DELIVERABLE D.T1.2.11

Territorial needs assessment for Győr-Moson-Sopron county and CBC with Burgenland

Version 1.0
102017

1. Overview of the selected region

Delimitation and basic geographical description of the pilot area

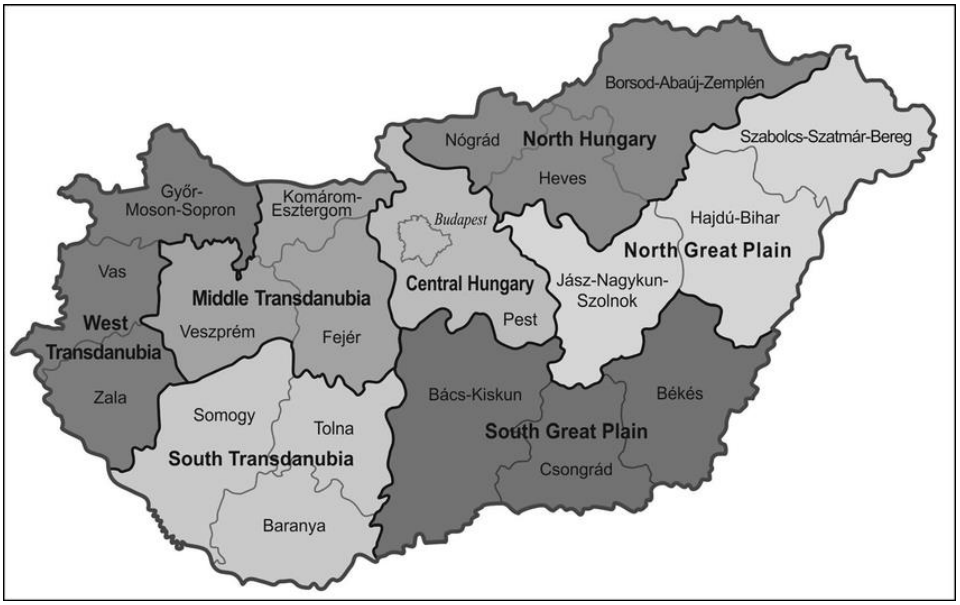
- **Delimitation of the area NUTS3 or NUTS2 and local administrative units in accordance with pilot actions.**

Within the pilot action no. 8 (D.T2.2.10) – the introduction of the multi-lingual and multimodal passenger information system – GYSEV Zrt, the passenger railway operator in the Western-Transdanubia region, will upgrade its current passenger information system in order to provide static and dynamic information in three different languages: Hungarian, German and English. According to the project description of the Connect2CE the NUTS 2 location is Western Transdanubia; the NUTS3 location of the pilot action is Győr-Moson-Sopron county – GYSEV is a Sopron headquartered company – but the services of the action will be available in Western Hungary, thus in Vas county, and Burgenland regions affected by GYSEV lines, on rail vehicles and at stations operated by GYSEV.

Geography

Seven Hungarian planning and statistical regions were worked out in 1999 and 2003 which mean the second level (NUTS 2) of the NUTS. The NUTS 1 region of Transdanubia consists of three NUTS 2 regions include: Central-, South-, and Western Transdanubia. The Western Transdanubia region is formed by three NUTS3 regions: Győr-Moson-Sopron, Vas and Zala counties, and borders four countries: Slovakia, Austria, Slovenia, and Croatia.

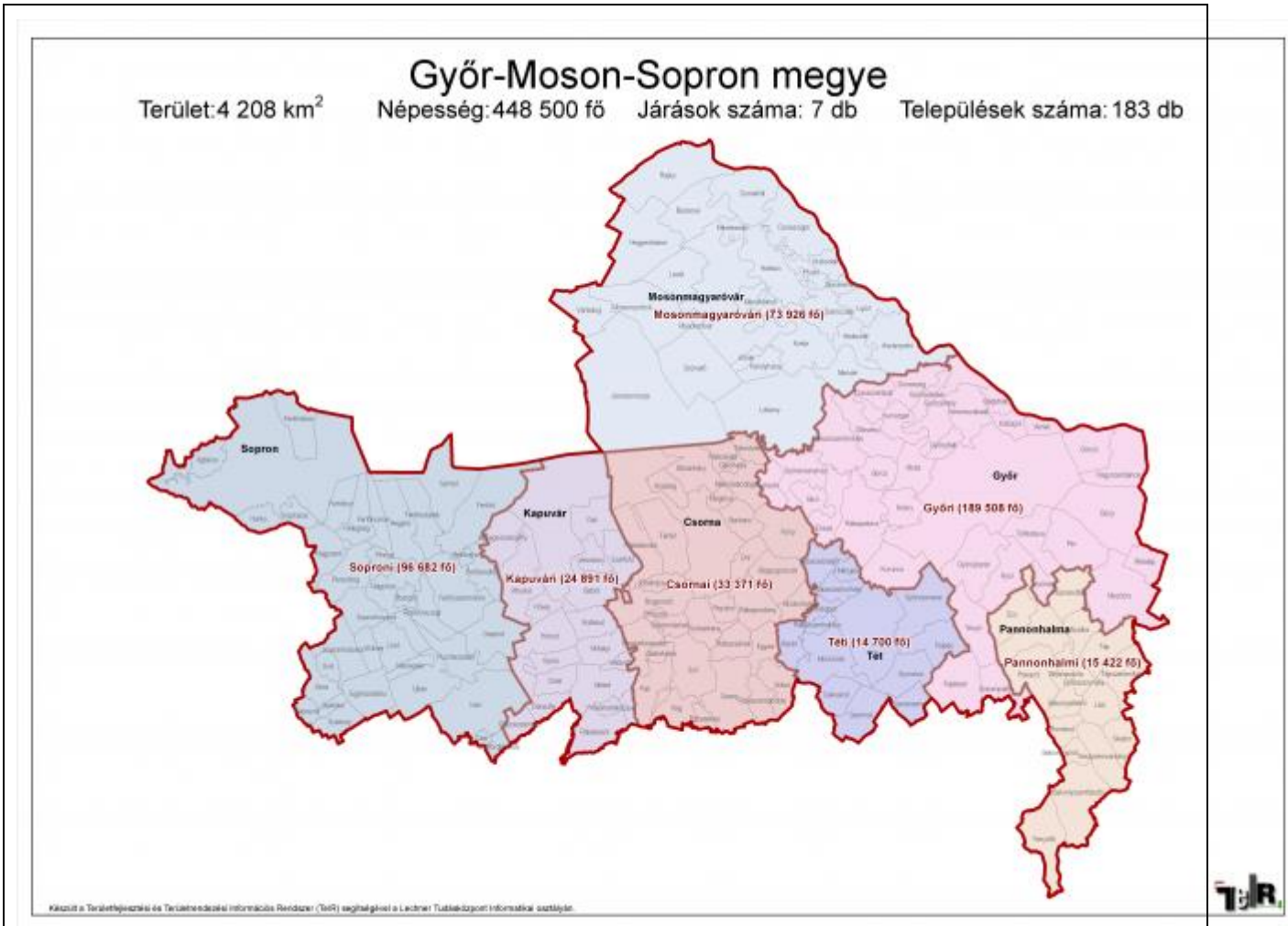
Figure 1. The NUTS2 and NUTS3 Regions of Hungary



Source: Krisztina Varró & László Faragó: The Politics of Spatial Policy and Governance in Post-1990 Hungary: The Interplay Between European and National Discourses of Space (European Planning Studies, Vol. 24, No. 1,, p. 46; 29 Jul 2015)

The Western Transdanubia regions covering a total 11.328 km^2 (of which 4.208 km2 of Győr-Moson-Sopron; 3,336 km^2 of Vas), the region represents the 12,2% (GYMS: 4,5%; Vas: 3,6%) of Hungary's land area, making the third smallest NUTS 2 region of the country. The Western Transdanubian region consists of 657 municipalities in 20 administrative (LAU1) districts (járás), of which only 35 (in 2014) are towns or cities.

Figure 2. Administrative Map of GYMS County with LAU1 districts (járás), number of population & settlements



Source: TeIR

Description of main geographical features with focus to project activities:

Győr-Moson-Sopron county (hereinafter GYMS) is located in the most north-western part of Hungary and is predominantly flat with the main hilly area around Sopron in the western part and around Pannonhalma (Sokoró hills) in the south east corner of GYMS. Győr is also called the city of waters as five rivers enter there into the Danube.

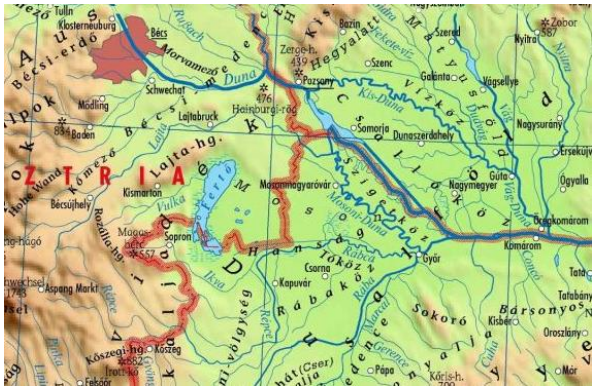


Figure 3. Natural geographic map of GYMS Source: KSH, Cartographia

Allocation of main urbanised settlements and industrial areas (main commuting origin/destination points),

Economy

In 2012 Western Transdanubia contributed 10,1% to the Gross Domestic Product of Hungary, which was the second highest share after Central Hungary (including Budapest) with 48,3%. The GDP per capita (on PPS) exceeded 21.510 Euros in Western Transdanubia region in 2015 which was 109% of the countries average. GYMS had a better economic performance in that year with 26.088 Euros which was 121 % of the country average. In the past 15 years the GDP per capita ratio of GYMS has always exceeded the countries average. It can be noted that the economy and financial crisis of 2008 seriously hit the economy of the county and the WT region too.

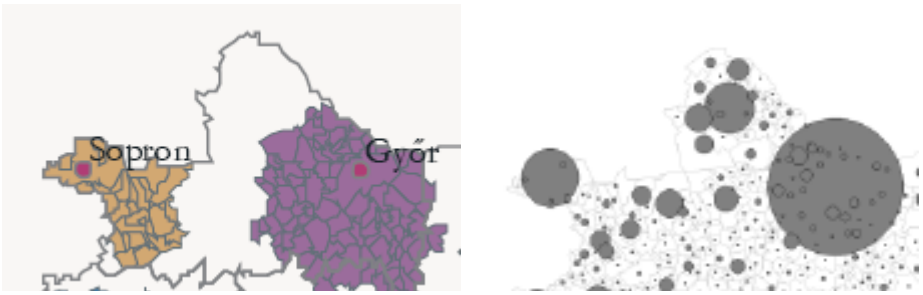
The regional economy of GYMS based strongly on the secondary (43,7% of the workforce with manufacturing) and tertiary (53,5 % with commerce and transport & storage, medical tourism) sectors. Due to Audi and other larger companies 88,6 % of the industrial sales is for export. The primary sector (agriculture, forestry and fishing) takes 2,8 % share. The economy of GYMS have taken advantages of the favourable geographical location, the developed infrastructure, the skilled labour force, the industrial parks and the dual structure of the economy: next to the TNCs (invested mainly in machinery, textile, wine, food, chemical and wood industries) the 20253 SMEs play an important role in the county's vital and competitive export-import intensive economy. As of 1st half of 2017 the unemployment rate is the lowest in Hungary in GYMS county with only 1,6 % and the same time a growing number of companies faces with the shortage of workforce due to the attractive Austrian income levels.

Destination points

According to the 2011 Census carried out by the HCSO in Hungary 1,34 million employees commute daily: of which 16% commutes to Budapest; 25% share works in the 23 towns with county rights (mainly seat of the county), and the 60% remaining part professional travels to 44 towns with more than 2.000 daily incoming workers.

In GYMS county there are four commuting centres – absorb basically domestic commuters only: Győr (with some commuters from Southern Slovakia), Sopron, Mosonmagyaróvár, and Kapuvár, Csorna hosting industries like manufacturing, wholesale and retail trade and transportation and storage. Győr plays a very important role in the employment of its commuting-intensive agglomeration, nearly 50% of the employees work in the seat of GYMS. The average distance between Győr and the settlements in its agglomeration zone is 19,6 km, nearly the average centre-agglomeration settlement distance of the country. Sopron's average commuting distance is 17,2 km a bit under the Hungarian average.

Figure 4. The Agglomeration Zone of Győr and Urbanised settlement group around Sopron the Commuting Centres of GYMS County (left) Commuting centres on the basis of number of commuters of GYMS (Right)



Source: Hungarian Central Statistical Office 2016. Hardi, 2015 p.126.

The HCSO survey noted that 2% of the daily Hungarian commuters (approx. 27.000 employees) work abroad, most of them (22.000 workers) in Austria.

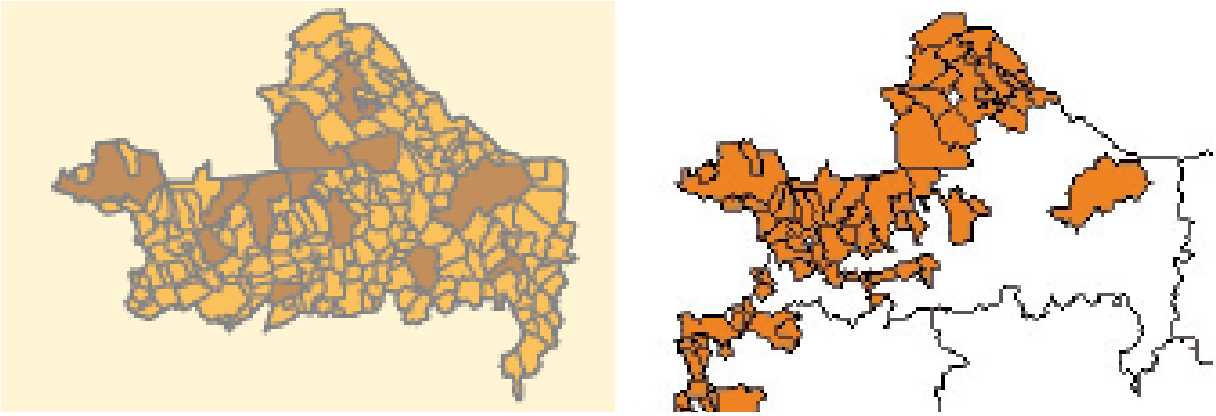
Settlement structure – commuting origin

The NUTS3 GYMS is divided to 7 LAU1 distircts. In total there are 183 independent settlements in GYMS of which 12 has county rights. The area of the county extends to 4208 km^2. The centre of the GYMS is Győr with over 131.000 inhabitants.

The major towns in GYMS are Sopron, Mosonmagyaróvár, Csorna, Kapuvár, Fertőszentmiklós. Only first four towns have the population more than 10.000 inhabitants.

GYMS county has a small-villages-dominated settlement structure:

Figure 5. Cities (brown) and villages (yellow) of GYMS County (left) and settlements with 10%< cross-border commuters (right)



Source: Hungarian Central Statistical Office 2014 & 2015.

The smaller settlements of the western part of GYMS are better situated than the villages of the east and the south. The people of these villages having unfavourable age-structure, income, and labour-market circumstances where the last factor forces the 67 % of the inhabitants to professional commute.

Description of main touristic points and other relevant points of interest.

According to the data of the 'Tourism in Hungary 2016' study approx. 10,4% of the total arrivals and 10,9% of the total guest nights were realized and spent in the Western Transdanubian tourist region – that means 1,15 million arrivals and more than 3 million guest nights regionally. The 3 million nights split nearly equally between the domestic and the international tourism segments.

Considering to the particular geographical and geothermal conditions of GYMS county the main tourism segments are: medical tourism (Sopron, Győr, Kapuvár, Balfürdő) spa (hot springs) and dentist, hiking tourism (Sopron Hills) and fishing and kayaking tourism along river Rába and Mosoni-Danube branch. Cultural tourism is important particularly in Sopron which is 10th most popular touristic destination for domestic guests in Hungary with 273 thousands guest nights in 2016. Sopron is also an important destination for wine tourism with its well-known wine region. At the end of June Sopron hosts also the second biggest music festival called "Volt" in Hungary with ca. 160 thousands of mostly young visitors. The nearby lake Fertő which shared with Austria is popular for bird watching and fishing as well. In 2014 1.13 million guest nights at the commercial units were registered in GYMS county with 43,9 % international segment share. The main origins of the county tourisms are: the Slovakia, Austria and Germany with many one night transit visitors along M1 motorway who commute long-distance from South East Europe to Western Europe.

Recent population and demographic trends

Describe recent population trends in the pilot area with the focus on:

- Population density and population trends (decrease or increase),

With 983.251 inhabitants, the Western Transdanubian region is the second less populous region of Hungary. Its population – after a short growing period (till 2006) and a permanent decreasing trend – actually has been stagnating since 2000 – when it was 984.151. The dynamics of the decreasing is slower than the country average, so the share of the region's population has grown to 10,4% from 9,8% of 2000.

Vas county has an unfavourable situation: the number of the inhabitants has been decreasing continuously since 2000 (266.411 capita) by approx. 5% reaching 253.109 capita in 2017. The measure of the decreasing has followed the country average: the 2,7% share of 2000 shrunk to 2,6% of 2016.

The next figure shows the population trends for GYMS between 2005 and 2015. The overall tendency is positive only a small drop can be observed in 2012 when the second round of the crisis hit hard GYMS's industry.

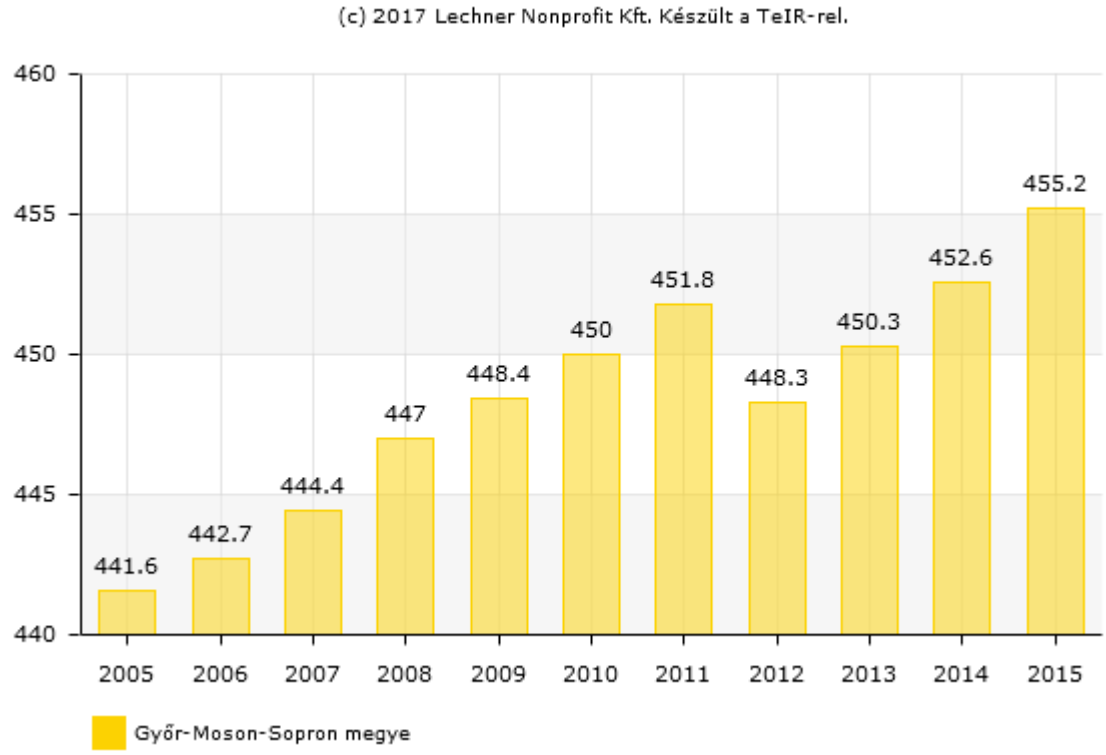


Figure 6. Population (in thousands of persons) of GYMS –county between 2005 and 2015 Source: TeIR

The long-term positive population trend is strongly related to the positive migration balance as the fertility rate is not higher significantly than the national average (1,45). Mostly domestic migration affects GYMS county.

The settlement structure is more rural than the national average as only 6,6 % of the settlements has city right compared the 11 % national average. In total 32 % of settlements have less than 500 inhabitants which are slightly less than the national average (36 %). On the other hand the share of settlements

between 500 and 999 inhabitants is slightly higher (by 3 % to 23 %) as well as the next group between 1000 and 1900 inhabitants (by 5 % to 25 %). This means that there is a stronger network of middle sized villages which are widespread along GYMS.

The population density of GYMS county is around the average with 109 inhabitants per km^2 compared to both the country average (105 inhabitants per km^2) and Western Transdanubia (88 inhabitants per km^2). Nevertheless apart from Győr and Sopron's catchment area several rural areas exists with lower population density.

Transport network and accessibility conditions

Please shortly describe main (if possible include maps) of road and railway transport network in the pilot region with focus on:

- Interurban and regional transport road and railway transport network with possible connections to transnational networks;

  Győr-Moson-Sopron (hereinafter GYMS) County (NUTS3) transport network can be characterised with a cross-roads of the two main traffic direction (East-West) and North-South (also known as Amber road or Baltic-Adriatic Corridor) or SETA (South-East-Transport-Axis).

Figure 7. Seta Corridor Source: Grenzbahn project http://www.b-mobil.info/hu/projektek/projekte-grenzbahn

GYMS county is crossed by M1 motorway which an important TEN-T core network corridor linking South-East Europe with Western Europe and it is the main axis between Budapest and Vienna too. From centre of county, Győr which is the 6th largest city in Hungary with ca. 132.000 inhabitants the main road no. 85 leads westwards the city of Sopron the centre of the Western part of GYMS. The old main road is already replaced by motorway M85 between Győr and Sopron and it is expected to reach Sopron by 2022.

Since 2016 the road networks counts with a motorway section on M86 (North-Southwest) which allows the centre of Vas county (Szombathely) to be linked to the international motorway network via Csorna where it connects to motorway M85 which links to M1 at Győr centre of GYMS County.

The other main traffic corridor is the main road no. 84 which from Sopron and Austria crosses the westernmost part of GYMS and Vas county's Central Eastern part with lake Balaton area.

GYMS County's railway network has been upgraded significantly with nearly all important lines are electrified now since GYSEV is operating most of them. The TEN-T main line from Győr to Hegyeshalom which leads towards Vienna is operated by MÁV-START together with 3 more regional lines of which line no. 10 leads to Celldömölk in Vas County via Pápa. All lines operated by GYSEV are electrified single track lines with plans to upgrade and double track the traditional east-west main line no 8. between Győr and Sopron parallel to motorway M85. The main line 16. is part of the Baltic-Adriatic corridor as a part of the new "Amber" Rail Freight Corridor (RFC) no. 11. Its Northern section finishes in Slovakia at Rajka-Rusovce (Slovak capital Bratislava's catchment area) border-crossing where passenger services will be restarted by GYSEV in December 2017 following an 8 years absence of passenger trains at the border point. Line no. 16. is also the main routes for intercity trains between Budapest/Győr and Szombathely via Csorna. Since 2001 the corridor between Sopron-Szombathely-Szentgotthárd has been upgraded and plays an important role in regional traffic with occasional long-distance services from Vienna and Czech Republic towards Croatia/Slovenia.

Previous surveys from EMAH and Grenzbahn projects showed that passenger demand in cross-border traffic is the biggest from Wiener Neustadt to Sopron It is important to note that part of this traffic as well traffic from Ebenfurth to Sopron goes back to Austria at Deutschkreutz. Then Hegyeshalom border crossing is the most significant with daily commuters to Northern Burgenland and Vienna. The electrified branch line border crossing to Austria at Fertőszentmiklós-Pamhagen has only limited service thus limited traffic compared the others.

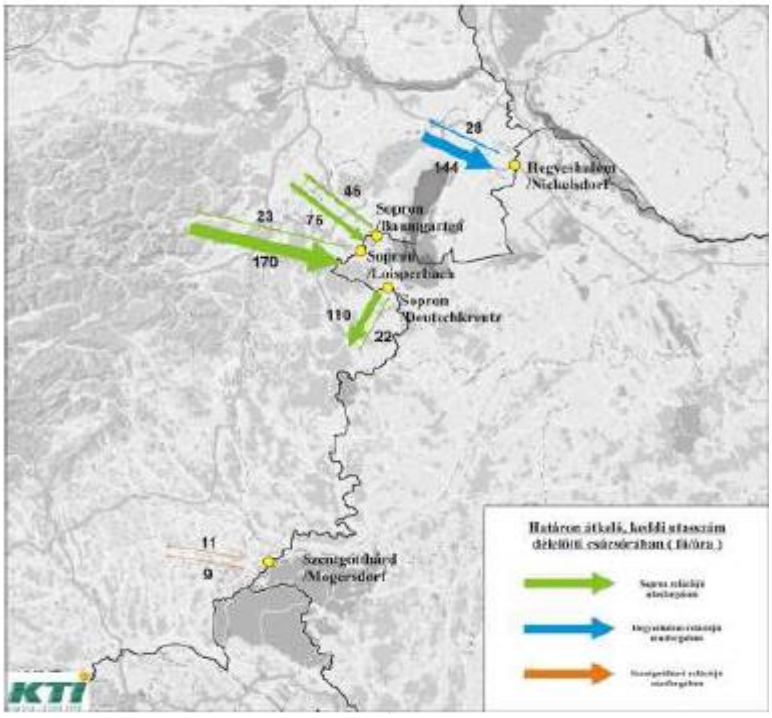


Figure 8. Hourly rail cross-border passenger traffic per directions in Western Hungary on a school holiday Tuesday afternoon in 2013 Source: EMAH project

As of 2016 the total length of railway lines in GYMS County is 367 kms.

Logistic activities are concentrated around Győr and Sopron which are the most significant transport hubs of GYMS County. Concerning airport there is a developing airport near Győr (Pér) which is used only for business purposes with middle-sized aircrafts. A smaller mostly leisure airport operates near Fertőszentmiklós too. The joint development is planned for a long-time with the nearby industry park but no action has been taken so far. The nearest larger airports in the region are located in Austria (Vienna) and Slovakia (Bratislava).

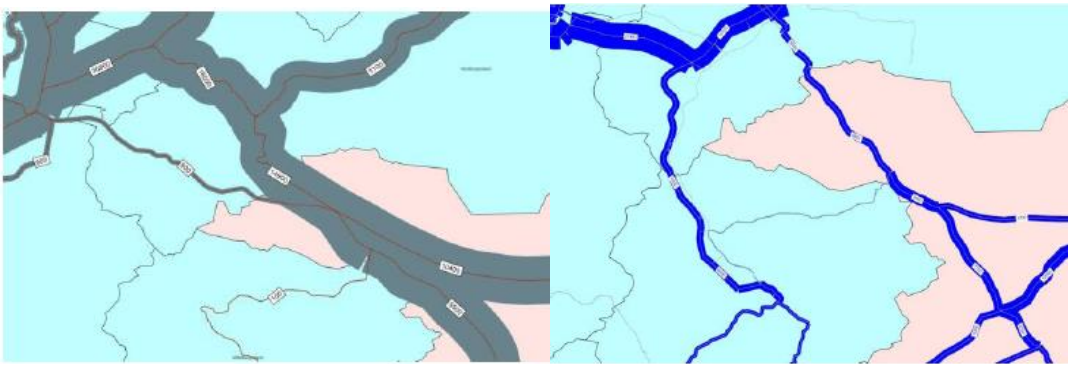


Figure 9. Rail freight flows around Sopron in 2015 Figure: Road freight flows around Sopron in 2015 Sources: Grenzbahn

Figure 10. GYSEV Railway network in Western Hungary

- Main passenger intermodal points and cross border sections

The average level of motorisation is higher and sharply increasing in GYMS County (379 per 1000 inhabitants in 2016) then Hungary's average value 325 per 1000 inhabitants in 2016.

The average speed for buses is around 40 km/hours due to the small settlement structure. For railways 60-70 km/hour is the average speed for regional services while 80-90 km/hour for fast/Inter City train services. Top speed on some sections of the railway lines is 120 km/hours (160 km/h towards Hegyeshalom on TEN-T line) but usually 80-100 km/hours is allowed on most sections but this is still better than the full Hungarian average rail speed which includes many secondary lines in bad condition.

The current modal split in domestic transport is the following 27% Bus, 11% Rail, 56% Car, 5% Bicycle. However in cross-border transport from GYMS county bus has under 3,1 % share and rail is also around 3 %.

There is one smaller traffic border crossing for rail at Fertőszentmiklós-Pamhagen which is served by 14 pairs of trains on a workday as of 2017. From Hegyeshalom there are 11 pairs of commuter trains and 11 pairs of long-distance trains towards Vienna and Burck an der Leitha. The rest of the cross-border trips are realised by car and 1-2 % by bike.

The share of cross-border commuters (from all commuters) in GYMS County was around 14,78 % in 2011 being the highest value nationwide significantly higher to the 2,1 % value of Hungary. Roughly 80 % of them is commuting up to one hour in cross-border commuting. In average 71 % commutes maximum 1 hour in Hungary while the average commuting time was around 28 minutes in 2011. In GYMS County 41,8 % of the local residents is commuting which is slightly more than the 34 % of Hungary's average value.

The main bottlenecks are the not good enough connected bus and rail services in most cases and the needed for demand responsive transport systems. The growing number of private car usage is an issue in several settlements which are suffering from transit traffic. Several junctions on the outskirts of Sopron and Győr are facing with increasing traffic jams in peak-hours.

Organisation of transport sector and key stakeholders

Describe organisation (e.g. regional/national ministries, bodies, transport operators) that are main decision makers to be addressed in the pilot implementation actions.

Local public transport at municipality level is either directly awarded to transport operators or competitively tendered, in accordance with Regulation EC 1370/2007. Local public transport services within one settlement or municipality are financed by the local government. Local public transport is operated by ÉNYKK in 2 cities of Vas County of which Körmend's network is very basic with around 8 departures per workday while Szombathely's local bus network is rather important in the city. Till 1974 a tram line was also in use in Szombathely.

The national law which regulates the passenger transport is the no. XLI law of 2012 about Passenger Transport Service. In Hungary there is a centralised system for all regional, national or long-distance scheduled bus or passenger rail services which means that the Central Government's Ministry of National Development orders and finances the services from the mostly state-owned regional bus provider ÉNYKK and from the regional rail operator company GYSEV. Fast train and some regional passenger rail services towards Celldömölk are run by MÁV-START Hungary's main incumbent state-owned passenger rail operator company.

In the Ministry there are 13 colleagues dealing with all domestic Public Service Obligation (PSO) services. Further 30 colleagues in KTI Passenger Directorate (KTI SZI) is dealing with domestic services. In a branch office in Szombathely there are 5 colleagues of which are 3 experts for coordinative tasks between local governments, service providers in Western Hungary (Vas County, GYMS and 2 more counties) and the ministry who fully owns KTI.

Coordination with Austrian partners for rail services is regular with GYSEV which is a mixed Hungarian-Austrian mostly public owned regional rail company.

Additional data from the previously collected tables. More details in T1.2.12 and 17.

2. Territorial needs assessment

Connectivity

Cross-border transport flows

Following the Eastern enlargement of the EU in 2004 the mainly-economic-reasoned migration boosted from the new EU-10 countries to the EU-15 countries although their labour markets were partly liberalised until 2011. Its form is varying from permanent (resident) to temporary (relocation or daily commute).

The Austrian-Hungarian border regions commuting originates on a 'weakened historical tie' based special institutional arrangements of the 1990's, where the administrative requirements of the Hungarian employees were lightened on mutual interests. At the Millennium according to some rough estimation 12.000-15.000 cross-border commuters from the border region worked in Burgenland. Since 2008 the number of the Hungarian emigrants has been rising significantly because of the negative effects of the economic and financial crisis of 2008 and the fully liberalisation of the EU labour market of 2011. Due to those changes the total number of the daily commuters nowadays has reached from 22.000 (from state administration) to 30.000-40.000 (from academia) - to Austria.

In the research phase two travel surveys were found, describing the cross-border transport and commuter flows at the Western Transdanubia-Burgenland border: the HCSO study based on the 2011 Census and the analysis of the EMAH Project based on the cross-border traffic counting of May and July of 2013.

In the EMAH Project the travel counting and s questioning was carried out in May & July of 2013 at the Austrian-Hungarian border (5 rail border crossings and 7 road board stations between Burgenland and Győr-Moson-Sopron; Vas). The modal split of the cross-border transport shows a dominant car using travel habit (approx. 93%) and rail transport share of 7% - basically with 0% bus ratio. This split quite differs from the country average passenger transport split where car 'only' has 56%, rail takes 11%, and travelling with bus hit 27% share next to the 5% ratio of the bicycle.

More than half (52%) of the cross-border trips was a professional travel; buying and visiting relatives & friends purposes have 11-11% share. 9% potion of the total journey connected to tourism and leisure. 6% ratio was administration or healthcare-related, and 4 % ratio was school-related.

It should be noted that the EMAH Project did not examine the origins of the commuters so the results of the survey are rather a country average than Western Transdanubia specific although 75,9% of the total daily commuters to Austria come from Vas and Győr-Moson-Sopron counties – see below.

Origin of the daily cross-border commuters by county (2011, Census)

County	daily cross-border commuters to daily total commuters in the county	of which: daily cross-border commuters to AT to the daily cross-border commuters in the county	daily cross-border commuters to AT of the county to daily total

			cross-border commuters to AT
Győr-Moson-Sopron	16,3%	91,0%	54,5%
Komárom-Esztergom	0,8%	62,2%	1,3%
Vas	10,0%	99,1%	21,4%
Zala	2,2%	88,3%	4,0%
Veszprém	1,1%	91,7%	2,8%
Tolna	0,8%	91,7%	1,0%
Somogy	0,8%	89,2%	1,2%
Baranya	0,9%	83,0%	1,5%
Fejér	0,5%	77,9%	1,3%
Budapest	1,8%	55,5%	3,5%
Pest	0,3%	60,0%	2,5%
			95,0%

Source: Hungarian Central Statistical Office, 2015

Commuter's flows

According to the upper HCSO table approx. 55% (12.252 capita) of the commuters to Austria come from Győr-Moson-Sopron county, 21,4% (4.855 capita) of them journey daily from Vas county. Around 76,4-81,6% of the employees of Vas and Győr-Moson-Sopron) travel less than 1 hour – the country cross-border average is 73%; 19-9-16,3% share spends 1-2 hours reaching his/her workplace. A very few percent commute more than 2 hours to the other side of Austria.

The data of the HCSO study confirm the existing assumptions: most of the cross-border commuter of Vas and Győr-Moson-Sopron to Austria comes from the skilled workers with secondary qualifications and employees with passed final examination at secondary level groups – 79-85% portion. The majority of the commuters work in 'traditional' sectors like agriculture; industry; construction; accommodation and food service activities; and 'newly added' branches like human health and social work activities. The 'younger-movable' (15-44 years) generations are over-represented in the total with 74% (Győr-Moson-Sopron)-79% (Vas).

The results of Census 2011 and the EMAH Project show a little bit different pictures about the split of the commuters by profession (industries) – the reason could be a sampling issue. According to the HCSO the workers employed in the agriculture takes 7,1% share while in EMAH Project it did 11% - both are far higher than the country commuter average of 3,7%. The Census 2011 measured 31,1% portions on industry and construction, EMAH Project did 38% - the country commuter average is 38,4%. Thus there is an approx. 7% digression between the two surveys: the HCSO data assessed 58% of the cross-border commuters from the tertiary economy while the EMAH Project did it 51%.

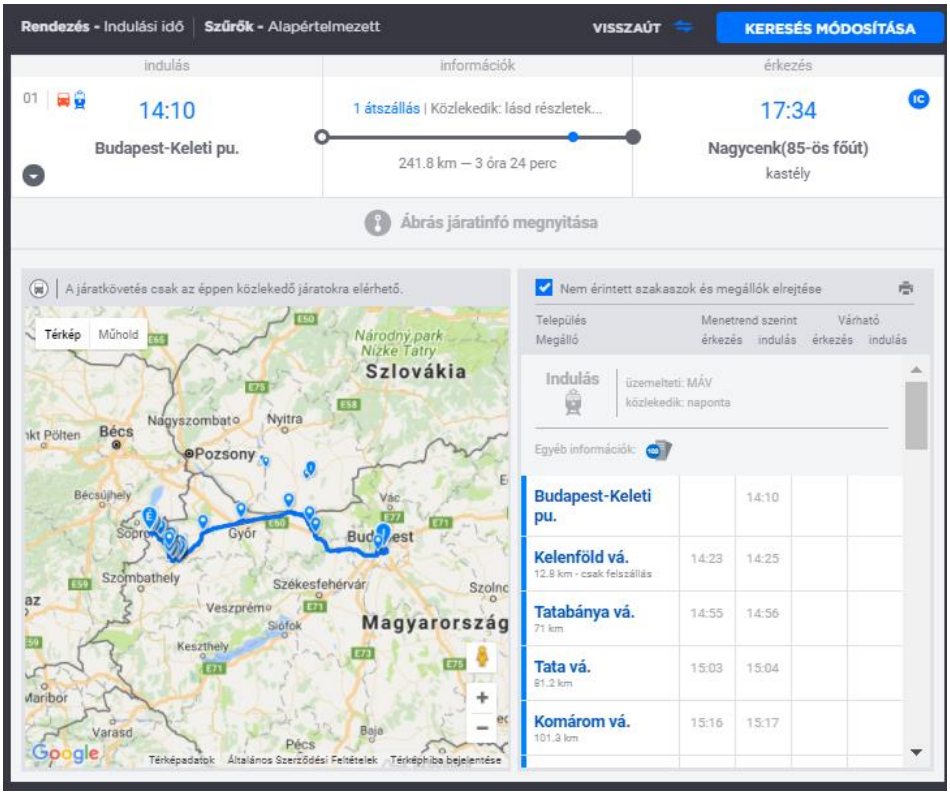
Infomobility systems

In the field of Hungarian infomobility systems, inter-urban and long distance bus timetables as well as regional and long-distance railway timetables are available countrywide. Each undertaker also operates its own schedule database, linking to the common database at national level. However, urban traffic information (city bus, tram, metro, etc.) is only published by the provider. Those databases content only the timetables of each cities (e.g. Budapest, BKK), but there is also a combined city-specific searcher for various cities covering a whole region (e.g. ÉNYKK). The mode of data access (static / dynamic) depends on the undertaker.

2.1.1. General characters

In order to a simpler modal split, a new system (menetrendek.hu) was established in 2016. This manages the entire Hungarian regional and national timetable database unified which can simplify the navigation between the more than 3150 settlements in Hungary.

There are detailed timetables, stops and map locations for each mode (bus and rail) available on the result site and the walking directions and distances between each stops are listed as well.



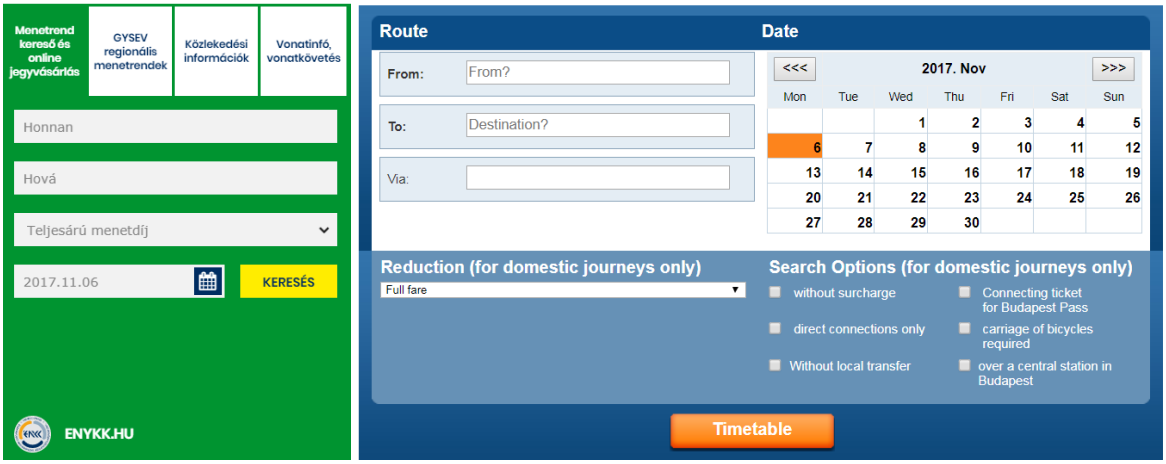
Railway timetables are published on the own website of the two Hungarian passenger transport companies (MÁV-START Zrt., GYSEV Zrt.) also. Here are such information available as 1st class coaches, bicycle transport facilities, dining car etc.), and fares (e.g. InterCity supplement and various other discounts) as well. As for menetrendek.hu intermodal connection information is now reliable and urban public transport transfer is under development. Possible multi-modal ticket emitting feature is also planned. Monthly visitors number exceeds 1,5 million as of September 2017 which is 3 times more than in 2015 when it provided only bus timetable data on an outdated website. Timetable adjustments and database update is carried out nearly daily.

Systems are funded under the PSO.

2.1.2. Pre-trip specifications

Before the trip, at each stations can be accessed a paper-based guide on the timetable for the given line and personal information on the main stations and transport hubs. Timetables are both manually and electronically available one month before the date of validity, and 15 days in the case of mid-year changes in advance.

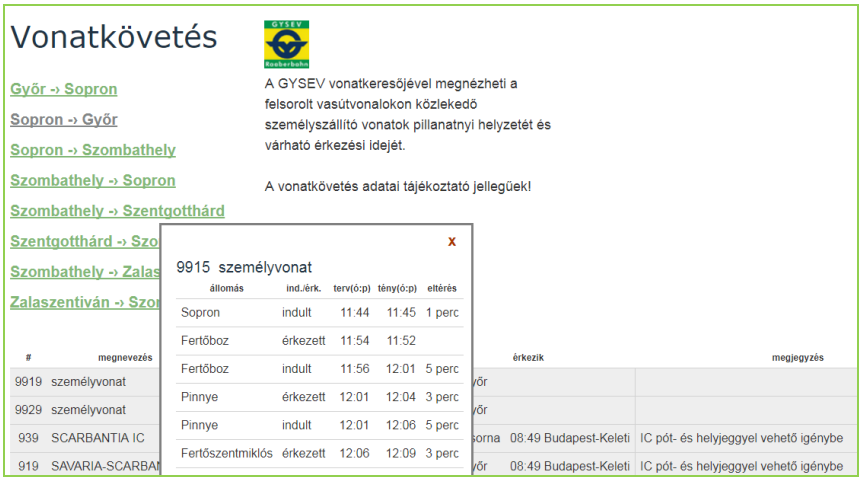
Temporary service changes may be reached within 15 days before the entry into force. During that period, dynamic search interfaces result the modified time data automatically.



The ELVIRA database (owned by the Hungarian State railway, MÁV) contents the full range of Hungarian domestic trains and partly the international trains, too. The system is both in English and German languages available. The search interface is also submitted directly from GYSEV's website.

2.1.3. On-trip specifications

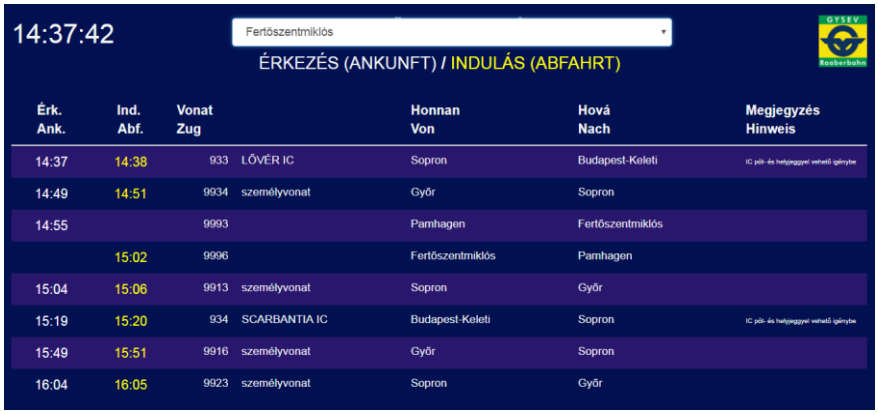
The “GYSEV Vonatkövetés” (train follower) site can let the passengers know the current position and estimated time of arrival of passenger trains running on the lines listed below.



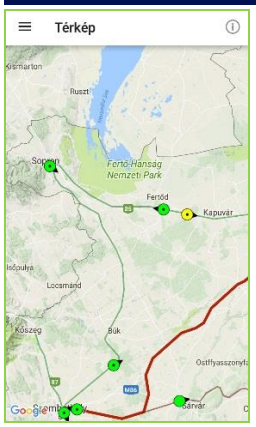
The current timetable of domestic and international trains departing from/arriving to Hungary can be accessed nationwide through the “Vonatinfó” (Train Info) site which is also available as a mobile application. The Google Maps-based interface of the application also includes the exact location of each passenger train running in Hungary, including the network of GYSEV Zrt.

Since October 2016 General Transit Feed Specification (GTFS) data is available free of charge for app developers and other travel planners.

Departure and arrival data for each railway station is also available both as HTML and as mobile format and includes real-time information for each train.



Érk. Ank.	Ind. Abf.	Vonat Zug		Honnan Von	Hová Nach	Megjegyzés Hinweis
14:37	14:38	933	LŐVÉR IC	Sopron	Budapest-Keleti	IC pót- és helyjeggyel vehető igénybe
14:49	14:51	9934	személyvonat	Győr	Sopron	
14:55		9993		Pamhagen	Fertőszentmiklós	
	15:02	9996		Fertőszentmiklós	Pamhagen	
15:04	15:06	9913	személyvonat	Sopron	Győr	
15:19	15:20	934	SCARBANTIA IC	Budapest-Keleti	Sopron	IC pót- és helyjeggyel vehető igénybe
15:49	15:51	9916	személyvonat	Győr	Sopron	
16:04	16:05	9923	személyvonat	Sopron	Győr	



On-board passenger information monitors (FEDUR) on the InterCity coaches and motor units, developed by GYSEV, display the current and the estimated departure and arrival datas of a train, and show the current position of the vehicle as well. The OpenStreetMap-based map can be used to determine the location of the vehicle by GPS and also to calculate the difference between actual and expected time schedules.

2.1.4. Features of ITS in the ticketing system

Linked to the timetabling records, it is possible to purchase tickets on-line. All domestic tickets and supplements as well as some international tickets can be bought online on ELVIRA system.

Depending on the type, tickets can be distributed as follows:

- Presented on a mobile phone / laptop with QR codes
- Printed at home with QR codes
- Printed from a ticket kiosk at certain railway stations

Online tickets can also sold for the lines of GYSEV Zrt. The revenues are accounted according to the general model applied by both railway companies.

There is a discount of 3% is available for tickets printed at home and presented on a mobile device, regardless of its category.

An easy-to-use new version of Vonatinfo App is under public testing as of November 2017 and will enable to buy tickets by smartphones much easier than the current online ticket sale portal on ELVIRA.

Integrated ticketing and tariff schemes

This section focuses on 'state of the art' analysis of Multimodal integrated tariff and ticketing schemes (ITTS) that are currently in operation in CE countries. The main aim is to collect data on current situation and on gaps forming a status report.

Organisational and financial framework and the public passenger transport of the selected region;

GYSEV is owned by the Hungarian State (65,7%), the Austrian State (28,2%) and the Strabag SE (6,1%).

The costs of the operation are financed by the Hungarian State in Hungary and by the Austrian State in Austria.

Categorization of the ticketing mediums and ticketing products per transport mode - or per transport operators if needed;

There are paper tickets issued at the cashier desks / on board or printed at home.

Ticketing products:

one-way tickets (valid on the day of its issue under 100 km, valid for 2 days between 101-200 km, valid for 3 days between 201- 400 km, valid for 4 days up to 400 km)

retour tickets (valid for 15 days)

season tickets valid for 30 days / half month / 1 month)

combined tickets including the use of the regional / local trains and busses and further services (f.e. admission tickets, programs)

description of the tariff system;

The tariffs are determined by the Hungarian State in Hungary and by the Austrian State in Austria.

There is a zona-tariff system for journeys under 500 km in use with the minimum of 5 km to be paid. The zonas are rising per 5 km under 50 km, per 10 km under 100 km, per 20 km under 300 km and per 50 km under 500 km. For journeys up to 500 km there is a fixed tariff to be paid.

There are discounts provided by the state (welfare/social discounts) and ones provided by the company (business discounts).

The welfare discounts of 20 – 100% are available for disables / big families / children / students / pensioners / public servants. EU and EFTA citizens above 65 years of age travel for free on second class within Hungary with their national IDs.

The business discounts are provided occasionally by the train company for groups / for special events / for defined period of times / defined products or selling channel)

Technical features, marketing (sales channels) of the ticketing system;

GYSEV has no integrated ticketing system on its own. GYSEV has cash registers with single memory units at the bigger stations issuing paper tickets. Tickets on board are issued by hand. The online selling channel of the Hungarian Railway Company (MÁV – START) are also available for our passengers.

Short analysis of the integrated tariff and ticket system of the selected region – if it is available (main trains, level of integration, financial-technical implementation).

No integrated tariff system is available generally but there are combined daily and season tickets including 3 kinds of transportation services provided by the GYSEV (train) and the ÉNYKK (bus). These products integrate the single tariffs of the different vehicles of transport.

No real integrated ticketing system is operated by GYSEV.

The legal and constitutional condition of the integration is missing. The owner's intention to the integration has been signified already, but the plan of action for the implementation has to be worked out.

Main features would be integrated:

- timetables of trains and buses
- travel information system of trains and buses
- ticketing system of trains and buses

Common efficient and reliable long-term economic background of the operation would be needed to re-adjust income-losses of certain operators. For instance when some busy bus lines will be shifted to the parallel upgraded railway than bus operator will face less revenue on its less used routes and limited feeder services.

3. SWOT analysis

Strenghts	Weaknesses
• International traffic flows crosses the County • Better than infrastructure than the national average • Customer oriented operators • Strong local economy and R&D services • Positive and stabile migration balance • Higher share of cyclists	• Shortage of workforce • Lower fertility rate • Less competitive business environment • High shares of commuters from construction and agriculture for longer distance • No legal background for integration of PT services
Opportunities	Threats

• Knowledge oriented R&D industry development • Modal shift to public transport particularly trains with integrated tariff and timetables • Growing cultural and leisure tourism	• Stronger daily commuting flows to Austria and from the Northern GYMS to Slovakia • Sleeping communities for cross-border commuters • Less concentrated commuting centre which cannot be served well by PT • Growing share car-pooling among commuting workers • Stricter border control – longer commuting time

4. Overall conclusion

GYMS county is already the main location in Hungary for cross-border commuters. The opening of the labour force market together with Schengen borders is rapidly forming the commuting patterns of the county. The main aim is to provide a mutual well-balanced commuting which is primarily relies on public transport modes is an ambitious goal. The current 20 % share of tourism worker commuters makes it difficult to shift them to public modes as well as 16 % of construction workers. The seasonal 8 % of agriculture workers is also a challenge. The ongoing urban-sprawl around Sopron and Győr a with a lesser extent around smaller towns is also an issue as it reduces the density of the settlements which makes them difficult to serve attractively by public transport. Therefore the integrated system with integrated tariff and timetables is key together with efficient intermodal stations and hubs.