Primary commodity importer countries
Finland Estonia Latvia Lithuania Slovakia Hungary Slovenia Croatia Bulgaria Cyprus Malta Luxembourg	Sweden Denmark Ireland Poland Czech Republic Austria	Portugal Romania Greece
All commodities are imported in the lowest quantity and value within the EU.	Dairy products, meat and meat preparations, fresh milk, prepared food, fruits and vegetables are imported in the largest quantity and value within the EU.	Cereals, fresh milk, oilseeds and sugar are imported in the largest quantity and value within the EU.

CONCLUSIONS

The EU is one of the most open economies in the world. European goods and services account for 35% of the EU's GDP. The EU manages foreign trade in millions of Euro per year. However, trade features of each Member State and their share in the EU's foreign trade is not uniform.

The year of the EU accession, agricultural subsidies, share of exports and imports by partner and by products and the export value of sugar, fruit and vegetables do not correlate with any of the other (examined) factors. This means that agricultural subsidies do not influence the agricultural foreign trade of the member states, so these have no trade-distorting effects. Furthermore, the date of EU accession does not make any difference from the point of view of the foreign trade of the member states. The countries that joined later are also not at a disadvantage.

It can be ascertained that the generally known fact that the national income (GDP and its components) have a strong positive correlation with agricultural production as well as with the total food exports and imports of a country (it was found that this is especially true with the imports of animal products). Thus, those countries that have a significant agricultural production, produce food commodities in larger quantities of which a large part are exported outside the EU.

It can be also proved that those member states that have significant extra-EU exports, import commodities in a higher quantity as well. The milk and dairy product exporters (i.e., significant dairy cow breeder countries such as Germany, France, Netherlands, Belgium, Italy, Denmark, Ireland, Poland, and the UK) are the main market for crop producers from other member states. However these countries are the largest member states, so their exports and imports are significant in regards to other commodities as well, so it does not necessarily mean that there is a logical correlation between these two variables. It can be supported also with the result that the largest meat exporter countries import mainly fruits and vegetables. However these biggest meat exporters are the same as the biggest dairy exporters.

Prepared food exports and imports correlate strongly with each other. So if a country produces and exports prepared foods in a large quantity, it also imports these goods in a larger quantity.

There are member states that have similar trade features. These countries may make up different groups of member states. As for the food trade features, there are some countries (mainly Central-European countries) that do not export a significant quantity of food commodities outside the EU. On the contrary, there are countries that manage their food exports mainly extra-EU and others that are the main partners of the third countries. These last two ones are the Northern and Southern European countries, which have important ports. For the smallest EU member states the most important commercial goods are food commodities and there are some countries of which food exports are much higher than food imports. As for the structure of agri-food exports, there are typical non-agri food exporter countries (most of them joined the EU after the 2000s) and others are typical agri-food exporters (joined before the 2000s). Crop production and primary commodities are exported mainly by Central and Eastern European member states, while processed products are exported by the UK and Italy. As for the structure of agri-food imports, these can be classified into three groups of member states. Non-agri-food importer countries are almost the same countries as the non-agri-food exporter countries. The primary commodity importer member states are some Mediterranean countries, while processed food importers are the main agri-food exporters in addition to some of the primary commodity exporter countries.

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SCIENTIFIC PAPER

RESPONSIBLE BEHAVIOR AND ENVIRONMENTAL PROTECTION – IN CASE OF FOOTBALL CLUBS

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Abstract: *There has been a hotspot in sports industry these days that is becoming more and more wide-spread in sports organizations and among managers, namely CSR, that is corporate social responsibility. In the life of geographical regions, towns or villages, professional football clubs play a crucial role. Consequently, clubs tend to take responsibility for these communities in return for their support: whether it is the local population or the authorities, other businesses or the environment, they are ready to stand up for good causes. Nowadays sports centres with their regular events have a significant effect on the environment either regionally or globally. That is the reason why it has become vital in the management of sports facilities to respect environmental principles when designing and using sports facilities and to avoid producing pollution that could harm and deteriorate the environment. The aim of our study was on the one hand, to present the definitional and theoretical evolution of CSR, than the CSR concept in sport, special regard to environmental protection. On the other hand, to analyze what kind of CSR related issues do football clubs (Real Madrid C. F. – RM, Borussia Dortmund – BVB) and how they are addressing issues of environmental sustainability in the context of CSR. According to RM and BVB, we can say that they really try to do efforts to responsible behavior and environmental protection. They have special respect for the society and took big step to use different environmental management tools. It was easy to find information, reports and case studies about these activities.*

Keywords: *football clubs, environmental protection, responsible behavior*
(JEL Classification: M14)

INTRODUCTION

Over the last 50 years, research on the area of business and society has tried to identify the points of linking between corporate strategies and societal demands (KOLYPERAS, 2012).

According to DAVIES and MOYO (2017) CSR is a growing interest and is seen as one of the key areas of sustainability for corporate businesses.

According to international studies (COSTA, 2017; KOLYPERAS, 2012; PORTER and KRAMER, 2006) there are four acceptance of the CSR concept in the business world:

1. Business organizations have become more aware of the impact of their actions due to public responses on issues they had not previously thought and/or addressed.
2. CSR is conceptually grounded on the notion of sustainability. The concept of sustainability is even more popular through the years: environmental sustainability and social sustainability CSR could be a sustainable-related tool whose purpose is to create shared value and lead to self-sustaining solutions.
3. CSR is justifiable from a legal perspective.
4. CSR does not only have philanthropic values, but is also profitable as far as business is concerned. At first glance, CSR appears to be a „return gesture", however lots of organizations see it as a strategic opportunity. That is to say, CSR is considered as an interactive tool counteracting scandals quickly spread in the media and as a result of that, public scepticism.

In the point of our view, CSR is a sustainable-related tool. With the help of this, companies can also protect the environment or satisfy the societal demands.

The socially responsible approach of a firm can be manifested through its actions, which can be in the field of sports growing more and more in popularity (SCHEINBAUM and LACEY 2015). The circle of international studies in the area of sports science has been broadening in the past few years that are looking into the spread of CSR activities of sports organizations (companies, clubs) and the CSR provisions of non-sport corporatations in the field of sports, or analyse the CSR initiatives of large-scale sports events (DJABALLAH et al. 2016; DOWLING et al. 2013; FLÖTER et al. 2016; INOUE et al. 2011; RÁTHONYI et al. 2016a; RÁTHONYI-ODOR and RÁTHONYI 2016b; TRENDAFILOVA et al. 2013).

In Europe one of the most popular sport entertainment activity is the football, with a high potential for future development (BLUMRODT et al. 2013).

More and more researchers have emphasized that professional sport teams have single resources available to them to deploy their CSR programmes and generate maybe greater awareness for social and environmental issues than businesses in other industries.

In this study the CSR practice of Real Madrid C.F. and Borussia Dortmund has been studied. We wanted to analyze two top European clubs which latest CSR reports are available.

In our study we try to answer the following questions that our paper can articulate:

1. What CSR means from an analyzed sport club perspective?
2. What kind of CSR related issues do football clubs?
3. How football clubs try to integrate environmentally friendly activity in their movement?

LITERATURE REVIEW

1. Definitional and theoretical evolution of CSR

The idea of CSR dates back to the early 20th century when business colossuses, such as Ford, started to donating funds in order to develop social conditions.

After the industrial revolution CSR grew in popularity in modern societies, especially towards the late 1960s, when business corporates were confronted with a rising public activism and sceptic views as for their responsibility and share in social matters and injustices (CLARK, 2000).

According to VAN MAARREWIJK (2003) CSR means something but not always the same thing to everybody. As a result, numerous definitions and theories have been brought to bear on the matter of CSR.

In the 1930s, DODD argued that managers and corporations have certain responsibilities to society (NILSSON, 2018).

In 1953 BOWEN tried to define CSR in his book „Social responsibility of the businessman". He suggested that CSR refers to „the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of the society (FILIZÖZ and FISNE, 2011).

In 1960 DAVIS defined CSR as „the firm's consideration of, and response to, issues beyond the narrow economic technical and legal requirements (CAROLL and BROWN 2018, 45.p.)".

The 1970s were marked by a strong debate on the importance of CSR for business. Milton Friedman stated that firms have only a premium responsibility to their direct investors, that of maximizing profit and that the mere existence of CSR was a signal of an agency problem within the firm (WATSON and PREVOS 2009).

At the end of the 1970s, CAROLL's model and articulation became one of the most frequently-cited CSR models. He synthesized previously conducted research with the definitions offered earlier into what he observed as the four 'facets' of CSR; economic, legal, ethical, and discretionary responsibilities.

Another classic definition of CSR made by SETHI (1975), which made a three dimension framework of corporate behavior, dividing it in social obligation, social responsibility and social responsiveness. On the other hand, FRIEDMAN (1970) claimed that CSR and business were two completely distinct areas that should not mix, as it is not the duty of business to solve social issues instead of the government (COSTA, 2017).

During the decades of 1980s and 1990s, the definitional development of CSR was marked by two lines of thought. One of them was engaged in efforts to define the relationship between CSR and profitability. The other used stakeholder-based manifestations of CSR (KOLYPERAS, 2012).

CSR became a factor among the duties of the European Commission in the 1990s. The Council of Ministers in the 2000 Lisbon meeting agreed that companies should take steps for the sake of sustainability in their closer or wider surroundings. Eventually, in 2001 the European Union articulated its provisions taking CSR into account, which was also framed in the form of a green publication entitled „Promoting an European Framework for Corporate Social Responsibility" (HEGELOW, 2015).

For the EUROPEAN COMMISSION (2001), CSR is a program where companies decide voluntarily to contribute to a better society and cleaner environment. It is seen as an option where, along with their prime responsibility of generating profits, companies can contribute to social and environmental objectives, through integrating corporate social responsibility as a strategic investment into their core business strategy, their management instruments and their operations.

The definition above, is quite close to the academics' definition in which CSR is defined as the responsibility of an organisation to be ethical and accountable to the needs of their society (BLUMRODT et al. 2013).

The WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD) (2002) defined CSR in general terms as the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of live of the workforce.

BUSINESS COUNCIL FOR SOCIAL RESPONSIBILITY

(2004) writes the following: it is about a kind of business practice that exceeds ethic, legal and commercial expectations formed and set against ventures by the public (BCSR 2004). When defining the concept, the establishment puts an emphasis on the fact that the accountable actions of a company exceed the attempt to meet the requirements of public opinion. Values – balance, social and financial missions – must stand on the first place of a companies goals.

The various definitions are common in the respect that a healthy and sustainable balance should be created between economic interests, social expectations and environmental limits in the course of business.

2. Corporate social responsibility in sport

With the rise of environmental consciousness, environmental issues have become valued and mainstream. Many sport organizations, sport clubs are concerned with the effectiveness of adopting green management tools and green marketing strategies (HUANG et al. 2014; PAPASPYROPOULOS et al. 2012). The environmental management tools may be an important step towards sustainability and the preservation of environmental values. According to these environmentally responsible business practices (e.g. energy, waste and pollution reduction, decreased use of toxic materials), are element of CSR.

It has been long and widely accepted that sport has particular relevance to both the impact and power it has with respect to its CSR-related practices (SMITH and WESTERBEEK 2007).

Regarding sports management, CSR is the equivalent of sustainable development at business level. This notion standsat the intersection of three pillars: economic, social and environmental (ROBERT and DELHEZ, 2015).

Both sports organizations and corporates have become aware of their accountability in social questions: sports associations emphatically deliver social values, focus on physical health, improved education, social interaction and pro-environmental actions, whereas corporates also make huge efforts to be socially beneficial in the professional sports industry and through related organizations.

There are several prevalent types of CSR-related practice throughout the professional sport industry, which can be conceptually divided into three categories (KOLYPERAS, 2012):

1. the CSR activities made by sport organization and entities (action of leagues, teams, mega-events or individual athletes);
2. CSR and sport-related foundations, where CSR is a product of partnerships between different organizations and delivered independently by non-for profit organizations;
3. CSR activities made by by sport-related companies and often executed via sports.

Our study joins to the first access.

SMITH and WESTERBEEK (2007) present seven features to use sport as a vehicle for deploying CSR. These features are as follows:

- The popularity and global reach of sport can ensure that sport CSR has mass media distribution and communication power.
- Sport CSR has youth appeal. Children are more likely to engage in a CSR program if it is attached to a sport organisation or a sport personality.
- Sport CSR can be used to deliver positive health impacts through programs and initiatives designed around physical exercise.
- Sport CSR will invariably involve group participation and therefore aid social interaction.
- Sport CSR can lead to improved cultural understanding and integration.
- Particular sport activities may lead to enhanced environmental and sustainability awareness.
- Participating in sport CSR activities can provide immediate gratification benefits.

Features above related to social and environmental aspects of CSR. Within social aspect we can work up 4 categories: (1) educational programs, (2) sport/health programs, (3) social/cultural programs and (4) charity programs. We strongly agree with NILSON (2018, 19.p.), who suggest that „social sustainability means the provision of equal opportunities, diversity in the workforce, connections to the surrounding community, ensuring of life quality and democratic processes".

In line with environmental aspect we can see, that environmental sustainability increasingly recognized as a central aspect of CSR, is important not only for recreational sport firms, but for all sport organisation (JENKINS, 2011).

3. Environmental values in sport

Academic work are focusing on sport and the environment has steadily grown over the past 15 years (TRENDAFILOVA et al. 2014).

On the one hand sports by their very nature bring people together; athletes, spectators, officials, sponsors and suppliers come together to participate in and support sport.

On the other hand, all sports use natural resources in some measure and have an impact on natural environment. Sport is claiming more territory and endangering natural landscapes A number of animal and plant spieces are dying out, enormous amounts of water is polluted causing environmental hazards. In addition, applying non-renewable materials, the refuse emission in the building and operation process of sports facilities, shuttling to and from these places, catering, health care provisions, commercialism, producing and the disposal of sports equipment multiply the causes that can and should be helped by CSR (BRAR and PATHAK 2016; RÁTHONYI-ODOR and RÁTHONYI 2016; SHIPLY 2018).

It is undoubted, that sport is a substantial enabler of sustainable development (GIULIANOTTI et al. 2018). Sport receive a great popularity in modern society (DENG and ZHOU 2017). Even more sport related bodies have been pioneering in new strategy for integration of the environment in business strategy (MOGHADDAM et al. 2018).

According to SHIPLEY (2018), to making sport greener, it is needed that:

- representatives of sport and those promoting nature conservation and environmental protection;
- join forces and draw up guidelines for sustainable development in sport;
- promote and further develop forms of sport which are compatible with nature and the environment;
- make sports-related infrastructure more environmentally compatible;
- strict compliance of environmental standards by government and agencies funding sports facilities;
- incorporate environmental management into the work of sports administration, clubs, associations and commercial sports operators;
- voluntary commitments should be given priority for achieving conservation aims.

MATERIAL AND METHODS

In the conceptual clarification of corporate social responsibility, the presentation of CSR concept in sport – special regard to environmental protection – we relied on international and Hungarian special literature (BLUMRODT et al. 2013; KOLYPERAS, 2012; JENKINS, 2011; MOGHADDAM et al. 2018; NILSSON, 2018; RÁTHONYI-ODOR and RÁTHONYI 2016; SHIPLEY, 2018).

To analyze what kind of CSR related issues do football clubs (Real Madrid C. F., Borussia Dortmund) and how these clubs are addressing issues of environmental sustainability in the context of CSR, we applied a comparative analysis based on secondary databases. We compared clubs' CSR activity, environmentally conscious behavior with the help of data gained from their web sites, reports, case studies (BVB, 2018; ESTERLUSS, 2017; INTERNET 1,2,3,4,5,6,7,8; RM, 2018).

We chose these clubs, because they have sustainability report (including social/environmental sustainability) in English, which contain detailed information about analyzed topic and they are front-rang clubs.

RESULT AND DISCUSSION

1. Responsible behavior by Real Madrid C. F.

RM was founded on 6 March 1902 as Madrid Football Club. The team has played its home matches in the 81,044-capacity Santiago Bernabéu Stadium in downtown Madrid since 1947. The club was estimated to be worth €3.8 billion ($4.2 billion) in 2019, and it was the highest-earning football club in the world, with an annual revenue of €750.9 million in 2018. More than 200 people worked on a daily basis on Real Madrid Sports City, although at certain times this figure reached 500.

In order to present Real Madrid C. F. (RM) CSR and green activity, we analyzed the club's 34 pages long Corporate Social Responsibility and Sustainability Report (2017-2018) and some related articles, case studies.

In the first chapter we can read about e.g. institutional profil, misson, vision, corporate governance, transparency policy and values. Among values, we can find what social responsibility means for the club: „Real Madrid is aware of the high social repercussion of its activities. It therefore dedicates all the resources within its power to complying with the very highest standards of good corporate governance and the promotion of the best sporting values, to strengthening its relations with its members, former players, fan clubs and supporters, and to the development and implementation of solidarity projects in favour of the needy both within Spain and beyond its borders (RM, 2018 4.p.)."

In the second chapter, named RM Corporate Social Responsibility, the report mentioned stakeholders served by RM (e.g. members, players, referees, employees, supporters, suppliers, other club, media, society) and their relationship and activity.

The next chapter is about fulfilment of commitments in 2017-18. In this part of the report CSR related issues are detailed presented. We briefly interpret issues 1-8 with help of some examples, then we focus on environmental protection (RM, 2018).

1. social sports schools in Spain; They emphasise that, according to their mission education in values through sport continues to be the main vehicle of social action. In their Football and Basketball social sports they promote healthy lifestyles, sport as a beneficial way for children to spend their leisure time and to collaborate with families to provide all-round training for more than 6.000 children aged between 5-17, in a total of 65 social sports schools. They provide different programmes e.g.:
   - The club participated in a number of inclusive days: in the International Disability Day, World Autism Day.
   - During the season, more than 300 international clinics were held in 43 countries on all five continents, with more than 40.000 children and young people participating. Additionally, 177 of these clinics were held at Real Madrid City, which welcomed more than 5.000 players from over 35 countries.
2. social-sports projects with other groups at risk of exclusion; The inclusion of the Homeless People group among those benefitting from Real Madrid Foundation's activities is one of the milestones of the last season. Three training groups were set up in partnership with Spanish Red Cross, Madrid City Council and the P. Garralda Foundation. This new scheme assists more than 50 adults with the aim of helping them to recover their mental wellbeing. Last year they organised 22 football and 21 basketball projects involving 2.500 inmates to contribute towards their re-education and their reintegration into society. It also provides care for groups in Hospitals, Prisons, Shelters and Detention Facilities, where values are taught that will accompany the participants throughout their lives (INTERNET 3).
3. the international area of the RM foundation; Last season, the Foundation's international programmes, working in partnership with some of the major children's NGOs, have continued their process of consolidation, undertaking altogether over 300.000 hours of sporting value related activities through nearly 2.000 working groups, 800 teacher-trainers in 300 projects in 76 countries. More

than 39.000 girls, boys and young people who, as well as learning about sporting values thanks to these schools, also receive medical assistance, food and schooling, and over 200.000 hours of social assistance each year.

4. communication, events and institutional activities; The Real Madrid Foundation's 20th anniversary has been marked by a full season of special events. E.g.: After the traditional Christmas campaign, the New Year began with the Foundation's 2nd Popular Race in Madrid, in which 6.000 runners took part. From month to month, interesting cultural and sport programmes were heled by the Foundation.
5. veterans, ambassadors and RM icons appearances; Ambassadors for Real Madrid, including Roberto Carlos and Julio Baptista, participated in the Luis de Carlos Forums and in promoting the Foundation's charity events. The ambassadors taking part in the 2nd Charity Race were Raúl and Arbeloa. Julio César became the ambassador for the programme of clinics in Brazil, Iván Helguera visited their project in the Dominican Republic and once again, Pepe Salguero supported the Churriana Tournament for the schools in India.
6. players appearances; The students attending the international schools who visit Madrid, have the opportunity to say hello to the first team players in a short meeting, which fills them with enthusiasm, motivating them to continue with their efforts. Players visits to young people with serious illnesses weekly. Marcelo visited to the schools tournament being played at RM City on his birthday.
7. publications, prizes, speeches and forums; In the analysed season, the RM Foundation became more widely involved in academic and international forums in the industry, such as the World Football Summit, Football is more; in conferences about team sport and autism at the European University; taking part in the United Soccer Convention, the 4th FIFA Congress on social actions. It has been awarded a number of prizes such as the 2017 Childhood Recognition award from the Madrid Regional Government, the Montevideo Cervantes School award, the Nine Values Cup, the Olavidia Heart prize, the YPO Latam Best Business Foundation award.
8. RM Graduate School European University activities; The school is present in 12 countries: Spain, Costa Rica, Ecuador, Mexico, Chile, Colombia, Brazil, Peru, Germany, Portugal, United Kingdom and Australia. Focusing on the areas of health, sport, management and communications, their school offers 15 master's degrees (INTERNET 1).

Next, we would like to present how RM try to integrate environmentally friendly activity in their movement.

In the 2017/2018 season, RM has continued to develop its environmental protection policy as a key component of its sustainability strategy. This season they would like to get an audit of the environmental impact of RM's entire business, a measurement of the carbon footprint of the club's operations and the introduction of other scientific methods to assess their impact on the environment. Real Madrid's environmental agenda includes material and waste recycling, energy generation and consumption, water usage and treatment, greenhouse gas emissions into the atmosphere and the planting of trees, sports pitch turf and ornamental plants.

We would like to present some of the club green activity (RM, 2018):

- More than 200 new trees have been planted and chemical products are no longer used in the maintenance of the garden areas, including a drastic reduction in the use of fungicides on the natural grass football pitches. They continue the replacing combustion-engine powered garden machinery with electrical equipment.
- Since 2007, RM has had an agreement with Ecoembes Spain, S.A. for the of selective collection and recovery of light containers and cardboard at the Santiago Bernabéu Stadium and at Real Madrid City, through which a system has been set up for the collection, transport and subsequent treatment of waste. Under this agreement, in the 2017-2018 season, some 617.170 kg of waste was collected, of this amount 86.31% constitutes recyclable lightweight containers, paper and cardboard.
- Through such recycling, they managed to reduce energy and water use, as well as cut greenhouse gas emissions into the atmosphere. This efficient management of lightweight container waste has enabled them to save: 41 tonnes of CO2 emissions (equal to the emissions produced by 121 vehicles), 392.430 KWh of electrical energy consumption (equivalent to the annual consumption of 121 homes), 9.283,107 litres of water (equal to the daily consumption of 65.374 people).
- During the 11 years of the agreement with Ecoembes, more than 4.698 tonnes of light containers and 1.340 tonnes of paper and cardboard have been recycled.
- During the last season, 260 waste separation bins and containers have been installed in the VIP Area in the Stadium, 145 with three compartments and 115 with two compartments.
- 22 new, electrical powered cleaning machines have been introduced, thus eliminating the storage and use of fossil fuels and almost completely eliminating noise pollution during their use.
- They reduced their daily purchase of the printed press, replacing it with digital publications (from 6.179 per month to 2.350).
- In 2016 RM has conducted an Energy Audit of all its buildings, all of which have passed successfully. We mention just some of their implemented measures: LED technology in emergency lighting for stands and buildings; there are motion sensors in public toilets in the stadium and RM City; installation of chargers for electric vehicles at the new corporate office building; installation of frequency inverters in both pumping equipment and in air-conditioning fans.
- RM planed to upgrade the Santiago Bernabeu (stadium of RM) by 2022 at a cost of 525 million was given the green light (INTERNET 4).
- They have the guarantee certificate for the source of its electrical power supplies. 100% of the KWh purchased

for their buildings was previously generated by renewable energy sources (principally solar and wind energy).
- The entire annual water consumption of their football pitches and ornamental gardening of the Real Madrid City comes from the recycled water network of the Madrid City Council.
- Heat recovery systems and CO2 level sensors permitting the use of the ventilation systems only when absolutely necessary have been installed as well as lift installations with frequency variators and quadruplex calling to save waiting times and permitting shorter lift journeys.
- All lighting in the building is controlled by movement sensors, light intensity sensors or by timed programmes, meaning that no lighting is left on when it is not required.
- They encourage the use of electrical vehicles with the installation of 6 recharging points in the new building car park.
- The new office building has a certified energy consumption of 241 KWh/m2 per year and gas emissions of just 41 Kg CO2/m2 per year, with 100% being generated by renewal energy sources.
- The new uniforms of Adidas for 2018-2019 for Real Madrid are made of plastic rescued from the oceans (INTERNET 2).

All these measures have led to Real Madrid being awarded the STMA – Sports Turf Management Association environmental certification with validity until 2020.

In the additional part of the report, we can read about the financial performance of RM.

According to RM, we can say that they really try to do efforts to responsible behavior and environmental protection. They have special respect for the society and took big step to use different environmental management tools. It was easy to find information, reports and case studies about these activities.

2. Responsible behavior by Borussia Dortmund

Borussia Dortmund is a German sports club based in Dortmund, North Rhine-Westphalia. Founded in 1909 by eighteen football players from Dortmund, the football team is part of a large membership-based sports club with more than 145,000 members, making BVB the second largest sports club by membership in Germany. In October 2000, Borussia Dortmund became the first publicly traded club on the German stock market.

To introduce BVB CSR and environmentally friendly activity, we analysed the club's 67 pages long Sustainability Report for the 2017/18 season and some related articles.

In the first part of this report we can read about how they celebrate on the match day, structured development (e.g.: sustainability context, organisational structure, stakeholder dialogue,), challenges and new beginnings (e.g.: sustainability and the stadium, holistic HR development, product quality and service) (BVB, 2018).

The second part of the report deals with social and environmental responsibility and the financial performance.

Social responsibility focuses on three topics: (1) fans and club members, (2) employees and (3) product responsibility. Next, we would like to demonstrate some related activity (BVB, 2018).

1. Fans and club members:

They emphasize, that BVB focuses on actively fighting discrimination and promoting the diversity of its fans. BVB stands firmly against right-wing extremism and discrimination and supports BVB fans with the same attitude (just 13 criminal acts and 111.000 euros in fines during the last season).

By Borussia Dortmund was formed the "leuchte auf" foundation in 2012 which is an independent charitable organisation. Its objective is to support charitable projects, either through financial or intellectual contributions. 273.958.76 euro donations received in the last season and 31 projects were supported. For examples: ''leuchte auf" funds playground equipment for primary school children (INTERNET 6), "leuchte auf" supports campaign for road traffic safety (INTERNET 7).

In 2019 the club provides new training program for heavyweight football fans. The entire, free 12-week course aim is for overweight BVB fans to get into better shape and accordingly increase their quality of life (INTERNET 5).

2. Employees

The report mentioned that social and humanitarian responsibility, health and safety are also economic factors that are important for keeping their employees motivated. In 2018, the club hired a company physician who, in addition to providing basic medical care, also offers occupational medical advice and helps develop measures to promote employee health. E.g.: they offer all employees the opportunity to receive flu vaccinations.

Beginning with the 2018/2019 season, BVB employees have free access to a gym.

BVB offers an individualised internal and external continuing education programme to its employees. For instance, they worked together with the educational centre of their sponsor, WILO. The club offers training in 11 professions, not only those that are typical for the industry, but also in areas which are not so typical for football clubs. The club also offers its employees various levels of English-language courses.

3. Product responsibility

This chapter deals with spectator safety, stadium/service quality and product safety/quality.

In April 2018, their security staff members underwent the most extensive security training programme. Other related measures include the establishment of their own entry control system and the creation of the position of full-time security manager by the start of the 2018/2019 season. In this season additional security gatehouse and further separating lanes had been completed in the entrance areas as well as improvements to the radio and camera systems and the fence system on the stadium's outer boundary (BVB, 2018).

The concrete paving of the lower tier of the stadium's west terrace marked the completion of a maintenance cycle

for all lower tiers. This work was implemented as a safety measure to protect the structural integrity of the stadium and, by extension, the spectators.

They had a large number of investments to reduce the waiting time for visitors: 1.125 service staff attend to their visitors on match days: VIP and hospitality catering (380), public areas (500), kitchens and buffets (185) and logistics/ supervisors (60).

They directly improved the experience for the more than 120.000 stadium tour visitors by introducing multi-language audio guides.

Hermes Hansecontrol subjected all products (sports equipment, electric tools, IT equipment), to testing in accordance with European standards and laws to ensure that their products do not contain hazardous chemicals. Under the revised agreement, Hermes Hansecontrol would prepare certificates of free sale, which confirm that products have been packaged and labelled in accordance with European standards, and, together with external experts, carry out a risk assessment at an early stage of the product development phase for new products (BVB, 2018; INTERNET 8).

Next, we would like to present with help of the report how BVB try to integrate environmentally friendly activity in their movement.

Within environmentally responsibility, we can get information in connection with (1) energy and emissions, (2) mobility, (3) water and wastewater and (4) use of resources

Energy and emisions

In 2011, BVB invested 1.9 million euro to install 8.768 solar panels in the form of the BVB logo across 8.300 m² on the roof of Signal Iduna Park (training ground). In 2017, BVB fed 521.000 kWh of green electricity back into Dortmund's electricity grid (2016: 558.000 kWh) – enough to power 143 three-person households with clean energy for an entire year (BVB, 2018; ESTERLUSS, 2017).

As a part of their "Strom09" energy conservation campaign, they teamed up with their electricity provider "LichtBlick" to further reduce their CO2 emissions and the resources we consume. By June 2016, CO2 emissions had already been reduced by 25,000 tonnes, equivalent to one tonne per standing place on the south terrace. The overall aim is to reduce carbon by 81.360 tonnes – one tonne per seat (CAMPELL, 2018). In order to use of green energy at Signal Iduna Park and the FanWelt service centre alone in 2017, they managed to reduce LichtBlick's CO2 emissions by 3.810 tonnes.

Three Dortmund-based community organisations received green energy free of charge for one year from BVB. In total, 10.000 euro was donated to the three community organisations to pay for urgently needed materials.

BVB's emissions are accounted for and classified into three categories known as scopes in accordance with the principles of the Greenhouse Gas Protocol (GHG Protocol): direct emissions from owned or controlled, indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting, all other indirect emissions that occur in a company's value chain. In the report we found detailed information about the three categories, how many tonnes of CO2 was reduced year by year from 2016 (BVB, 2018).

Mobility

An average of 79.864 spectators (2016: 79.712) travel to the stadium per match, of which just under 51% come from the VRR (Verkehrsverbund Rhein-Ruhr) transport authority region. Most of the 31% of season ticket holders walk to the stadium, some even ride their bicycles. Tickets include the fare for public transport to travel to/from matches and are valid to/from any destination in the VRR transport authority region. 43% of fans take advantage of this service.

They collected data on their vehicle fleet's fuel consumption and the number of kilometres travelled by train for business trips. They have permanently added electric car to their fleet and use it for courier services. They are also planning to use bicycles or e-bikes for travelling between the stadium, the training ground and the headquarters building.

Water and wastewater

Club uses rainwater to irrigate and water their pitches in Brackel (there is the training ground and academy). They are gradually installing water metres at individual locations in order to collect more detailed information about their water consumption and determine further savings potential. Borussia Dortmund's wastewater is routed to the city's canal system in compliance with the applicable requirements. The water used for the pitches is absorbed by the grass or evaporates; any excess water seeps into the ground.

The 20-hectare training ground has both artificial and natural grass pitches. The pitches are watered using a cistern system, which collects water that has seeped into the ground and transports it to the cisterns via a network of pipes.

They reduced the amount of fresh water by 10.412 m³ or 14.6% from 2016 to 2017. This is approximately equivalent to the annual water consumption of around 80 three-person households.

Use of resources

They try to keep the waste they produce to a minimum and to recycling unavoidable waste.

Their aim is to achieve a high level of vertical integration in the production of prepared food in order to ensure quality and prevent food waste. They also employ an accurate and professional food management system to help their vendors in this endeavour.

Any food waste is transported 20 km to a nearby biogas plant for recycling.

Due to the increase in other events held at Signal Iduna Park and the significant expansion of the cafeteria menu at the Brackel training ground, the total amount of food waste

increased by 3% to 188,5 m³ (2016: 182,5 m³).

At the beginning of the new 2018/2019 season, they test a reusable cup system in the family block with the aim of rolling out a new system for the entire stadium at the beginning of the 2019/2020 season.

Dortmund has installed 200 special tubes into which fans can chuck their cups instead of simply throwing them on the floor (ESTERLUSS, 2017).

In total, the club produced 448 tonnes of waste, 20% less than in 2016 (554.0 tonnes) (BVB, 2018).

According to BVB, we need to say, that the club is commitment with the responsible behaviour for the society and the environment.

The report presents detailed information about their CSR activity, we can read about their concept and objectives, related measures and results. They also have wide range of activity to support the different part of the society.

They are used state-of-the-art technologies to make their activity greener and introduce these with full particulars.

CONCLUSION

Sport can contribute to the effectiveness of sport-related CSR programs, including environmentally conscious attitude, the generation of greater awareness of social problems, an ability to effectively contemplate the ethical side of sport and its respective organizations.

We agree with JENKINS (2011), that the natural environment is increasingly being viewed as a pillar of CSR. Research on CSR and environmental sustainability in the management literature is converging because of shared environmental, economic, and social concerns.

Avoiding and reducing sports-related environmental damage, the active involvement of those who pursue sports activities is neccessary.

It was interested to analyze RM's and BVB's responsible activity. Both clubs really take care of the society. They support foundations, schools, sport programs, they donate people, who are underprivileged, which can demonstrate clubs' social utility in their opinion. We can emphasize from the clubs' CSR activities the support of children as future generations trough education, sport or donation programs. Employees' health and well-being are also important for clubs.

In connection with environmental protection, reports, studies inform us about their long term targets, activities related to them and the achieved results. They try to do their best to reduce waste, cut energy, minimize water use those areas which are taken into consideration. They find it important to advise spectators, sponsors and suppliers about their activity and set a good example for the society.

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SCIENTIFIC PAPER

THE ATTITUDES OF PETE PROGRAM APPLICANTS TOWARDS INFORMATION AND COMMUNICATION TECHNOLOGIES

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Abstract: *As information and communication technology has permeated all aspects of life education cannot be considered an exception either. The schools of the 21st century require the use of the latest digital devices whose effectiveness is greatly determined by the motivation, ICT-related attitude, and the respective competences of teachers managing and directing the given teaching and learning process. Since P.E. also requires the use of information and communication devices it would be crucial that prospective teachers develop a positive attitude toward such equipment. The present research aims at exploring the attitudes of students applying to P.E. teacher programs at the Eszterházy Károly University toward such instruments and approaches. Additional research objectives include the exploration of potential correlation between the sex of the applicants and the respective attitudes. Our inquiry utilized the questionnaire method and the computer-based attitude scale was completed by a sample of 130 applicants in the 2016/2017 and the 2017/2018 academic years. Our research concluded that both men and women maintain a positive attitude toward the use of digital devices, or the tools of information and communication technology. Students representing both sexes consider the computer as a valuable learning device promoting the efficiency of the knowledge acquisition process. Furthermore, a significantly greater proportion of male respondents stated that they were capable of repairing computer problems emerging during use than that of their female counterparts. At the same time men are less apprehensive to use computers during instruction and this attitude appears to be an indispensable requirement for the application of ICT devices in class. The research can contribute to a deeper exploration of the given field along with performing a gap filling function as such examination has not yet been conducted among applicants to P.E. programs provided by higher education institutions in Hungary.*

Keywords: *Information and communication technologies, physical education, attitudes*
(JEL Classification: Z2, I23)

INTRODUCTION

Numerous studies are known that examine competences, competitive knowledge in different disciplines acquired during education (MÁTÉ - FENYVES 2016, TARNÓCZI et. al., 2017, MARKOS et. al. 2017). Other researches examine what activities and works do students undertake during their studies to enhance their professional knowledge (language, communication, ICT) and experience, which can be useful in increasing their competitiveness in the labor market (BÁCSNÉ et. al. 2018a, b).

Information and communication (henceforth ICT) devices are becoming increasingly prevalent nowadays. ICT technology can be defined as a variety of technological devices and sources facilitating the communication, production, storing, dissemination and management of information (BLURTON 1999). ICT devices became fully integrated into all aspects of life, their impact is felt virtually in all human activity and turned out to be the most essential means of information flow and acquisition. Such devices have taken over the previously prevalent role of traditional information

sources, books, brochures, and the written or printed press (KOLTAY, 2010).

Since ICT tends to gain increasing priority both in the education sphere and on the labour market, students lacking digital literacy are at a significant disadvantage (PINEIDA, 2011; CZEGLÉDI, 2011). The importance of the potential of ICT and ICT literacy in the business sphere is clearly demonstrated by initiatives on the part of the EU and the US to integrate such technology and promote the instruction of relevant skills, competences, and attitudes into educational and further training programs. (MOLNÁR, 2011). In several countries or parts of the world ICT is considered to be a motivator behind changes and innovations impacting the education sphere Furthermore, numerous research projects focus on the educational application and integration of ICT devices highlighting the crucial role of teachers and their respective attitudes to the use of the given technology (ALBIRINI, 2006; BAYLOR and RITCHIE, 2002).

Research suggests that the efficiency or success of the educational implementation of ICT not only depends on the given infrastructure, that is devices and software, but on the professional background of the respective instructor. The ICT literacy level of the teacher can significantly determine the level of support he or she can give to students regarding the use of such technology during the learning process (YUEN et al. 2003; TEARLE, 2003; LAI- PRATT, 2004). International research results also prove that the competitiveness of teachers on the educational labour market requires inherent skills including the arrangement of the learning process, the willingness for continuous training, the ability to deal with the younger generation or address their needs along with the possession of ICT literacy to be deployed during the support of the learning effort (DAUVARTE, 2015). Consequently, physical education teachers and sports pedagogues of the future should be capable of integrating digital devices heretofore playing a crucial role in the instruction process as the digital revolution and innovations cannot be stopped in the field of sports and sports pedagogy either.

Sports analytics and sports informatics have grown to be an independent branch of the informatics sector demonstrated by the variety of devices including the odometers, pulse meters, mobile applications and sensors fulfilling analytical, support, and assistance functions. Accordingly, as in case of other subjects the integration of digital devices in P.E. classes appears to be inevitable.

Previous research in the field of laptops, tablets (JUNIU, 2011; LEIGHT, 2012), devices measuring physical activity (McCAUGHTRY et al. 2008), online activities (MARTIN, BALDERSON, and MORRIS, 2012; MCNEILL, MUKHERJEE and SINGH, 2010), and motion based or kinetic video games (ENNIS, 2013) focused on the application of such approaches in P.E. classes. Furthermore, researchers explored the application of ICT devices including Polar systems and Polar watches in P.E. classes as well. Such devices are suitable for the assessment of the intensity of the physical exertion level of students facilitating objective assessment on the part of the instructors (NAGY et al. 2017). International research also focuses on the application of odometers in P.E. lessons. Accordingly, it was shown that walking with an odometer increases the intensity of the respective physical activity, along with its frequency and duration (DUNN, L.- TANNEHILL, D, 2005, JANE M. SHIMON. - LINDA M. PETLICHKOFF, 2009, CHARLES F. MORGAN Jr et al. 2013). Having surveyed the relevant research results in Hungary we can conclude that apart from the application of ICT and e-Learning materials in teacher training (KOKOVAY, 2006, 2008; TÍMÁR, KOKOVAY, KÁRPÁTI 2011; BUCSY and SIMON 2008) no inquiry was performed in empirical device use. Yet, P.E. teachers in Hungary are required to perform tasks and fulfil expectations related to ICT use.

One such task is the mandatory National Uniform Learner Fitness test (NETFIT) whose results have been explored by several researchers (CSÁNYI et al. 2015, ERDEI 2015, NAGY et al. 2018). Consequently, all P.E. teachers are required to assess the motor skills and body profile of all students every year and the given data have to be uploaded into an electronic system. It is obvious that the fulfilment of this task requires ICT competences. Furthermore, the chapter on Physical Education in the Guide to the evaluation system of pedagogues specifies that P.E. teachers take advantage of the options provided by ICT devices including the GPS-based geo-location applications, the use of Polar watches, on-line practice design and on-line training diaries in addition to keeping pace with the digital educational materials and contents (https://www.oktatas.hu/pub_bin/dload/pem/testneveles_k_masodik_kieg.pdf). Moreover, if possible, digital educational materials and contents have to be used in the given lessons as well. At the same time all eight competences required of teachers have ICT-related components taken into consideration during performance evaluation.

Therefore, it can be concluded that Hungarian P.E. teachers are required to be familiar with and apply ICT devices. The respective intensity is determined by the theoretical and practical background of the given pedagogue along with the personal attitude and available infrastructure (BUDA, 2007). Emerging dialogue within the field suggests the potential implications of technology-enhanced pedagogy in terms of instructional practice, student learning, and solving pedagogical and instructional challenges (CASEY, GOODYEAR, and ARMOUR, 2017). Several recent studies have suggested favorable outcomes for technology-enhanced PE environments on student variables such as motivation and knowledge (LEGRAIN, GILLET, GERNIGON, and LAFRENIERE, 2015) and physical activity (PA) levels in classroom settings (MELTON, BLAND, HARRIS, KELLY, and CHANDLER, 2015). Nonetheless, widespread use of technology in PE classrooms remains limited and is primarily for management or communication (JUNIU et al., 2013; KRETSCHMANN, 2015). However gender, computer literacy, household computer ownership, and professional experience (years and service) influence physical education teachers views to different degrees. (KRETSCHMANN, R.2015) Thus, we believe it is essential to examine the attitudes and opinions related to the use of modern digital

devices held by the next generation of sport pedagogues and potential P.E. teachers. Such unprecedented inquiry fulfils a gap filling function as the ICT-related attitudes of future P.E. teachers have not yet been assessed. Our research focused on the following issues:

1. What attitudes due students applying to P.E. teacher training programs maintain regarding the use of ICT devices?
2. Can a correlation be discerned between the sex and the attitude of prospective students?

MATERIALS AND METHODS

The research effort took place at the Institute of Sports Science of the Eszterházy Károly University. The research sample included applicants to P.E. teacher training programs in the 2016/17 and 2017/18 academic years. The total sample included 130 people with 83 (63, 8%) full time and 47 (36, 2%) part time students. The age of the participants ranged from 18 to 56 with the average age of 21, 79. (SD= 5, 50). The sample included 91 men (70 %) and 39 women (30 %). The study utilised the CAS or Computer Attitude Scale developed by Papanastasious and Angeli (2008). The given tool evaluates the beliefs and attitudes related to the educational application of the computer and the Internet. The continuum included 15 items to be ranked according to the Likert scale ranging from 1 (fully disagree) to 4 (fully agree). At the beginning of the research effort the scale was translated to Hungarian and English speaking teachers and experts fluent in the Hungarian language reviewed it. The respective data was processed by the 23.0 version of the IBM SPSS program package. The significance level was established at the margin of error used in social sciences ($p < 0, 05$). The comparison of the respective groups was performed via a two sample T probe and discriminant analysis or the stepwise method was used to explore those variables that greatly determine the differences between groups of men and women. The criteria for discriminant analysis were met.

RESULTS AND DISCUSSION

The data received via the application of the Computer Attitude Scale were divided into two groups after processing. Table 1 shows the statements related to computer assisted learning. The table doesn't display significant difference in replies to the given statements according to the respondents' sex. The highest attitude value for men (mean= 3, 60) and women (mean=3, 49) was related to the statement: „I feel comfortable with the idea of the computer as a tool in learning." Furthermore, similarly to the previous question, both sexes consider the computer as a valuable device for learning as it is expressed by the sentence: „The computer is a valuable tool for students." The respective values for men were m= 3, 46 and for women m= 3, 33. The third highest average value was posted regarding the assertion: "The computer helps students learn in more effective ways" with men at m= 3, 36 and women at m= 3, 33. Furthermore, in case of statements with a negative connotation both men and women showed lower average or mean values. Thus the responses to such claims as "The computer is not conducive to good learning because it creates technical problems" and "The computer helps me learn because it allows me to express my thinking in better and different ways" can be assessed or evaluated in a positive light.

Table 1. .Gender and Attitudes towards Computer Use

Attitudes	Gender	Mean	Std. Deviation	t-value	Sig.
1.I feel comfortable with the idea of the computer as a tool in learning.	male	3,60	,555	1,051	,295
	female	3,49	,644		
2.The use of computers in learning activities prevents me from getting stressed	male	2,30	,863	1,945	,054
	female	1,97	,873		
3.I am skeptical of the idea of learning and using a computer.	male	1,81	,802	-,192	,848
	female	1,85	1,089		
4. The use of the computer as a learning tool excites me	male	2,64	,863	-,765	,446
	female	2,77	,986		
5. The computer is a valuable tool for students	male	3,46	,620	1,019	,310
	female	3,33	,737		
6. The computer will change the way I learn	male	2,55	,806	,375	,708
	female	2,49	,997		
7.The computer helps me understand concepts in more effective ways	male	3,27	,668	,132	,895
	female	3,26	,850		
8.The computer helps me learn because it allows me to express my thinking in better and different ways	male	2,92	,859	-,468	,641
	female	3,00	,858		
9.The computer helps students learn in more effective ways	male	3,36	,641	,236	,814
	female	3,33	,662		
10.The computer is not conducive to good learning because it creates technical problems	male	1,63	,784	-,781	,436
	female	1,74	,785		

Table 2 describes opinions regarding computer use. Significant sex-based difference was found in relating to the statement: „If something goes wrong with the computer, I know how to fix it" (t=3,205, p <0, 05). The mean value of "I can do what the computer can do as well" was m = 1.92 for women and m = 1.82 for men. "The use of computers scares me" and "I do not use computers because they are not easy to use" posted lower average values both for men and women alike.

Table 2. Gender and Attitudes towards Computer Use

Attitudes	Gender	Mean	Std. Deviation	t-value	Sig.
1.If something goes wrong with the computer, I know how to fix it	male	2,37	,839	3,205	,002
	female	1,87	,767		
2.The use of computers scares me	male	1,26	,680	-1,173	,243
	female	1,44	,940		
3.I can do what the computer can do equally as well	male	1,82	,838	-,573	,567
	female	1,92	1,036		
4. I do not use computers because they are not easy to use	male	1,40	,828	-,709	,480
	female	1,51	,942		

Stepwise discriminant analysis on gender group revealed that three subscales were used in the discriminating model ("If something goes wrong with the computer, I know how to fix it", "the use of computers in learning activities prevents me from getting stressed", "the use of the computer as a learning tool excites me") with a total accuracy of 71.5%. Table 3. proves that it is worthwhile keeping the function in the calculations.

Table 3. Discriminant analysis. Gender and Attitudes towards Computer Use Wilk's Lambda (Wilks' Lambda)

Test of Function (s)	Wilks' Lambda	Chi-square	df	Sig.
1	.886	15,326	3	.002

CONCLUSION

The primary objective of our research was to explore and assess the attitudes of applicants to P.E. teacher training programs to the use of ICT devices along with identifying the correlation between the sex and attitudes of the respondents. Previously disseminated international research has confirmed that the attitude of students majoring in P.E. and sports science can be influenced by several factors, especially the sex of the given participants (YAMAN, 2007; BEBETSOS and ANTONIOU, 2009). While our inquiry can conclude that both sexes maintain a positive attitude toward the use of info-communication devices, contrary to the findings of GOKTAS (2012) men have a more positive attitude than women. The number of men stating that they could successfully address problems related to computer use was significantly higher than that of women. This can be explained by the better ICT skills of men and the fact that they use computers more in their free time than women do (HAKKARAININ et al. 2000; PAPASTERGIOU and SOLOMONODOIU, 2005). Trends related to men indicate that they are less afraid of using the computer and the educational application of computers can decrease their stress level more than that of women. Women, however, prefer to perform the functions of the computer themselves. Although our research results substantiate the findings of PALAIGEORGIOU et al. (2005) concerning a high level of commitment to computers both among men and women. Women tend to be more apprehensive regarding the use of hardware than men. Based upon our research we can make the following recommendations. Bolstered by the positive attitudes of applicants to P.E. teacher training programs students must be provided appropriate methodological preparation for the use of ICT devices both in school and in extracurricular settings in addition to teaching the use of the given technology. Accordingly, assigning priority to the educational application of ICT devices (educational software, applications, games) in P.E. and sports science subjects can enable students to gain direct, hands-on experience. Moreover, while increased use of ICT in teacher training programs can result in much desired perspective changes, the realization of this objective requires appropriate infrastructure and training formats.

Further research efforts should include a higher sample population via the inclusion of other institutions providing P.E. teacher training programs along with the respective students. This way a more profound or comprehensive picture can be gained concerning attitudes to ICT use. We believe that the research should be extended to instructors as well since the attitudes and device use of the latter can greatly determine the way students relate to technology. In the same vein the inclusion of in-service P.E. teachers would facilitate the exploration of the attitudes of various generations.

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SCIENTIFIC PAPER

ANALYSIS OF BATHING HABITS AMONG SPA VISITORS

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Abstract: *The valorisation of healthy lifestyle has indicated the dynamic increase of healthcare sector. The consumer behaviour has been forming deterministically in health tourism. Visitors of spa towns can select various combinations of services either to sustain their health, to rest, to relax or to recover. It has a great importance for spas offering complex health tourism services to know the demands of guests and to reach the target groups with special, personalized service packages. After considering the statistical indicators of tourists visiting the spas of Northern Great Plain Region and the competitors of a selected spa, this paper aims to investigate the coherence among bathing habits, influencing factors of service demands, age and non-motivating coherences. The survey was taken place in a selected spa in Hajdú-Bihar County in August 2018 with random sampling questionnaire involving 256 visitors. During data analysis the coherence among indicators was examined with variant analysis (Levene's test), in case of significant result with Welch's t-test. Variances in age groups were analysed with Tamhane's and LSD tests (post hoc analyses). We concluded that the primary information source of spas is still the suggestion of friends, acquaintances independently of the age of the respondent. Knowing this is relevant for further marketing communication. The most important features among the respondents are the condition of the spa and cleanness which are the basics of quality services. Motivations with coherence to age are social life and gaining experience, recovery and disease prevention. Visitors have the largest interest for family and kid programs. Recognition of bathing habits helps in marketing communication, reaching target markets effectively, pricing and service developments as well.*

Keywords: *health tourism, spa, motivation, spa services*
(JEL Classification: Z32)

INTRODUCTION

Hungary, thanks to its geothermal characteristics, has unique thermal water resources (quality and quantity) considering either Europe or worldwide. 80% of its area covers thermal and healing water resources (GÁSPÁR, 2009). However, in Japan and Iceland the temperature of thermal waters are higher but with low mineral content, in Italy and France the temperature is lower, the mineral content is high, in Hungary thermal waters with high mineral content can be found. Hungary is rich in other healing factors as well: next to 5 healing caves and 1 healing mofetta, thousands of thermal springs operate, the number of qualified healing water wells is near to 250 and the number of qualified baths is over 70. Based on its location, the Northern Great Plain Region is the richest in qualified healing factors, 2 from 5 qualified healing mud deposits are located in the region (Tiszasüly and Hajdúszoboszló) (ÖTM, 2007). During the competition for tourists the innovative marketing tool of spa towns is the development and improvement of services based on knowing the demands of visitors. Accordingly, it is important to explore bathing habits as it was done in the selected spa in Hajdú-Bihar County.

Formation of bathing culture in Hungary

Today's bathing culture is determined by several historical periods. In history, when the Roman Tiberius Nero conquered Pannonia and established the first settlement at the area of today's Budapest, set the Roman bathing culture in Hungary by using its rich thermal water resources (BEDE, 2014). In the Roman Empire bathing was a part of daily life. The archaeological explorations in Budapest revealed 18 military and civil baths until now, but ruins of Roman baths can be found in other Transdanubian cities such as Tata or Balf. The excessive moral notion of the middle age affected the forming of bathing culture negatively. Bathing was strictly forbidden because of the lightly clad dressing. From 1178, Johannian knights established several hospitals in Buda and used thermal water for curing. Following Turkish rule, bathing culture of Middle-East was introduced in Hungary, indicated a new golden age of bathing. Turkish baths built on healing water formed special style and social bathing culture. Several written and material relics endured from the developed bath-life of Buda, Esztergom and Eger (CSEKE, 1982). In Buda and Eger Turkish baths are still operating which is unique in whole Europe.

Healing bathing with scientific basics started to form in the XVI. Century in Europe. After the end of the Turkish era, in the XVII. Century European bathing habits started to nationalize in Hungary, several bath centres were formed countrywide. The healing water of Balatonfüred started to be well-known, baths were built in Hévíz and Parád, the bath of Balf was established (BOROS et al., 2013). There was a boost in the bathing culture of Budapest in the second half of the XIX. Century. After the reconciliation the Hungarian baths were surveyed and qualified. As a result of the survey, several baths were recovered and rebuilt in this period. In the XIX. Century balneotherapy had a great role in curing, since effective procedures, medications and operation techniques were not available. In 1837 the Commission of Balneology of the Budapest Royal Medical Association was formed. The main task of the Commission was to survey the baths of Hungary, but the propagation of baths was also a crucial goal. The 1st World War meant a large decrease in the life of baths in the countryside, but after its end – thanks to the uniform and reasoned bath politics – especially the baths of Pest and the offered services were improved. The Hungarian balneotherapy had international reputation in those days (BENDER, 2014). After the 2nd World War Hungarian baths had exclusive position considering the number of tourists again. Next to the baths that offer traditional health tourism services, spas with quality services have appeared. In the frame of the Széchenyi Plan, in 2000 health tourism development has started countrywide, in which spas and baths had a specific role (MICHALKÓ and RÁCZ, 2011).

The bathing culture of Hungary has its umpteenth flourish in these days. Next to the traditional thermal baths and several wellness spas were built, the number of spas increased and the number of offered services expanded. In 2013 the number of thermal wells were above 1300 and the number of healing water wells was more than 250 (BEDE, 2014). Budapest is the only metropolis in the World where the number of thermal springs is larger than 100 and there are more than 50 operating baths. In 2017, there were 529 baths in Hungary (380 with permanent operation, 149 with seasonal operation).

Trends of health tourism

The needs and requirements of every tourism participant change over time depending on their health condition. Till the end of the XX. Century, parallel with the innovation of medical science, the term of health tourism has transformed as well. Health tourism involves all travel activities connected to health. Spa tourism represents a special form of convalescence with emphasis on health and preventive care. The development of spa tourism is preconditioned by the existence of natural healing resources that affect the focus of spa treatment. (VILDOVA at all, 2015) In Hungary two main areas are separated, healing tourism with the aim of therapy; and wellness tourism (SZIVA, 2010). Classical healing tourism evolved in the XIX. Century. The main goal of healing tourism is to cure the actual disease. The primer motivation of tourists is to improve their health condition. Classical healing tourism is based on natural healing factors (healing water or healing climate), this requirement still can be found on demand-side. Although, today there are available healing establishments that do not have natural healing factors (KÖNYVES et al., 2013). The

establishments of health tourism offer healing, medical and touristic services as well. The target group of traditional healing tourism is the age group of society above 60. Tourists targeting healing services can be characterized with longer stay comparing with average tourists, because healing treatments as a cure may last for weeks. Healing tourism is concentrated to qualified baths (MTÜ, 2018). A consumer of health tourism can be under 36 years as well, however they refuse or do not respect the natural healing treatments comparing with older age groups. The other trend is wellness, which is interpreted in several ways in Europe, but each definition contains identification with health. Wellness is no other than a life philosophy that is prevailed in daily life (GYŐRI et al, 2013) The definition of wellness is based on 4 principles: regular exercises, healthy eating based on scientific background, improving psychical condition and sustainable living. Today's wellness tendencies are characterised by gaining experience and personalised services. Consumers of wellness tourism are mostly following the rules of healthy lifestyle. However, wellness tourists stay short time, mainly for a weekend, but using high quality services, especially related to demands for self-realization. Kid- and family-friendly services have a great importance in this consumer sector.

The main aspect of traditional baths was treating diseases – which means that healing is in foreground and prevention is in the background. Visiting baths is part of our daily life, not just only a place for vacation or healing. The new generation, characterised with health-centric behaviour, indicated the expansion of offered services that united relaxing, resting and health maintenance. To propagate the using of baths it is worth to emphasise the turn back to natural healing methods (PINTÉR, 2013). A part of the medical doctors argue with the efficiency of complementary medicina, as well as the efficiency of cures with healing water, which means that the research to certify the effects of healing water is important.

During the last decades wellness orientation has strengthened in Europe. The classic European baths put efforts to sustain their competitiveness, accordingly, to form new image and appear as wellness destinations focusing on relaxing (MICHALKÓ and RÁCZ, 2011). The market of health tourism dynamically grows and diverges many directions adapted to consumer demands. Although, the service providers of Hungary have mainly regional or local importance because the portfolio of offered services does not meet with the requirements of tourists from abroad (KÖNYVES et al., 2013).

The future of Hungarian baths lies in the harmonized use of modern medical science and novel bathing culture. Continuous service and product development is needed to meet with market conditions and demands. Continuous increase of demand should be considered in parallel with complex and quality services (SZABÓ, 2015). Furthermore, developments should be in line with the demands of new and under 36 years target groups:

- these groups primarily use fitness and wellness services.
- Visit of families with small children aims spa experience.
- Middle age groups visit for health sustain and prevention.

The largest consumers of classical health tourism are still the older age groups, furthermore, their role will be more emphasized because of the aging society of European countries. (Aquaprofit 2007)

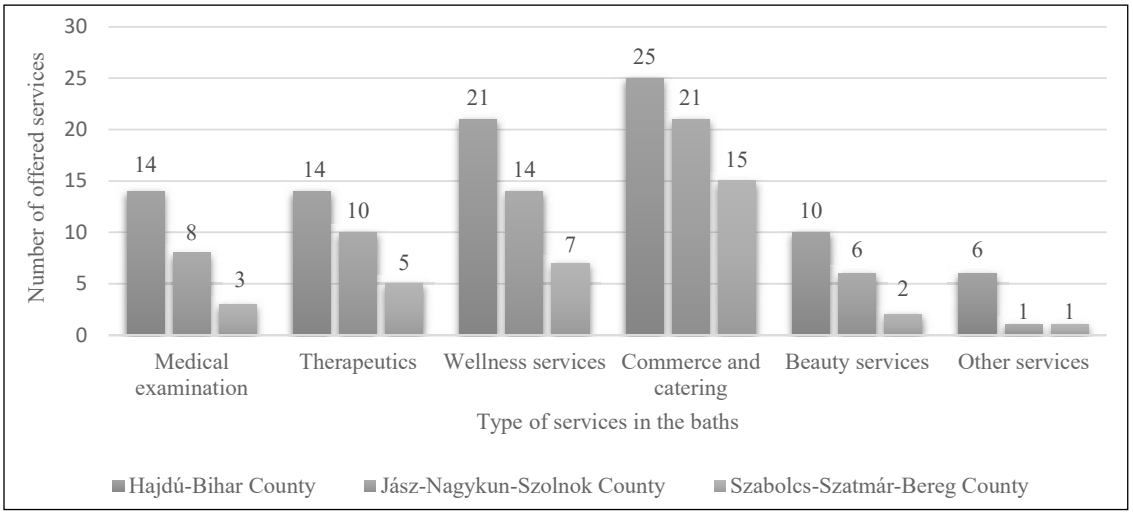
Health tourism of Northern Great Plain Region

Considering social and economic aspects, the Northern Great Plain Region is one of the most underdeveloped regions of Hungary with the lowest GDP. The touristic competitiveness of the area is significantly determined by the infrastructure level of the region (KSH, 2017). The most important natural formations of the Region are the thermal water springs, the River Tisza, the Lake Tisza and Hortobágy. Health tourism of the Region is based on the quantity of water resources and their mineral content (MÜLLER and KÖNYVES 2006). The available touristic products of the Region are health tourism, green tourism, program tourism and rural tourism. The largest touristic value of the area is the thermal water which is used mainly by Hajdú-Bihar County. In the last century thanks to Ferenc Pávai-Vajna for the exploration of several significant thermal waters and thermal baths (Szeged, Hajdúszoboszló, Karcag, Debrecen, Szolnok). The County has 3 qualified healing locations, for example Hajdúszoboszló, Debrecen and Hajdúnánás. Considering health tourism the Region shows great concentration because touristic performance of Hajdúszoboszló has international importance and has a great role in the national tourism as well.

The capacity of Hungarian baths is 860 803 capita. In national level, the Northern Great Plain Region is at the third place after Western Transdanubia (20%) and Central Hungary. The capacity of the Region is 18% of the national level (152 476 capita).

Based on the data of the Hungarian Central Statistical Office in 2017 there were 529 registered baths and spas in Hungary, 77 in the Northern Great Plain Region (60 with permanent operation, 17 with seasonal operation). In Hajdú-Bihar County there are 26 baths with permanent operation and 5 with seasonal use. The baths of the Region are focusing on healing services, most of the baths have thermal or healing pool, but underwater water-massage, medical massage and underwater physical therapy are common services too (MEZŐ and KOVÁCS, 2013). Massage and sauna are the most common elements of wellness services. Rural catering is the most common service connected to gastronomy, and beach soccer and beach volleyball considering sport services. According to the popularity of wellness tourism the Region need development regarding to wellness, gastronomy and sport services as well.

Figure 1: Offered services in the baths of the Northern Great Plain Region 2017 (no.)



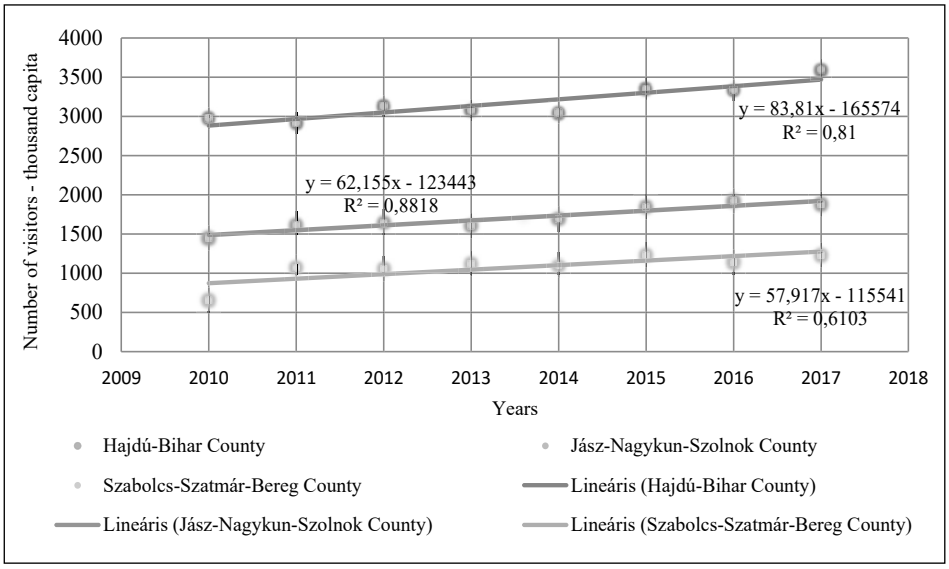
Source: KSH; own edit

In 2017, from the 31 baths of Hajdú-Bihar County, 14 baths offer healing treatments, health maintaining wellness services can be used in 21 baths. Commerce and catering are the most common services. In all the three counties of the region wellness service can be found in more spas than healing treatment. Medical examination is connected to healing treatments as a service, due so, most baths offering balneotherapy treatments supported by societal insurance. Beauty services (e.g. manicure, pedicure, solarium, fitness services) are the least common services of baths in the Northern Great Plain Region. During bath development they are focusing to target group demands, which indicates the need to explore demand trends and to survey guest satisfaction. Several settlements of the Region foreseen a great potential in tourism, but this needs complex, uniformed but unique supply (MEZŐ and KOVÁCS, 2013, MOSONYI et. al.2013, BÍRÓ and MÜLLER 2017).

The income of baths is given by three service sectors: income from bath services, income from accommodation services, income from healing and health maintaining services. The three sectors may differ seasonally, because those baths which are operated seasonally cannot calculate with income from bath services out of season, but healing services (if they offer) result greater income during off-season. In Hajdú-Bihar County the largest income comes from accommodation, then bathing services. In Szabolcs-Szatmár-Bereg County and Jász-Nagykun-Szolnok County bathing services give the largest rate of income and accommodation the second. Healing and health maintenance service result the smallest rate of income in every three county of the Region.

The number of visitors between 2010 and 2017 is demonstrated in the figure 2 in territorial breakdown:

Figure 2: Number of visitors between 2009 and 2017 (thousand capita)



Source: KSH; own edit

Each point of the diagram represents an observation unit, accordingly, represents the number of visitors annually. From the three considered county, Szabolcs-Szatmár-Bereg County produced the lowest number of visitors (1228 thousand capita in 2017). In Jász-Nagykun-Szolnok County the number of visitors was over 1500 already in 2010. As the figure shows, the number of guests in Szabolcs-Szatmár Bereg and Jász-Nagykun-Szolnok Counties was altogether less than in Hajdú-Bihar County, which resulted 3000 thousand capita in 2010, and more than 3500 thousand capita in 2017. There is a slight increase in the number of guests from 2010 in the Region, which is demonstrated with the fitted linear trend function as well. The R2 value shows a strong relationship between the examined indices, either in Jász-Nagykun-Szolnok or

Hajdú-Bihar County there is a strong coherence between the trend line and the point diagram, so the trend line can be used as a predictive function for the next period. Considering the equations of the linear trend lines we can conclude that the increase is the most dynamic in Hajdú-Bihar County (slope=83,81).

The Northern Great Plain Region and Hajdú-Bihar County have a great national importance considering the offered services of baths, especially healing and thermal baths. The capacity of the Region is 18% of the national level (152 476 capita).

In Hajdú-Bihar County in 2017 there were 31 operating baths. The mostly offered services are commerce and catering, and there are 14 baths where healing services are offered. Health maintenance wellness services can be found in 21 baths. The large number of baths for the relatively small geographical area of the Region indicates intensive competition for visitors. The selected spa - that offers general bath services, healing treatments, wellness services, accommodation, leisure and beauty services - must also do well in this competition.

The selected spa has 2 indoor and 7 outdoor pools. The total water surface of the pools is 2520 square metre. Among the outdoor pools there are a study pool, a study pool with slide, a dabbling pool, 2 thermal pools, a fun pool and a waveless sport pool. The healing section has been fully renovated in 2011. The full range of societal insurance supported services can be selected in the spa. The total capacity of the healing section is 34 capita. A medical doctor specialised in rheumatology expects patients from Monday to Thursday every week. The doctor gives medical examination without referral and treatments in place.

Considering wellness services there is a complex sauna park available with steam cabin, infra sauna, 2 Finnish sauna and cold/warm sinking pool. Chocolate massage, lava stone massage and sport massage are also available. Available kid friendly and leisure services are tennis, beach soccer and beach volleyball fields. Pedicure is offered as beauty service at the spa.

Program tourism is a deterministic part of the city's services. During main season the spa offers several programs to the visiting guests. In June, July and August there are full-day events with night bathing. The square in front of the building offers local, regional and national events for the tourists.

MATERIAL AND METHODS

The demand for health tourism increases dynamically and develops to several directions according to consumer habits. The demands of guests can be fulfilled if motivations of traveling, information collecting practices and bathing habits are known. To get a wider view of these issues a questionnaire survey was taken place in the selected spa in August, 2018. Sampling was a simple, random sampling, because every guest had the same chance to be involved in the probe. In total, 262 visitor were involved. The questionnaire contained 17 simple and multiple answer questions. For 4 question a 5 range scale was used according to importance (5-very important; 1-not important at all). The aim of the survey was to evaluate bathing habits and the relationship between age groups and motivation of bath selection. Accordingly, those results were highly considered, which showed the coherence between the motivation of visit, program and family- kid program selection depending on age.

The relationship between age groups and motivation was examined with variant analysis. If Levene's test showed significant result – which means variants in the groups were heterogeneous – the sample was tested towards with Welch's t-test (FALUS and OLLÉ, 2000). Differences among variants were tested with Tamhane's test during post hoc analysis, while those groups that did not give significant results were tested with LSD test (REICZIGEL et al., 2014). Significance level was set at $p < 0.05$.

RESULTS AND DISCUSSION

Demographic characteristics of the sample

Considering the socio-demographic characteristics of the questioned 262 guests, 85% of the respondents were female and only 15% were male. In our point of view, the rate of gender was affected by the differences in responding willingness between men and women but due to the inadequate ratio, we do not examine gender relations.

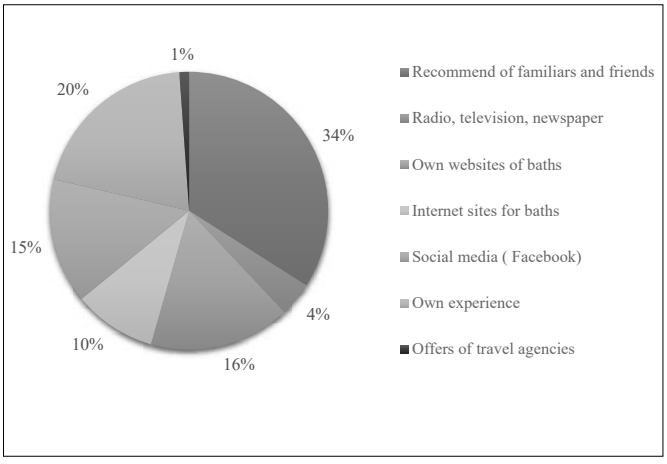
Taking highest graduation level into consideration we can say that 85% of the respondents have high school diploma or college/university diploma. 11% of the respondents finished a professional school and 3% has primary school degree. 54% of the respondents is a head-worker, 25% is physical worker and 21% is inactive. 50% of the resonders is between age 31-45, 25% is between age 46-65, 20% is between 18-30. The smallest rate was above 65 (3%) and under 18 (2%).

72% of the respondents – by its own admission – has average monthly income. Most of the respondents living in the same city where the spa is located and 29% lives closer than a 50 km radius. The closeness of the spa obviously affects their decision, but the large rate of local or regional respondents gives the conclusion that in spite of the main season the bath has a local/regional importance.

Communication channels used by the guests

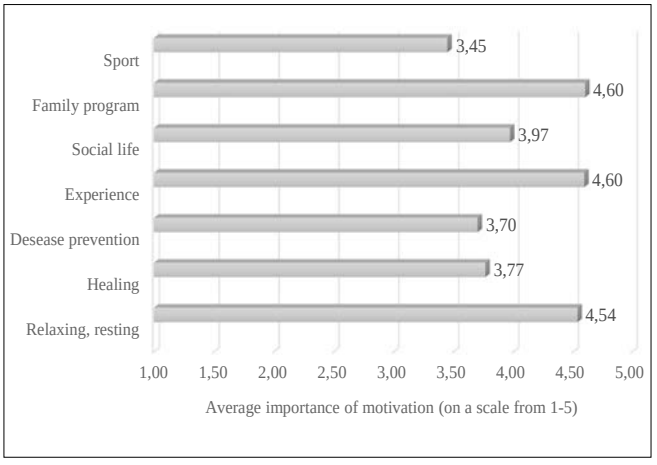
The information needs and information gaining behaviour of today's consumers have deterministically changed. During planning marketing tools and to select the effective communication tools it is important to know the preferred communication channels of the guests. 34% of the respondents selected the spa based on the suggestion of friends and acquaintance. This information channel is very important not just only because the guests who are satisfied and experienced come back again, but they share their experience with their friends and acquaintances and suggest the spa to visit (MÜLLER et. al. 2016). 20% of the guests decisions based on his own experience – this is the second largest rate among the respondents - , satisfaction is important in this case as well. 16% of the respondents gained information before their visit through the website of the spa, 15% from social media, 10% from pages dealing with spas.

Figure 3: Information sources about the spa (%) (N=262)



Source: own research, own edit

Figure 4: Visiting motivation of guests (average) (N=262)



Source: own research, own edit

This means that 41% of the total respondents searching information on the internet because it is cheap and fast. Accordingly, it is important that the social media page and the website of the bath have up-to-date information. Television, radio, magazines and printed media has a low rate – there is no need to invest large amount of money to these communication channels.

Duration and method of visit

Among the respondents the bathing services are obviously popular. 45% of the respondents handle visiting the bath as a full day program. 40% of the respondents spend 3-5 hours average at the spa. Only 14.4% of the respondents spend less than 3 hours at the service provider. The smallest rate covers those visitors who spend less than 2 hours at the bath.

93% of the respondents use the bathing services with company, meanwhile, 54% (largest rate) visits with family. 22% of the questioned guests arrives with consort or partner, 17% with friends or relatives. 7% of the sample is represented by guests who visit the bath alone. Due to a major part of the guests arrives with family, it is important to provide services for each age group. Services are liked to be used with company. The large rate of respondents visiting with family indicates that the spa is attractive for under 36 years age groups as well and it is possible to reach them effectively with adequate communication.

Analysis of visiting motivation and its coherences

Primarily, the respondents handle the visit as a family program but slightly the same motivations are gaining experience, the relaxing and resting too. Less deterministic motivation is selecting the spa as a place to spend free time based on connection to health, accordingly, either disease prevention or healing are less deterministic factors. The least motivating factor is sport (3.45%) among the respondents.

The primer goal of our research was to analyse visiting motivation, due so, to examine the coherence between motivation and age and gender. Our main aim was to recognize how age and gender affects the aim of spa visiting and find out if there is a relationship with the gender of the respondent. Accordingly, we used statistical calculations – as they are mentioned in the "Material and methods" section" – to analyse the sample.

Motivation and age

The demonstrated motivations on the figure above were examined related to under 18, between 18 and 30, between 31 and 45, between 46 and 65 and above 65 age groups. Significant difference, so coherence was found in case of healing, disease prevention, experience and social life motivations.

Healing and disease prevention were less motivating for age groups under 46 comparing with older visitors. This result, especially considering healing, is not surprising because the possibility of musculoskeletal disorders and arthritic disorders is higher at older age groups. By the spread of healthy lifestyle and the importance of disease prevention the conscious and preventive use of water recreation is expected in case of every age group. Although, until the appearance of disorders the preventive paradigm is not formed only in case of those age groups where these problems have greater possibility.

Gaining experience, as a bathing motivation showed significant difference in age groups between 18 and 45. This result further than the own experience of the young and middle age visitors probably cohere with the experience of children – in case of visitors who arrive with family. This difference was not as deterministic among respondents above 46.

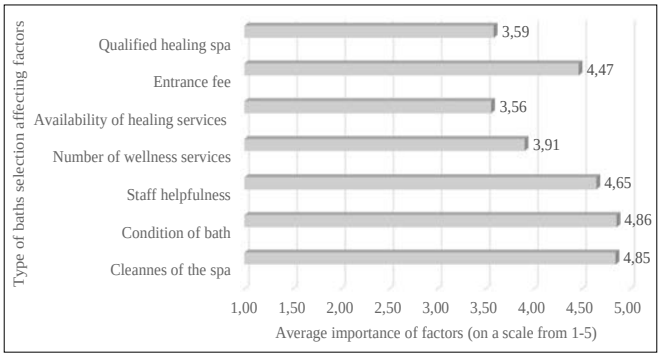
The analysis of the coherence between social life and age gave an unexpected result because this motivation was evaluated significantly higher by age groups above 45. Though, in case of older age groups it is more likely to visit the spa alone without company which indicates the need for social life as a deterministic motivation.

Analysis of bath selection affecting factors

In the questionnaire we measured on a scale that which are those characteristics of the spa that are the most important for the visitors during destination selection (figure 5). The respondents identified the condition and cleannes of the spa as the most deterministic indicators which was followed by the helpfulness of the staff. It is important to mention other indicators as well, such as entrance fee (4.46), which was also a crucial issue that should be considered during development and marketing plans. Similar results have been confirmed by other Hungarian bathing researches (MÜLLER AND SZABÓ 2009, KERÉNYI et. al. 2009, MÜLLER 2018). This indicator is highlighted because it gives us the focus on the price-sensitiveness of the consumers. Less important factors are the availability of healing services (3.56) and the qualified healing location (3.59). This result may refer to the age group constitution and as it was seen it is not prefered motivation factor.

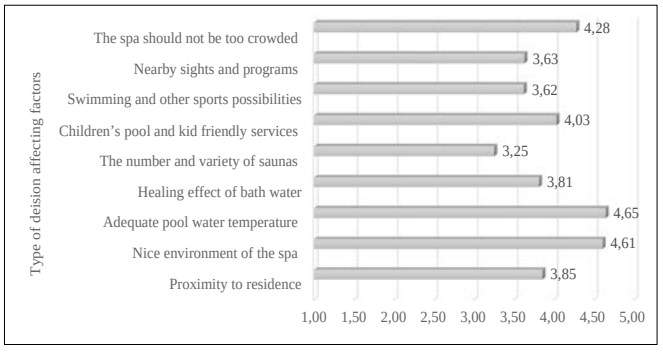
Figure 5: Bath selection affecting factors (average) (N=262)

Source: own research, own edit



It was examined what other parameters and with what weight influence spa selection. The two most important indicators for the respondents were the adequate pool water temperature (4.64) and the nice environment of the spa (4.6). Furtherly, it was also important that the spa should not be too crowded (4.27) and children's pool and kid friendly services should be available (4.03). Nearby sights and programs (3.63) and swimming and sport possibilities (3.62) are less important for the visitors. Less deterministic aspect from the given answers is the number and variety of saunas (3.25).

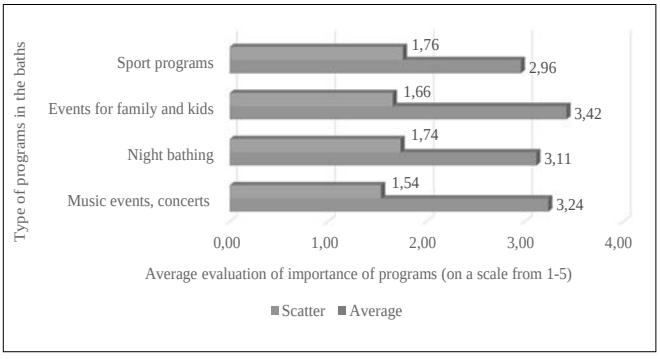
Figure 6: Attractiveness of provided services, judgement of other decision affecting factors (average) (N=262)



Source: own research, own edit

Considering the provided services we concluded that the most attractive from the actually operating 4 services is events for family and kids (3.88). Music events, concerts are moderately important in average, as the night bathing. The least attractive services are the sport programs. Meanwhile, family and kids events, music events and concerts and night bathing were not selected as "not important at all" by none of the respondents, nobody selected sport programs as the most attractive service.

Figure 7: Judgement of provided services (average and scatter) (N=262)



Source: own research, own edit

Though, the spa is planning to modify the range of offered programs, we were curious if the inquiry to night bathing and the age of respondents depend from each other or not. Based on the available data, by using variant analysis – Levene's test – we concluded that inquiry to night bathing depends on the age of respondents. 18-30 and 31-45 age groups resulted significant difference, so with Tamhane's post hoc analysis we arrived to the conclusion that night bathing is important for the mentioned two age groups, these age groups are obviously the target users of this service.

FURTHER RESULTS CONSIDERING OFFERED SERVICES

46% of the 262 respondent uses sauna from the provided services, 37% uses massage services and 26% uses healing treatments. Accommodation is used at least by the respondents (7.6%).

Based on the answers of the questioned guests, bathing services are used primarily, because less guests said yes to use other provided services during their residence.

As an open question we asked the respondents if there is a need for other service if the spa expand the provided services and involve new ones. From the listed 4 services (salt room, Jacuzzi, fitness room, Kneipp therapy) 55% of the respondents would prefer to use Jacuzzi. 51% would use a salt room, 33% would use Kneipp therapy and 21% would use a fitness room. Independently of the rates of answers, we can definitely say that there is a need for development and to broaden the provided services.

DISCUSSION

The main goal of our research was to recognize the visitors' customer behaviour at the selected spa. Areas where information was gained from, information sources and communication channels were investigated and we concluded that the suggestion and advice of family, friend or acquaintance is still the most deterministic. Significant part of the respondents gain information about spas through the web, keyword based searching is used the most, webpages and social media are considered as authentic sources. Regarding to the target groups of the spa, communication should be focused on these sources and channels.

Main part of the respondents arrives with company, mostly with children or friends during the main season and considers spa visiting as a full day program. Accordingly, it is important to service experience for all age groups and offer services to fulfil the demands of each generation – independently if the spa is qualified or not. Among the asked guests the most important indicators of the spa – the deterministic basis of spa selection – are quality, cleanliness and the entrance fee. Due so, the most emphasised factor is observing hygienic rules, which appeared as an unexpected result. Nice environment, pool types, water temperature and the experience of using pools are important as well, but during development and improvement it is worth to examine their benefits and return, because during price determination the price sensitivity of guests must be considered. According to an assessment the results are the same: guests of the medicinal lake and spa of Hévíz considered tangible components important, they were ranked at the bottom of the importance order. (LŐKE at all, 2018)

By a survey in Thailand are spa goer-consumers focus on factors that influence the choice of the service spa including courteous service, prise, close to the other shops, convenient location, parking and understanding customer needs, as well the property is clean and service is provided in a timely fashion. (KLAYSUNG, 2016)

Organized programs of the spa are average important for the respondents. From the actually serviced programs, family and children events were found as the most attractive ones. In the selected spa several night baths are organized annually, the main target age group of these events are between 18-30 and 31-45. According to the respondents, healthcare services of the spa are used the most, but new, other services are welcomed as well.

The deterministic target group of health tourism is guests with actual diseases and medical problems, though, wellness is attractive for followers of healthy lifestyle and susceptible guests to prevention (BIRO et. al. 2018). However, our results show that age groups under 45 are less health-conscious. Age group above 46 is motivated to prevention and cure, there was no significant difference in coherence with this motivation in case of other age groups. Under 45 gaining experience, relaxing, social life and leisure activities showed strong relationship. Due to the strengthen of wellness orientation during the last decade – which involves the listed motivations -, there is a need and worth to expand spa services to maintain market competence. Prevention, relaxation are directions of development in case of the examined spa as well aiming to meet with the demands and motivations of every generation. This attraction is boosted by organised programs too.

The main target group – elder age group – should be kept in mind, because these guests have an important role in the life of spas and baths. The role of senior visitors probably will increase in the following decades. Offering services for this target group may give a solution to the seasonal variety and inequality because musculoskeletal abnormalities cannot be adapted to any season, medication and cure in covered pools are offered during whole year. Based on our research, the secret of long-term success of the selected spa is forming a "relaxation and medication" destination, which is adapted to today's requirements, considers multi-generations, offers attractive services and fulfils health tourism needs and demands for leisure activities. The main benefit of this research for the management of the bath the knowledge of the critical points of decisions.

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SCIENTIFIC PAPER

CHANGES IN THE RELATIONSHIP BETWEEN ICT USE AND ECONOMIC DEVELOPMENT IN EU MEMBER STATES 2010-2016

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Abstract: *In this study, we examined some ICT indicators of the EU Member States between 2010 and 2016 based on data of the World Bank and Eurostat. We wanted to know, how can the EU Member States be grouped according to these indicators, and which group can Hungary belong to. With the help of international literature reviews, three indicators were chosen. According to these we created three groups (underdeveloped, developing, developed) with the K-Mean cluster method that is classified by their level of development. Interesting changes took place during the period under review. By the end of the analyzed period, six countries lost their "developed" rating among others some founding members. There were also interesting changes in the clusters. The value of some indicators increased more than 40% in some cases, surprisingly, only in one case measured reduction. The proportion of ICT specialists decreased in developing countries (by 1%). The highest growth rate was observed in the developed countries in e-commerce. Because of the high proportion of ICT professionals and the share of e-commerce in the developed cluster we assumed that service would be the dominant sector. The two-sample t-test did not confirm our hypothesis. We supposed the focus in developing countries will be on the industry, due we think the developed countries started to outsource their SSCs (shared service centers) to less developed countries. With the help of a statistical indicator, we confirmed our assumption, but the result not so convincing since the significant level is only 11%. Although we thought that the underdeveloped group of countries was based on agriculture, statistical studies did not support our hypothesis.*

Keywords: *ICT, EU, Services, Agriculture, Industry*
(JEL Classification: O13, O14, O52)

INTRODUCTION

The Internet transformed not only how people live, work, socialize and meet, but also modified how countries develop and grow (MCKINSEY, 2011). The Internet can be called the base of Information and Communication Technology (ICT), which is appeared in the early 2000s. ICT overturns the future of the world by reducing geographic boundaries and bringing culture and societies closer to each other (NASIR and KALIRAJAN 2016). It eliminates and sets limits between individuals and groups at the same time (PEPPER and GARRITY 2015) and thus creates new opportunities for cross-industry relationships (NAVEED et al. 2017). Digital developments such as cloud services, mobile services, and artificial intelligence from the last decade have further expanded its opportunities (WATANABE et al. 2018).

ICT affects economic growth, productivity, usefulness, and efficiency from many different points of view. The most obvious such effects are the number of people employed in the ICT sector and the level of spending on the ICT sector. (DOUCEK et al. 2014).

Naturally, it has a serious impact on gross domestic product (GDP), international cooperation in finance, trade, foreign direct investment (FDI) and Poverty reduction (BON et al. 2016).

According to "New Theory of Economic Growth" (RAHAMAN and CHAKRABORTY 2015), FDI can be a catalyst and growth engine for various economies. DUONG (2017) says, it makes possible to access the new technologies, increases the stock of human capital, and creates new job opportunities. In addition, FDI can affect the rate of growth and level of per capita.

ICT has realized the globalization and plays a significant role in the development of it. Thanks to market liberalization, competition is increased as well as the importance of cost. Furthermore, the economy scale became larger (ROHMAN, 2013). Multinational enterprises promotion the globalization worldwide and realize the increment of it.

Because of this wide-ranging impact of ICT, scientists have placed great emphasis on the limitations of GDP statistics, which should help us measure the growth of the digital economy (IMF, 2017).

The OECD also expressed concerns about the limitations of GDP statistics. According to AHMAD et al. (2016), the question is whether GDP and productivity can measure the changes in the digital economy.

LOWREY (2011) says the internet promotes the consumption of free culture, which brings utility and happiness. However, these goods we cannot measure with GDP. Such goods, such as happiness, are measured by the United Nations with indicators such as the Happy Planet Index (HPI).

The development of the Internet is continuing and moves our planet towards an IoT (Internet of Things)-based society (NAVEED et al. 2017). The importance of business models and digital business strategies are going to be even more important, because of these challenges and huge interest in the IoT (BHARADWAJ et al. 2013).

Objectives

The diffusion of ICT is used to express the radical and influential changes in different aspects of social and economic lives. The present study examines the impact of some ICT indicators on the level of development. The goals of the research are, to get to know:

- How can EU Member States be grouped according to ICT indicators?
- Do countries focus on different sectors depending on their level of digital development?

Theoretical background

information and Communication Technology refers to various sets of technology tools and resources that are capable of communicating, producing, distributing, storing and managing information (WONSEOK et al. 2018). The ICT collection category includes, but is not limited to, telecommunications used by technology, media, intelligent management systems, transmission systems and network-based control and monitoring functions. It is developed due the information technology and the Internet. It began to spread widely in the 1990s (NEMESLAKI, 2012).

The European Information Technology Observatory (EITO, 2013) divides the ICT market into three parts: Telecommunications (end-user telecommunication equipment, supplier services, network equipment), consumer electronics (digital cameras, televisions, navigation systems and other devices) and information technology (IT hardware and software services).

The development of ICT seems to be necessary for economic growth and the development of countries for numerous reasons. For example with the help of new technologies increase the speed of data transmission, so we can more information share in the same amount of time. There are no more borders between the buyers and the sellers, that is why the people have bigger access to the international supply of goods (SEPEHRDOUST, 2018).

Many authors have analyzed the impact of ICT on economic growth in recent decades. There is evidence of the positive impact of ICT on growth in the economy since the mid-1990s (FARHADI et al. 2012). OLINER and SICHEL (2000) use ICT capital components such as computer hardware, software and telecommunications equipment as well as capital and labor as inputs and empirically prove that the contribution of ICT to economic growth was very high in the 1990s end. According to POHJOLA (2002), the most important factors in US economic growth in the 1990s were the quality of production and ICT use.

Researchers agree that ICT has a major impact on production and business processes and thus it is a major driver of economic growth. The position of researchers is not as uniform as to the form of the effect. We can distinguish two main lines of this question. The first approach argues that, since ICT represents a special type of capital good when

companies and governments increase investments in ICT, this will raise labour and total factor productivity. These investments complement or replace investments in other capital assets and increase the production capacity of ICT-using sectors and industries. The other approach is that economic growth is driven by the emergence of new sectors incorporating new technologies, such as the ICT production sector itself. According to this approach, growth has two sources:

- New sectors exhibit higher growth rates of value-added, productivity and incomes. Because of this, it will function as a source of growth for the whole economy.
- New sectors change other sectors of the economy by changing relative prices and raises productivity. These provide a new set of inputs, which cause the introduction of new or improved products or new production methods (KARLSSON et al. 2010).

According to Jorgensen (JORGENSEN et al. 2002), there is a third potential indirect growth impact. It is called spillover effects. An increase in total factor productivity can be realized, when the spillover effects of technological advances from industries producing ICT to industries using ICT takes place.

There are studies, which indicate that the productivity effect of ICT is not only significant and positive but increasing in the private and public sector too (TARUTEA and GATAUTIS 2014).

CONSOLI (2012) grouped the impact of ICT on companies according to scientific literature. He categorized its main effects into 4 groups (Table 1).

Table 1: Impact of ICT in the private sector

Expansion	Growth	New products	Performance
Organization expansion Improvement of supply chain International communication	Productivity growth Strategic growth Sales increase	New products/ services Product quality Customer satisfaction	Efficiency, effectiveness, and competitiveness Innovative business Intangible benefits

Source: According to CONSOLI (2012), own edition

According to LEE et al. (2005), the impact of ICT on economic growth is significant in many advanced and newly industrialized economies, but this effect is not present in developing countries.

In contrast, ANTONELLI (1991) believes that developing countries can realize more benefits from ICT than developed countries. SEO AND LEE (2006) say the switch from dominant technology to the new ICT-based paradigm attends significant costs for developed countries, while this cost is relatively lower in developing countries.

In general, the empirical evidence of the impact of ICT on economic growth can be divided into two groups based on the methodology. The first method of proof is the use of growth accounting techniques. This weighs on the growth of inputs by the share of production value and expresses the contribution of ICT to economic growth in percentage points. The second method is to use cross-regression techniques to examine the impact of ICT on economic growth (FARHADI et al. 2012).

MATERIALS AND METHODS

For us to analyze the context of information and communication technologies in macroeconomics, we need a comprehensive dataset consisting of variables measuring ICT indicators and macroeconomic indicators of several countries globally. National statistical offices often estimate domestic values in their own national currencies. That is why they are not directly international comparable. The data we used was compiled after reviewing the databases of several international organizations. The main sources of our database were the European Statistical Office (Eurostat) and the World Bank. Due to the limited accessibility of ICTs data for developing countries, we analyzed only 28 members of the European Union. The period under review is from 2010 to 2016 because only during this time were all the indicators available (and all the data complete) for the EU Member States. The variables which were used in our research are shown in Table 2.

Table 2: Descriptive of variables used in models

Variable	Description	Measurement	Data Source
ict spec	Employed ICT specialists (% of total employment)	The Eurostat is responsible for collecting data and calculating the rates. (National Statistical Offices measure it.)	Eurostat
onl sell	Enterprises selling online (at least 1% of turnover)(% of enterprises)		
turno e-com	Enterprises total turnover from e-commerce (%of turnover)		
agr	Agriculture, value added (% of GDP)	Weighted average	World Bank
man	Manufacture, value added (% of GDP)		
ser	Services, value added (% of GDP)		

Source: Eurostat and World Bank, own edition

Other indicators such as Big Data, Cloud Computing, ICT security would have been useful, but there was not enough available data for all Member States during the period under review.

SPSS software was used for the examination. We classified the countries of the European Union with

the K-Mean method according to the indicators of the literature review. The classification of similar things is called clustering, where the items which are alike placed into groups. The aim of this is to classify the observed units into relatively homogeneous groups, which are based on certain aspects. Among the hierarchical clustering methods, Ward and the average chain method are popular, but they increasingly become "supplementary" to non-hierarchical methods. The ideal solution is to run a hierarchical method first, to find out how much the ideal number of clusters would be, then we should run the non-hierarchical method where we set that value to the number of groups. In our case, the singular use of the K-Mean method was sufficient, because the aim was to define a predetermined number of groups (underdeveloped, developing and developed) (SAJTOS and MITEV, 2007). The K-Means clustering algorithm uses k as a parameter, divide n objects into k clusters. The objects from the same cluster are similar to each other however differing from the other objects which belong to the other groups. The algorithm tries to find the centers of the group, (C1, C2, C3,..... Ck), such that the sum of the squared distances of each data point, xi, $1 \leq i \leq n$, to its nearest cluster center Cj, $1 \leq j \leq k$, is minimized (ARPIT et al., 2017).

Two-sample t-test was used to examine whether the mean values of the two random samples differ significantly from each other. There are two prerequisites for applying this test, these are focused on the normal distribution and the standard deviation. If the Levene test is greater than 0.05, then the standard deviation is the same and the two-sample t-test can be used, otherwise, we have to run the Weich d-test (HOWELL, 2013).

RESULTS AND DISCUSSION

In this research, ICT is in focus, so for group creation, we studied international researches to get to know which indicators are strongly connected with developing. According to these papers (Table 3), we defined variables for SPSS such as ICT specialists. online sell and e-commerce.

Table 3: Examined variables from the literature review

ICT specialists	SCHIVARDI and SCHMITZ 2018, KAUR et al. 2017, LAU et al. 2016,
Online sell	ZMUK 2015, ARIFF et al. 2013, ARLI et al. 2018,
E-commerce	MAYANK and ZILLUR 2017, RAHAYU and DAY 2016, CARMEN et al. 2016,

Source: own edition

We examined, how did the countries change (if they changed) their place according to the above-mentioned variables the period under review. Using the K-Mean cluster method, three clusters were generated by SPSS in the year 2010. The final cluster centers are shown in Table 4.

Table 4: Underdeveloped, developing and developed clusters were generated by the K-Mean cluster method in the year of 2010.

	Underdeveloped	Developing	Developed
ict_spec	1,82	3,73	3,09
online_sell	5,83	11,44	22,30
e_commerce	4,50	13,22	16,30

Source: Based on SPSS data, own edition

As can be seen in the table above, the values of the undeveloped group for all three variables are lower than the values for the other two clusters. The biggest difference was measured in the field of e-commerce. Surprisingly, the proportion of ICT professionals in the group of developing countries is higher than the same value in the developed countries, and the value of e-commerce is only 3% behind the same area in the developed group. In this case, the disadvantage of online sell is the biggest compared to the developed group.

Table 5. shows the classification of countries according to the examined indicators.

Table 5: The EU members are listed in clusters by SPSS in the year of 2010. (F: founder. Missing: Greece. Luxembourg^{F}, Malta)

Underdeveloped	Developing	Developed
Bulgaria	Austria	Belgium^{F}
Cyprus	Estonia	Croatia
ItalyF	Finland	Czech Republic
Latvia	France^{F}	Denmark
Poland	Hungary	Germany^{F}
Romania	Slovakia	Ireland
	Slovenia	Lithuania
	Spain	Netherlands^{F}
	United Kingdom	Portugal
		Sweden

Source: Based on SPSS data, own edition

It is very surprising that Italy, as one of the founders of the EU, has been among the underdeveloped countries. Nor can it be expected that the other founder member France, was only in the developing group.

We repeated the same methods for data of 2016 to see, how the values and the members changed. The final cluster centers are seen in Table 6.

Table 6: Underdeveloped, developing and developed clusters were generated by the K-Mean cluster method in the year 2016.

	Underdeveloped	Developing	Developed
ict_spec	2,18	3,66	4,50
online_sell	8,50	16,80	27,20
e_commerce	6,17	15,00	27,80

Source: Based on SPSS data, own edition

We can see, the values underlying the clusters have changed significantly compared to the data of 2010.

The proportion of online sales companies almost doubled (45%) in underdeveloped countries during the period under review and companies' revenue from e-commerce also increased by 37%. In the developing countries, the proportion of ICT professionals decreased slightly (1%), while the share of online sales companies become nearly two times bigger (47%). In developed countries, the share of ICT specialists increased greatly (46%), while the revenue from e-commerce increased significantly (70%).

Not only the values of clusters have changed, but also the elements of the groups. This is seen in Table 7.

Table 7: The EU members are listed in clusters by SPSS in the year of 2016. (F: founder, ↓: setback, Missing: Finland, Luxembourg[F])

Underdeveloped	Developing	Developed
Bulgaria	Austria	Belgium[F]
Cyprus	Croatia↓	Czech Republic
Greece	Estonia	Denmark
Italy[F]	France[F]	Ireland
Latvia	Germany[F]↓	Sweden
Romania	Hungary	
	Lithuania	
	Malta	
	Netherlands[F]↓	
	Poland↓	
	Portuga↓	
	Slovakia	
	Slovenia	
	Spain	
	United Kingdom	

Source: Based on SPSS data, own edition

While in 2010 the differences between group numbers were not so great, by 2016 the size of the developing group had grown significantly due to the decline in the members of the former developed group.

The impact of development on the sectors

Due to the high proportion of ICT professionals and the share of e-commerce, we assumed that service would be the dominant sector in developed countries. The decline in ICT practitioners in developing countries is likely to be related to the outsourcing of SSCs (shared service centers) to countries with lower costs (less developed). Based on this, we supposed the focus in developing countries will be on the industry. Although outsourcing of SSCs has probably already begun in the underdeveloped countries, it is nonetheless a long-term process which, in our opinion, should not call into question the dominance of agriculture (in the short term). It is also important to note that there are a number of knowledge-intensive areas other than SSCs, which are specific to developed countries. To test these hypotheses, two-sample t-tests were used. This is illustrated in Table 8.

Table 8: The examination of dominant sectors with a two-sample t-test (Only these countries were included in the analysis, which belongs to the same group in both years. t value: 1,65)

	Sectors	Empirical t value
Developed	service	-0,671
	agriculture	no significant value
	industry	no significant value
Developing	service	-3,01
	agriculture	1,608
	industry	2,582
Undeveloped	service	no significant value
	agriculture	no significant value
	industry	-1,066

Source: Based on SPSS data, own edition

For the first hypothesis which focused on developed countries, the calculated t value for the service sector was lower than the critical t value which means the difference in means is only chance, so we cannot say services are more dominant than the others. However according to Szirmai in developed countries services account for 70% of GDP (SZIRMAI, 2012). In the other two sectors, we did not get significant values.

In the second assumption which concentrated on the developing cluster, the critical t value is lower in the case of the industry than the empirical t values, so in developing countries, unlike in other countries, the added value of this sector is higher, than in the other sectors. It is important to note that the two-sample t-test result is significant but its value is only 11%. SZIRMAI (2012) says it is undeniable that industry is an important driver

of growth in most developing countries, however, we can not call it the engine of development, as data on capital intensity and labor productivity do not support it. In the other two cases, we measured that the empirical t values are lower than the critical t value, so these means the differences in means are only chance.

In the case of the last hypothesis for the underdeveloped group, we did not measure any significant value for agriculture, so we can say nothing about this sector. TIMMER (2009) says, as per capita income increases in a country, the share of agriculture in GDP decreases. It also proves that agriculture should be dominant in underdeveloped countries. There is no country in Europe which would be a member of the Least Developed Countries, in spite of this agriculture is marked as the backbone of the economy in most African countries. According to the United Nations, this sector belongs to 30-60% of the GDP in these states (UNITED NATIONS, 2007). In the case of services, we did not get any significant value, however, in the case of the industry, we measured a low empirical t value, which is lower than the critical t value. It means this sector is not more dominant than the sectors of the other clusters.

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