

# 4. RESPONSIBLE SERVICE

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## 4.1. CLOSING THE DIGITAL DIVIDE



With its digital competence program Magyar Telekom tries to overcome the digital divide and support the positive effects of the spreading of information and communication technologies.

The digital divide is the name given to the phenomenon of different groups of society having differing chances to access information technologies (due to geographical location, social or other reasons).

For economic development in this day and age, it is crucial to access information and communication technologies. The transformation of social relations and communication makes it important for us to get familiar with new technologies and the opportunities offered by them.

### Supporting people living with disabilities

Magyar Telekom set an objective to offer comprehensive services for the disabled. Together with the relevant disability organizations, we jointly created the hello holnap! tariff packages that are available to the hearing-, sight- and otherwise-impaired in the form of pre- and post-paid tariff packages (people with mental health issues or autism are offered only pre-paid packages).

For further details on the tariff packages, please visit: <http://www.telekom.hu/mobil/lakossagi/tarifak/havidijas/helloholnap> <http://www.telekom.hu/mobil/lakossagi/tarifak/domino/helloholnap>

### Internet for Equal Opportunities (Egálnet) program

At the end of 2006, a community portal was started with the purpose of supporting the efficient operation of organizations helping disadvantaged groups by means of exploiting the opportunities offered by the internet. Egálnet is a community site that enables registered organizations to use a simple program to create their own websites, as well as to keep in touch with each other-naturally all for free. The target group of the portal includes NGOs representing socially disadvantaged or disabled people, groups supporting young unemployed individuals or people just starting their careers, schools, minorities, as well as foundations and associations addressing other social problems.

The project provides means to the target group – interest groups, NGOs – enabling them to develop their capabilities and communication, which translates into an improvement in their professional achievements. Communities and NGOs can advertise themselves, exchange information and experiences with similar organizations, and even collect more donations.

By the end of 2010, more than 200 organizations had registered to participate in the project. In 2011 we checked how many of these organizations actually use the site actively, and deleted those websites where there had been no activity for a long time (the organization that created it discontinued its operations, uses other websites, or has no time to manage its site). So by the end of 2014 we had 50 active sites remaining; for these Egálnet offers help in their daily operation.

Further information is available on the following website: <http://egalnet.hu/object.5ED601BC-C574-4C66-9A66-13C4B0A26730.ivy>



### hello holnap! tariff packages

We recognized that access to and use of telecommunication services make disabled people's lives easier as everyday electronic solutions become available and these people's homes become more livable and accessible. Magyar Telekom is the first to offer specific, comprehensive services to the disabled in Hungary. In order to use

hello holnap! tariff packages one only has to be a member of the relevant disability organization (MEOSZ, SINOSZ, MGVYOSZ, ÉFOÉSZ). The services are offered at competitive prices – more favorable than our own tariff packages – in the form of monthly plans and pre-paid packages. The hello holnap! Voice and Data package contains 100 hours of voice traffic, while the hello holnap! SMS and Data package

contains 1000 SMS messages. Both packages contain 1 GB of internet traffic, and video telephone services are also offered at a discount price. The packages, presented as a joint effort with the disability organizations, have been available since 1 November, 2013. From 2014 members of the National Autism Association may subscribe to the hello holnap! packages.

Partnership for Digital Hungary



The aim of the Partnership for Digital Hungary is to make high-speed broadband internet available to every home by 2018.

The Government and Magyar Telekom, a subsidiary of the Deutsche Telekom Group, have entered into a partnership of cooperation to enhance Hungary's digital development. As outlined in the official document, Magyar Telekom intends to make further investments so as to foster the provision of high-speed broadband internet in Hungary. The intense use of innovative technologies and information and communications technology (ICT) solutions contributes to improving the quality of life for people in Hungary, the efficiency of businesses and the international competitiveness of the country's economy. Furthermore, the company aims to promote digital literacy and the widespread adoption of safer internet use. (Digital Bridge, Telekom Smart digital Program: Telekom Okosdigitális Program)

As a result, Hungary could achieve the objectives specified for 2020 in the Digital Agenda for Europe before the deadline, and could serve as an example for other member countries.

Magyar Telekom is strongly committed to innovation, and keeps developing its newest and most advanced services. Besides the full implementation of a high-speed broadband internet network, future plans include a number of other developments that could elevate the domestic digital infrastructure and the associated services to be among the best in the world by 2018. Magyar Telekom's subsidiary, T-Systems Hungary serves business and public administration customers and therefore actively contributes to enhancing the digital economy and utilizing EU funds spent on ICT projects that could increase the competitiveness of Hungary's economy.

Plans include improving the safety of homes and residential areas with intelligent and user-friendly solutions; providing devices that ensure simple management of energy needs for the population and businesses; introducing convenient and secure mobile payment solutions; and making business and public administration processes simpler, more transparent and faster with the help of the most up-to-date internet-based services. In addition, Magyar Telekom significantly supports the acceleration of digitalization processes at enterprises and SMBs alike by means of the latest ICT technologies ranging from IT infrastructure to application solutions.

Access to broadband internet is an important, but in itself by no means sufficient pre-condition to creating equal opportunities digitally, which is one of the general objectives of this strategic partnership. Most internet users in Hungary still only use the basic services and many of them abstain from online shopping, electronic transactions and other advanced solutions. Magyar Telekom focuses on increasing consumer awareness and cooperates with its partners to ensure that the number of citizens using the modern services in Hungary may reach the EU average and then exceed it. Furthermore, Magyar Telekom plays a pioneering role in facilitating digital literacy.



Viktor Orbán, PM of Hungary and Tim Höttinger, CEO of Deutsche Telekom

Supporting isolated, disadvantaged settlements and groups of society



Under the Digital Bridge for Small Settlements program (Digitális Híd Kistelepüléseken), the volunteer team of Magyar Telekom visits disadvantaged settlements of fewer than 3000 inhabitants to give them efficient, customized IT education.



Digital Bridge in Tarpa

The purpose of Magyar Telekom's Digital Bridge for Small Settlements Program is to increase awareness of the opportunities offered by information and communication technologies and what can be achieved with them in regions where a digital rift is present that over time may deepen into a divide. The course participants learn the many different uses of the internet and how it can make their lives easier. Digital Bridge activities also include the development of relations and ongoing communication with the students. In 2014 18 events were held, by the end of 2014 we had organized 185 events.



**JÓZSEF BANA**  
former Magyar Telekom employee, retired volunteer

I joined the first 'Digital Bridge in Small Settlements' team ten years ago. I liked the program's objective and its fresh spirit, both as an employee and a private person. That was the time when I came across with Telekom's sustainability strategy, too. I am proud to represent Telekom through the program.

In the past years I experienced that Telekom and its customers can be brought closer to each other at personal meetings. Voluntary work within the program was another new phenomenon for all of us. Since then voluntary work has become very important to me. My work in the program has an impact on all members of my family. I experienced that my voluntary work presents values and guidance for my children and grandchildren. Now they think and act similarly about volunteering. I also like this work because it helped me to meet and understand many other people and their lives. I met people from very different social backgrounds, I heard their problems and it felt good to help them. I learned a lot from their stories, like understanding and appreciating differences. Digital Bridge gave me much joy and happiness over the years. The most remarkable event for me was when I helped a girl suffering from intellectual disability to get rid of a very unfortunate attitude to use computers and the internet caused by her teacher and other children. There was another case when I helped a student with her computer settings so that she can use the internet. Also, there was an immigrant who returned to Hungary from Australia, and he was very happy and grateful when I helped him to contact his family members in Australia through the internet. I have strong bonds to the Digital Bridge through its great team members and our common work.





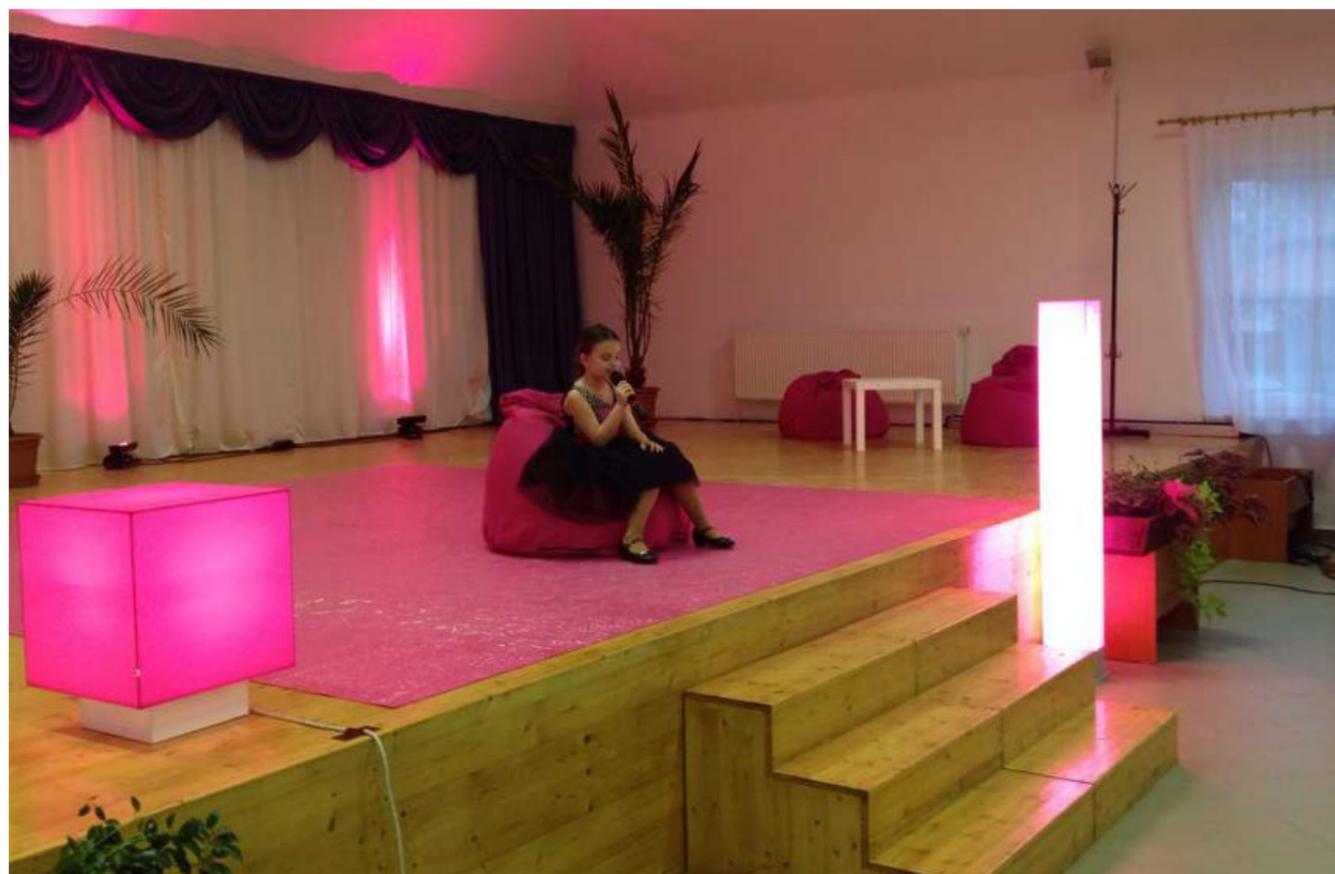
### Digital Bridge Fest (Digitális Híd Fest)

In 2009 the Digital Bridge for Small Settlements Program was supplemented by a new element, called Digital Bridge Fest. Volunteers from Magyar Telekom continue to educate the inhabitants to use the internet as part of this program. As a new program element, a talent contest is held among the local residents and the winners are offered the opportunity to present themselves and perform on the internet.

These events are usually coupled with some other community event (e.g. the village festival), but often we create such events ourselves. In 2014 two Digital Bridge Fests were organized – in the summer at Konyár and in December at Nyírlugos, Nyírbogát, Piricse and Encsencs.

Videos, pictures and further information about the Digital Bridge program:

[https://www.telekom.hu/about\\_us/society\\_and\\_environment/society/digital\\_bridge](https://www.telekom.hu/about_us/society_and_environment/society/digital_bridge)  
[www.facebook.com/DigitalisHid](http://www.facebook.com/DigitalisHid)



Digital Bridge Fest in Nyírbogát

### Telekom Smartdigital Program (Telekom Okosdigitális Program)



Several educational programs add up to make the Telekom Smartdigital Program, in which volunteering trainers transfer their digital knowledge to children, adults, parents, grandparents and teachers all over Hungary. Our mission is to actively contribute to the development of Hungary's digital maturity, the development of digital literacy, and our children's safe and productive use of the internet.

We would like to help more people become digital citizens. We are working to bring the internet to everyone: in the cities and the villages, for youngsters and adults, too. We make this possible through a wide-ranging, multi-module, free training program.

At Gondolatbörze's social platform our existing and potential customers can chat, find information about our services and find information about how to use the internet, smart devices and online content. It is worth visiting the page as you can get answers to your questions from the most reliable experts: the users themselves. The page is moderated by Magyar Telekom experts.



Our Mobil tudós experts ('Mobile Professors') in Telekom shops are there to help every visiting customer with tools and services. They provide information on how the internet can help to improve the customers' lives (administration, banking, online shopping). Our experts can also be found online: they share their knowledge about the latest technical improvements, products and curious facts. Their blog can be found on the Mobil tudós blog and on Telekom's Facebook page.

Our Internet Academy lectures for the elderly are focused on primarily practical issues: administration, communication on the web, reading the news, recipe searches, etc. At the end of the presentations there is also the chance for a private consultation. All our participants receive printed material to help them understand the presentation and as an aid in their self-education.

In our 45-minute presentations to students our volunteering expert chats with them about important things to remember when using mobile phones. They speak about passwords, when to mute the phone, Facebook data protection and safe chatting. In our presentation for secondary school students, in addition to safe internet usage we talk about personal branding and the rules of the online world. In the personal development of students one of the most important factors is their teachers' knowledge: whether they know their students' digital lives and the various digital influences, and how they can affect their digital life to turn it in the right direction. We help them through 2 x 45-minutes or 2-day lectures for teachers.

Not only the children, but also their parents should know the rules of considerate and safe internet use. We have a presentation for them also on how they can help their children in the digital world (including safe internet, cyberbullying, etc).  
<http://okosdigitalis.hu/>

Staff from **T-Systems** participated in the Telekom Smartdigital Program as volunteers, and gave presentations in several schools across the country on the correct and ethical use of mobile phones and the internet. 30 T-Systems colleagues joined the program, giving altogether 141 presentations.

Along with offering the most advanced technologies, as both services and products, **Crnogorski Telekom** continued to help the internet become a part of everyday life for the majority of Montenegrin citizens. Through the initiative 'Connecting the unconnected', as part of the company's CSR strategy, Crnogorski Telekom continued to provide free-of-charge services to selected beneficiaries in 2014 as well (preschool institutions, primary schools and secondary schools, as well as associations and organizations which support persons with disabilities). For the eighth year in a row, Crnogorski Telekom is enabling free internet access via ADSL to all primary and secondary schools in the country.



Trainers and students after a Smartdigital presentation

**Makedonski Telekom** took several steps in 2014 to help improve digital competence:

- 98% of households are covered by our fixed access network. In rural areas where we do not have coverage, any customer's request for voice service is considered with an FGSM solution.
- With 387 locations where ADSL equipment is installed, broadband access is provided over the whole territory of Macedonia with

92.8% of households reachable (with more than 3 Mbps).

- Current fiber optic rollout provides coverage of 18.5% of households.
- Mobile broadband access is provided using a 3G network with 93% coverage of the population and a 4G network with 46% coverage.
- Additionally, broadband access in rural areas will be improved with the implementation of UMTS 900 and LTE 800 MHz.

## 4.2. PROTECTION OF OUR CHILDREN IN THE DIGITAL AGE

Magyar Telekom is committed to assist children's, parents' and teachers' safe use of the internet, and uses its best endeavors to support it. On the child protection website, launched in 2013, the company supports this effort with controlled content, advise, education and events organized for children and their parents alike to be prepared for the exposures and dangers of the digital world.

In recent years children's internet and mobile telephone habits have changed dramatically. Today average European children start using the online world from the age of 7, and one out of three children connects to the internet via mobile telephone, game console or other mobile device. At the same time many young people feel that the online world offers only

few opportunities to use although the internet can be very useful in many areas if they can use it safely and responsibly.

For further details please visit [http://www.telekom.hu/about\\_us/society\\_and\\_environment/society/protection\\_of\\_our\\_children\\_website](http://www.telekom.hu/about_us/society_and_environment/society/protection_of_our_children_website).



**NOÉMICSAPÓ**  
Regulatory senior manager

Though I am the member of the X generation and I was not born into the digital age, I fortunately can find my way in the world of the internet and new technologies. Thus I am aware how much opportunities, experience, knowledge and entertainment is available online, but I am also aware of potential risks and the way to manage them. Some years ago we thought that we primarily have to prepare our children for the safe use of mobile phones and surfing the internet without fear. Now the situation is more nuanced.

Older members of the Z generation were 'born' with the mouse, while younger children with a tablet in their hands. My seven-year-old son is already an experienced mobile phone, computer and tablet user, and I want to avoid the situation that by his age of 10-12 I do not have any idea how to use the gadgets that he will probably master by then. The question is not whether all children can properly use modern tools, but rather whether they know what they have to pay attention to and why.

In this respect the biggest responsibility lies with their parents and teachers. However, many of them do not know how to operate 21st century equipments and are not interested in the digital world, on top of which they do not have any idea on the underlying risks of using the internet. That is why Telekom decided last year that it will try to involve children, their parents and teachers into the digital world by way of showing its advantages and helping children to avoid its pitfalls.



Child protection efforts of the Telekom Okosdigitális Program (Telekom Smartdigital Program)



Our objective is to contribute to the digital maturity of Hungary and our children's safe and conscious use of the internet.

Magyar Telekom's Mobilsuli (Mobile School) program was launched in 2010 within the frame of which volunteers of the company teach children—in free lessons at schools—the smart and safe use of mobile telephones and the internet. In 2014 the Mobilsuli has become part of Magyar Telekom's newly created Telekom Okosdigitális Program which is operated in partnership with the Digitális Tudás Akadémia (Digital Knowledge Academy).

We would not like to leave our children alone in the digital world and would like them turn to their parents and teachers if they have any problems in this respect. That is why we extended the scope of our trainings and transfer the necessary knowledge not only to children but to adults—parents, grandparents, teachers—as well so that they can act as partners of our children in the digital world. We continuously develop a training material and include valuable feedback that we received during the trainings so that we can answer all potential questions.

An important part of our lectures is the presentation of dangerous situations on the internet and the elaboration and discussion of potential answers and responses to such dangers. We primarily discuss data protection, protection software, personality rights, cyberbullying, sexting issues and naturally answer any other questions, too. Our trainings are found useful which is proven by the numerous questions and a lot of positive feedback that we receive during the trainings.

Those who have not been contacted yet by the volunteers of the Okosdigitális Program may access our e-learning material on safe use of content and internet tools on the [www.okosdigitalis.hu](http://www.okosdigitalis.hu) website. The program's Facebook-page provides updated news, information and advice to our potential inquirers: <https://www.facebook.com/Okosdigitalis?pnref=lhc>

**WE HAVE ALREADY REACHED MANY CHILDREN AND ADULTS WITH OUR COURSES ALL OVER HUNGARY:**



Expanding partner relations



Magyar Telekom, as a company listed in the stock exchange, complies with all elements of the Hungarian laws and actively participates in the industry's self regulation efforts and the work of the industry's NGOs.

Magyar Telekom supports Kék Vonal Gyermekkrízis Alapítvány (Blue Line Child Crisis Foundation) which operates with the objective of listening to children and minors, and ensuring the enforcement of children's rights. We also support Nemzetközi Gyermekmentő Szolgálat (International Foundation of Pediatric Emergency Care); in our annual Children's Day event we offer special programs, facilities to children.

The Child Protection Internet roundtable was established by the NMHH (National Media and Infocommunications Authority). The objective of the initiative is to encourage the protection of minors on the internet. To this end the project elaborates standpoints, recommendations to promote child-friendly internet use, including the use of content filtering software as well as the increased media awareness of parents and their children. The members of the roundtable are child protection professional organizations and the representatives of the Hungarian professional internet associations. Their work is supported by Magyar Telekom.

Magyar Telekom works closely with Nemzeti Média- és Hírközlési Hatóság (NMHH, National Media and Infocommunications Authority) in a number of other fields, too (protection against internet crime, blocking certain websites, Internet Hotline etc.).

Magyar Telekom, among governmental, corporate and NGO experts, actively participates in the National Cyber Security Office's Coordina-

tion Council's Child Protection Work Group's work. In 2014 our company actively participated in the elaboration of the work schedule of the group's two (electronic data removal and training) sub-workgroups.

Further partners include Matisz, GSMA and ETNO in the area of child protection.

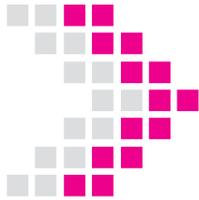
origo

Origo Media and Communications Services Co. Ltd., member company of Magyar Telekom Group, responsible for the operation of the origo.hu portal, is a founding member of the Hungarian Content Providers' Association (MTE), and accepts the binding effect of the Code of Ethics of Content Provision. The Code of Ethics is available on the MTE home page: [http://www.mte.hu/eng\\_egyesulet.html](http://www.mte.hu/eng_egyesulet.html).

Besides the commitments under the MTE, origo.hu has its own Code of Ethics, which it regularly amends and revises.

Origo Media and Communications Services Co. Ltd.'s portfolio includes videa.hu and one of the most important developments of 2014 was the implementation of the cookie-based child lock which can be used without registration. This development allows to block videos in videa's entire content that belong to the adult category and the blocked content can not be displayed in any form. With this provide maximum protection for children and give 100% control to parents.

### 4.3. ICT FOR SUSTAINABILITY



One of the key priority tasks of the current sustainability strategy of Magyar Telekom Plc. is to increase the percentage of sustainable products in its portfolio.

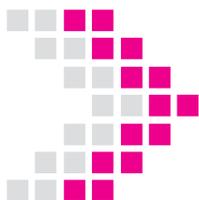
In line with this objective, in 2011 we incorporated the product sustainability assessment into the regulation of the sustainability coordination process; defined the process players as well as their tasks and their layers; then in 2012 the sustainability assessment of our handset portfolio was also made part of the regulations so that this information is accessible to our customers. The process players were identified again in the new organization structure, building daily contacts with them for the implementation of the objectives. In 2014 we reviewed our products and services. Within the frame of the revision the sustainable product database was updated, i.e. cancelled products were deleted whereas new products

– upon their assessment – were entered in the database of sustainable products and services. We expand the sustainability assessment for the T-Systems' portfolio, too. <http://www.telekom.hu/rolunk/fenntarthatosag/ugyfeleinknek> <http://www.t-systems.hu/portfolio>

List of the most important products and services groups with a sustainability impact in 2014:

- Technology for health
- Climate-friendly and cost-effective business
- Sustainable digital solutions
- Equal chances in a digital world
- Sustainable products

The purpose of the sustainability assessment is to identify the sustainability impacts of our products and services and determine whether the given product or service has favorable environmental and social impacts, or whether it contributes to long-term economic growth and is favorable for the customer.



For years we have been using the same methodology for the sustainability assessment of our products and services, based on three pillars of sustainability:

- Social pillar: assessment of the contribution of the product/service to health, access to information, equal opportunities and personal growth.
- Economic pillar: assessment of the contribution of the product/service to sustainable consumption, competitiveness and actual needs.

- Environmental pillar: assessment of the contribution of the product/service to the preservation of resources, reduction of the environmental footprint and climate protection.

For further details please read the Sustainability Report of 2009: [http://www.telekom.hu/static/sw/download/Sustainability\\_report\\_2009\\_eng.pdf](http://www.telekom.hu/static/sw/download/Sustainability_report_2009_eng.pdf)

### 4.4. INNOVATION FOR SUSTAINABILITY

#### Research and development

At the end of 2013, Magyar Telekom launched the 'Realization of info-communication R+D+I umbrella projects at Magyar Telekom' tendering project with the goal of supporting the further development of its existing residential and business services with innovative solutions, and to identify new, non-core development areas and innovation directions. The project was realized with the support of the Hungarian Government, and was financed by the Research and Technology Innovation Fund.

Several development with a scope of sustainability, completed in the scope of the umbrella project, have been implemented in 2014, such as the extension of Távszámia service for mobile and tablet platform.

#### Healthcare Mobile

The grant project titled 'Magyar Telekom Plc.'s Healthcare Mobile Service R&D' (HCM project) was completed in 2014. Within the one-year project, the company worked on the development of an e-Health platform which connects various mobile-based health services designed for citizens. Due to the development, patients can sign up and prepare themselves for examinations using their mobile equipment. The solution has other various features helping everyday information-transfers and administration. The project was implemented with subsidy from the Hungarian Government and grants given from Research and Technology Innovation Fund.

Based on the results and experiences gained on HCM project, an intelligent patient flow monitoring and resource allocation solution has also been developed. This system – MediQue – is unique in real time patient flow monitoring, and supports health care procedure optimization in hospital environment. The solution is running in Szeged University Hospital ER department from June 2014 (Szent-Györgyi Albert Health Center)

One of Magyar Telekom's high priorities is to generate and implement R&D projects as an establishment for the company's product and service development roles. For this purpose Magyar Telekom's R&D activity is coordinated by the R&D committee consisting from the

company's responsible heads for innovation. As for planning the annual R&D projects, implementing sustainability purposed projects is one key aspect.

#### TeleBike

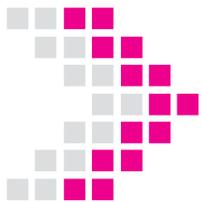


TeleBike, Magyar Telekom's bicycle rent service for employees, was launched on 24 May, 2013. The company's employees may rent bicycles free of charge from uniform design, well recognizable docking stations to commute between various office buildings more swiftly and with a smaller environmental footprint.

In 2014, TeleBike system worked with 53 bicycles. The bikes were used to travel between six Telekom and T-Systems Hungary sites.

With this exemplary initiative Magyar Telekom expressed its commitment to sustainable development and innovative solutions. TeleBike is not a profit-oriented project, and the development is not simply a convenience service for our employees, but also an environment-friendly solution to support sustainable growth.

Thanks to our TeleBike initiative, Magyar Telekom was again proudly wearing the Bike-friendly Workplace title in 2014.



TeleBike: In 2014 a total of 1633 registered users rented bikes on 17 333 occasions (average of 100 rents per day), mileage of more than 27 000 km and eliminated 5000 kg of CO<sub>2</sub>-emission.



**EMESE SZIKORA**  
leading project manager

**Bubi – Sustainability**

The public bike-sharing system in Budapest (Bubi) was designed and implemented by the consortium of T-Systems Hungary and Csepel company for the Centre for Budapest Transport (BKK). The project was launched in August, 2013 and went live in September, 2014.

BKK's main objective was to supplement the public transportation facilities and options in Budapest in an environment friendly way. In the first round of this effort the bike-sharing system was implemented mainly in downtown districts.

Bubi users may currently rent 1100 bicycles at 76 docking stations: with seasonal pass upon preliminary registration or with single tickets through simplified registration.

The implementation of the community bicycle system was a brand new professional area within the IT and transportation industry for TSM, and we learned a lot from the project. We successfully managed many expected and unexpected hardware and software development, logistics challenges during the project implementation phase and thereafter during the operation. It was a specialty of the project than right from the building of the docking stations all our work was in the center of the media's attention, therefore we had to pay increased attention to the operation of the project, both from the perspective of the work of our colleagues and their communication.

Bubi has been so successful since the launch of the project that the number of rents per day exceeded many Western European cities' benchmark (more than 5000 on sunny September days, and the figure seldom went under 4-500 per day in cold January and February days). More than 14 000 customers have used the service so far, and by the end of April the number of rents reached 400 000, while the average rent period was between 7-12 minutes, thus we can easily calculate that between September 2014 and May 2015 the Bubi service was used for approximately 57 000 hours, i.e. 2370 days in Budapest. This represents a significant reduction of CO<sub>2</sub>-emission in the city. One should not forget that 14 000 customers use bicycles almost every day or several times a week instead of taking public transportation and exercise, which is good for their health in the long-term.



**GÁBOR AUÉR**  
senior project manager



**Mobile Wallet**

Mobile Wallet service was launched by Magyar Telekom on 26 November, 2014. Mobile Wallet is an Android-platform based service, which enables its users to collect and virtually store the credit and loyalty cards, theater and concert tickets. Due to its NFC technology, collecting loyalty credits or entering to an event is all possible with just a tap of an enabled smartphone. It is the first wallet application amongst DT group that provides more than just payment solution. We believe that our

Mobile Wallet service will enable further cashless payment solution's penetration.

Today paying with Mobile Wallet is possible in more than 18,000 acceptance locations and on 38,000 terminals around Hungary. Collecting or exchanging loyalty points is available nearly in 600 stores, vending machines and in around the same number of taxi cabs, while 23 (primarily) Budapest-based venues ensure quick, queue-free entrance with your Mobile Wallet-stored NFC ticket.



M2M communication in Macedonia. Solutions for greater effectiveness.

The Smart Wine project is a collaboration between our subsidiary in the FYRO Macedonia and the Ss. Cyril & Methodius

University in Skopje to optimize wine cultivation processes. The technical basis for the project is a sensor-supported system that monitors grape development and controls all of the production processes. It helps winegrowers lower their consumption of energy, water, and

chemicals. Besides this, the system provides information on plant disease, weather problems, and optimal harvesting dates. The product has already been launched on the market. It can easily be adapted to other agricultural production sectors.

**T-CITY, THE CITY OF THE FUTURE**

The T-City project is a cooperation between Magyar Telekom and the municipality of Szolnok that enables inhabitants to get to know the latest and most innovative infocommunication technologies. Usage of these technologies not only makes their lives easier but also contributes to them shaping a more sustainable and conscious lifestyle.

The T-City project has been running in Szolnok since May 2009. The 78,000 inhabitants of the city can benefit from the possibilities offered by the pilot project,

experience the impact of the latest ICT technologies on the quality of life, and learn about the community services of Magyar Telekom.

The cooperation between the company and Szolnok is a long-term innovation program, focusing on the spread of digital literacy and on the development of transportation, public security, tourism and energy efficiency.

In 2014 the following services and tests were continued or introduced in the city:

**School card**

Since the start of the 2009 school year, one primary school in Szolnok has been equipped with an access control system using Radio Frequency Identification (RFID) technology, which registers the arrival and leaving of the students who have an access card. Parents can opt to receive an automated SMS message or track their children's entry/exit times via the internet. In 2011 the system was upgraded with turnstiles to further increase security and with an e-meal ticket solution to increase convenience, and a new school portal has also been introduced. Then we connected the system with the City Card system, which enables the use of two independent systems with a single card. In 2014 the registration of students and school employees was carried out successfully, and the production of new T-City-CityPass cards was started.

**City Card: Intelligent Community Card**

In May 2011 the Szolnok City Card was introduced into the T-City program, with which citizens can use innovative services and get various discounts. The system was launched

with the involvement of the Local Municipality of the city of Szolnok, Magyar Telekom, local bus company KMKK Zrt. and NetLock Kft. (the leader of the consortium that developed the CityPass system). In 2014 we further developed the Szolnok City Card. Now the Telekom Intelligent Card System includes School Card and City Card modules; Safe Party Zone and eVoting modules are also ready; plus, the system was successfully integrated into the Mobile Wallet app. In 2014 the e-Voting platform was finished, which allows verified and safe electronic televoting for users of the Intelligent Community Card. We launched N-Ticketing on one bus line of KMKK Zrt. Under this system, with the help of NFC tags at each bus stop, the ticketing is based on the kilometers travelled, giving a true usage-based pricing system for public transportation.

Since 2014 passengers can travel with their PayPass card instead of paper-based tickets on 10 bus lines in Szolnok. The electronic reader placed on these buses allows passengers to pay just by tapping their bank card against the readers without the need to print a ticket. The ticket inspectors can check whether payment with the bank card was successfully made.

### City Guard

The eNOTO equipment that is being installed in Szolnok as part of development plans is a practice-proven technology to monitor the roads entering and leaving a settlement. It can play a key role in improving public security and also the subjective sense of security of the residents. The eNOTO can be quickly installed, and its management does not require in-depth technical knowledge or dedicated staff. The equipment is used particularly efficiently by the national and local authorities responsible for public security or the civic organizations authorized by them. In 2014 the system was updated so that 10 cameras are now installed to monitor the roads of the settlement, instead of the previously deployed 5, and an agreement was made to place 16 more cameras throughout the city.

### Mobile City 3.0.

Mobile City is one of the latest apps developed by Magyar Telekom in the T-City program for Android and iOS platforms, and it is entirely customized to the conditions and requirements of Szolnok. The content is uploaded and managed by the city, which gives the content owner a great deal of independence in reaching the visitors and residents according to its own plans and city marketing, all through a completely new forum. The content service helps visitors access the tourist sight listings, event info and special offers from local tourism businesses, simply by holding their phone in their hands. In 2013 we further

developed the software: NFC-tag and QR-code reading functions were implemented. In 2014 interactive information boards that can be controlled using mobile phones were placed all around Szolnok to provide additional information about the tourist destinations. As an educational and promotional tool for NFC-tag and QR-code technology, we organized a promotional game, called T-City Codehunter (Kódvadász).

### Shape the City of the Future! (Alakítsd a jövő városát!)

In 2012 we released an app called Alakítsd a jövő városát! As part of the initiative we selected 20 families to be involved in Magyar Telekom's innovation processes. As a result of the project, these homes will be the first to receive for trial the latest services and products of Magyar Telekom, even ones still under development. We will consider their comments in the product development process. The project is especially important for Magyar Telekom because it may play a major role in the spread of digital competence. In 2014 these families took part in many tests, including Mobile Wallet, City Card Module and TV GO, and some families were able to try the Smart Home service, too.

### Initiatives to raise ICT awareness

Magyar Telekom Plc. is strongly committed to closing the digital divide. In this spirit it has organized two series of programs that Szolnok citizens can visit free of charge.



Szolnok City Card

The T-City Kids courses bring closer the novelties of mobile phones and the internet to primary school students, and provide information to children about the dark side and dangers of the internet: how to prevent them and which tricks can be used for safe internet access.

Magyar Telekom launched the Internet Academy initiative for the elderly, retired residents of the city. The presentations introduced participants to internet usage, and got them familiar with the basics of internet security.

In 2014, continuing the tradition, we organized two T-City Kids courses for the primary school students of Szolnok and the surrounding villages and one Internet Academy with an updated curriculum.

### KITCHEN BUDAPEST: INNOVATION, INCUBATION AND EDUCATION WITH MAGYAR TELEKOM'S SUPPORT

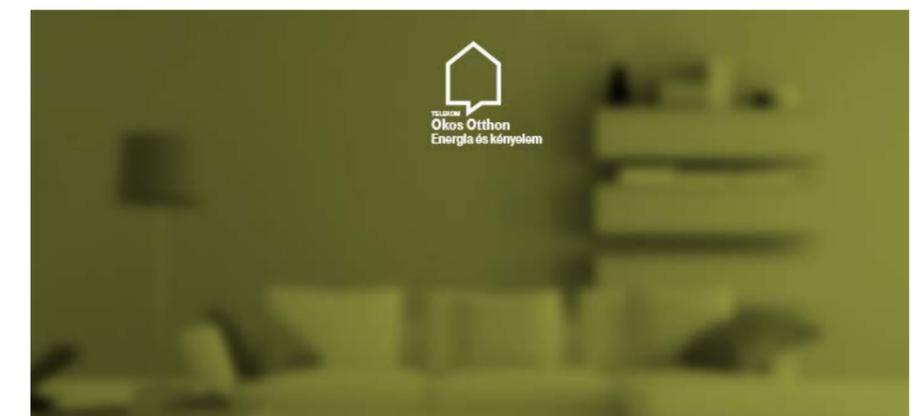
The success of the Hungary of the 21st century lies in its ideas. To reach it you need a workshop where ideas can roam and evolve freely. Kitchen Budapest (briefly KIBU) innovation and incubation lab was established back in 2007 with the support of Magyar Telekom. Our involvement guarantees the operation of this special lab for the 8th year now. Kitchen Budapest is an experimental innovation lab with a primer goal of helping young talents and supporting them with knowledge, network and infrastructure. They aim to provide solutions to global and mass-cultural issues. So ideas work not only in theory, at the level of concept, but also past the test in exemplary manner in the economic and social environment.

KIBU looks on the Startup Program launched in 2012 as an important success; it gives teams having a budding idea the possibility to make their dreams come true. Out of more than 500 contacts 5 teams successfully entered the incubation program. It is part of their mission to realize worthy ideas.

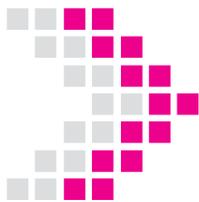
Upon launch of the Start Program it was clear that Hungarian young people need an even earlier phase idea-development program. Based on this need, they established the Talent Program at the end of 2013. In every semester 4-5 teams wins the opportunity to develop their idea with the mentorship of KIBU's experts to a prototype. So far, the special scholarship program had a couple of hundred applicants, from which 12 teams have already made it to the Demo Day. The objective is to elaborate design product and service ideas with business potential or cultural vision that may have good chances to successfully enter the Startup Program. The important thing is that these initiatives may hold out firm in the future—both from a business or innovation value perspective.

These investments and business opportunities help the Hungarian Telekom group in developing innovative products and partner cooperation. The ideas developed by KIBU also serve as an inspiration for those who work at the business development department of the company enabling them to get a better insight about the field we are targeting our products.

For more information, please visit the <http://www.kibu.hu> website.



Smart Home service



#### 4.5. SERVICE AVAILABILITY

Magyar Telekom grants subscribers rights connected with service availability and fault repair on the basis of its General Conditions of Contract, available on the internet and in the customer service points. In these the company guarantees compliance with the published quality targets in the service provision process in its entire service area, whose compliance is checked with tests, and the methods of measuring are made public. The company also specifies here the quality target figures of services provided, and continuously measures their fulfillment and makes the readings publicly available annually. Faults are managed in the dedicated subscriber process in line with, among others, their rights laid down in the General Conditions of Contract, after the detection and registration by the company of the fault.

The General Conditions of Contract are available here:  
<http://www.telekom.hu/szolgáltatások/aszf>

Service development:

- Following the change-over to another manufacturer regarding our core network switching centres used for the servicing of mobile internet, in addition to the public mobile internet services, in 2014 we successfully also migrated to the new platform the dedicated mobile internet services provided for businesses.
- This migration means moving from Huawei to Cisco platform of mobile internet services, provided for nearly 400 different companies. We apply several different technical solutions to implement these services, which made the successful migration more complicated. As a result of continuous contact with the customers, the pre-planned and agreed migration dates and the coordinated work of the technical teams involved in the implementation of the service, the platform migration caused only minimal customer irritation.
- The new platform was a pre-condition for the DPI-based unlimited data options that were successfully introduced in 2014.

- We have integrated a new Cisco GW (GW3) into the live network in order to expand the capacities. Currently, this gateway is servicing a part of the public mobile internet service.
- At the end of 2014 we put into operation the SDC centre. This centre was a prerequisite for our LTE roaming service, which started in January 2015, and has been successfully running since that time.

As part of the **network modernization project** the exchanging of the entire 2G and 3G radio network will be carried out with a completion date in April 2015. In parallel with this, the starting and the continuous extension of the 4th generation LTE network in the modernized locations took place and became available to improve customer experience. At these locations the quality of our existing services has also improved, like HSPA+. The deployment of

the new devices results in a more environmentally-conscious use of energy, since with their use the energy consumption of our network has reduced to nearly half of that in the previous period. In the course of the network modernization project, the number of our sites has more than halved and the consolidation of our IT and NT sites has begun, too, which will also result in better energy consumption.

Following the **successful** frequency tender in 2014 and with the starting of the LTE 800 base stations, almost at the touch of a button we have nearly doubled our LTE coverage in the country and have become market leaders.

Also on the technology side we have been getting closer to having a single, consolidated subscriber database; we are migrating the separate databases into an even more redundant subscriber database in the course of the project.



**DR. JÁNOS TREMMEL**  
 Network Development Director

People of today and people of the future need swift and high quality access to internet content, whether they travel by car or train or using their high-speed fixed line network at home. Future networks do not only facilitate work and managing everyday administrative tasks but also offer an opportunity for recreation and to gain new experience. The Digital Hungary program, to be completed by the end of 2018, has four pillars with which 1 million fellow citizens may learn how to keep contact (1) with the government/municipality administrative bodies (2) through e-administration channels or use the services of (3) intelligent cities. In order to achieve this goal we need to rollout our network in a scale that has been never experienced before (4). Compared to the current number of 1.9 million households covered with high-speed internet (30 Mbps+), the future optical, cable TV and fixed line network developments will provide excellent quality internet access in a total of 3.3 million homes, even at remote corners of the country for everyone!

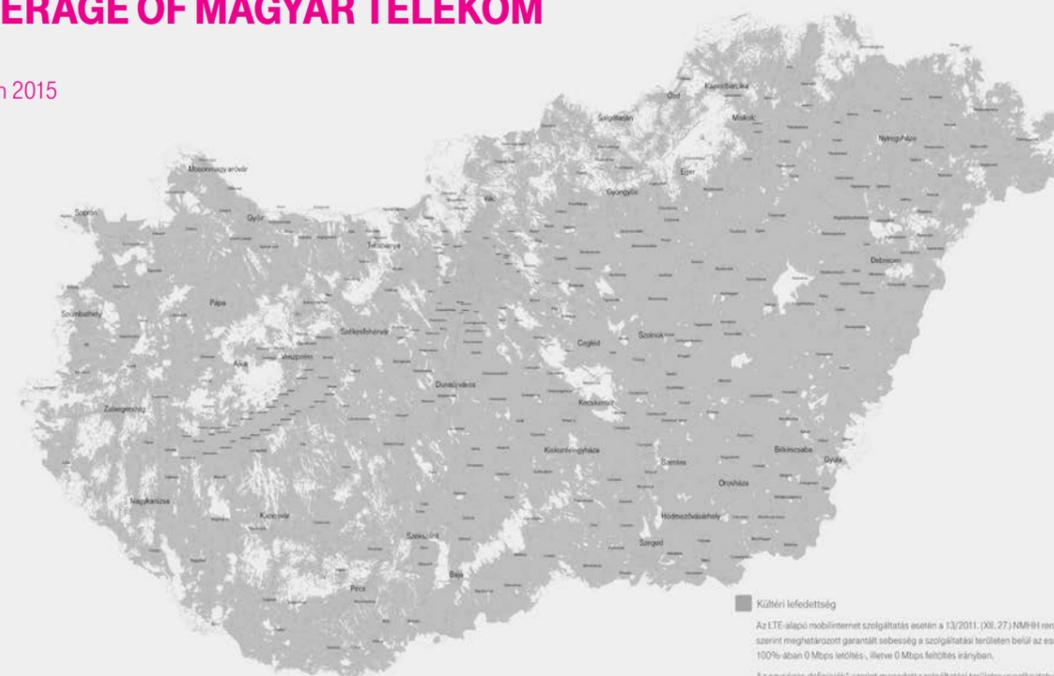
The tasks ahead of us could be compared to two revolutionary periods in our history: in the 19th century Hungary's industrial development required railways, whereas in the 20th century the development of the electricity network allowed a huge leap in our economic, social and cultural life.

So we pressed the turbo boost button of development both in the field of 'what' and 'how': we do not only build the network from our own resources or using EU funds but we also do it in a partnership/network leasing model. Besides the future technologies of fiber (GPON) and high-speed coaxial cable TV (ED3) solutions we also utilize the digital potentials of our existing copper network with the rollout of two new solutions. One of them doubles the so far available VDSL speed by way of using two twisted pairs of copper cables (bonding) while the other aggregates the speed of ADSL/VDSL and 4G networks (hybrid access) for customers. The latter innovation strongly relies on our commitments taken in the Y2014 frequency tender, i.e. extreme swift rollout of our mobile network. Thus by the end of 2015: 97%, while by the end of 2018: 99% of the population may enjoy the benefit of the new 4G technology.



## LTE BASED MOBILE INTERNET SERVICE COVERAGE OF MAGYAR TELEKOM

31 March 2015



**Külső lefedettség**  
 Az LTE-alapú mobilinternet szolgáltatás esetén a 13/2011. (XII. 27.) NMH/BI rendelet szerint meghatározott garancia sebesség a szolgáltatási területen belül az esetek 100%-ában 0 Mbps lehetőségre, illetve 0 Mbps lehetőségre irányban.  
 Az egyéges definíciók<sup>1</sup> szerint megadott szolgáltatási területre vonatkozóan az esetek 80%-ában az LTE-alapú mobilinternet szolgáltatással elérhető sebesség legalább 2,00 Mbps lehetőségre, illetve 0,50 Mbps lehetőségre. A megadott területen a mobilinternet szolgáltatás külsőben és bizonyos esetekben ezen területen belül az épületekben is igénybe vehető. A megadott területen LTE-HSPA+ HÁLÓZATOK és antennákkal az épületek belüli használata lehetővé válik.  
<sup>1</sup> A Mobilinternet Főnemű 147/2012. (XII. 11.) számú rendelet alapján, a módosított szöveg alapján.



EGYÜTT. VELED

**SERVICE AVAILABILITY**

Annual availability (%)	2010	2011	2012	2013	2014
CATV (analogue/digital)	99.94/99.75	99.93/99.82	99.95 ✓/99.93 ✓	99.94 ✓/99.88 ✓	99.90 ✓/99.89 ✓
SatTV	99.90	99.87	99.86 ✓	99.84 ✓	99.94 ✓
IPTV	99.85	99.99	99.82 ✓	99.86 ✓	99.85 ✓
Fixed internet (ADSL/GPON/KábelNet)	99.90/99.96/99.72	99.92/99.95/99.78	99.93 ✓/99.99 ✓/99.90 ✓	99.89 ✓/99.96 ✓/99.87 ✓	99.89 ✓/99.90 ✓/99.86 ✓
Mobile internet (2G/3G/4G)	99.40/99.49	99.64/99.29	99.40/99.55	99.40/99.57/99.67	99.66 ✓/99.74 ✓/99.67 ✓
Telephone/VoIP/VoCa	99.95/99.94/99.91	99.95/99.96/99.92	99.95/99.93/99.84	99.93/99.90/99.87	99.94 ✓/99.88 ✓/99.90 ✓
Mobile telephone (2G/3G/4G)	99.93/99.88	99.94/99.89	99.93/99.88	99.91/99.88/99.84	99.907 ✓/99.883 ✓/99.849 ✓

**4.6. DATA PROTECTION**

Among the 2014 sustainability objectives, Magyar Telekom lays great emphasis on the protection of personal data.

Prior to developing new products and during provision of its services, Magyar Telekom considers the protection of its customers' and business partners' personal data as top priority. Magyar Telekom manages personal data in accordance with the Hungarian legislation, the guidelines of the National Authority for

Data Protection and Freedom of Information and the European Union directives, regarding personal data protection. Magyar Telekom ensures the highest standard of data security and technical and organizational measures, regarding personal data management/processing.



Magyar Telekom regularly issues employee trainings to introduce the up-to-date regulations and the internal Code of Conduct regarding personal data protection.

In case of contracting with third parties as data processors, Magyar Telekom requests from its contractors and subcontractors to process personal data according to the highest standard of data security and technical and organizational measures.

Based on the results of the investigation, we review our processes and make the necessary adjustments.

For further information, please visit the following website: [http://www.telekom.hu/about\\_us/data\\_protection](http://www.telekom.hu/about_us/data_protection)

Magyar Telekom provides multiple channels for its customers to request information and to send complaints regarding their personal data management. We treat our customers' personal data related complaints and inquires as matters of key importance, and provide factual responses within the relevant deadline.

In 2014, T-Systems Hungary Plc. was operating a certified data and information protection system (ISO/IEC 27001). Its objective is to ensure secrecy, unharmed operation and uninterrupted availability of our data and information. The data and information protection system manages the data files managed and produced by T-Systems Hungary, the company's business data, the data of its partners and employees, offices, commercial and developed software, buildings, offices, equipment and IT systems. The maintenance of the system is ensured through the application of new and continuously developing information and communication technology. We respond to information security exposures in a way that residual risks may not adversely impact our work and the company's operation.

In 2014, Magyar Telekom received requests and complaints either from Nemzeti Adatvédelmi és Információszabadság Hatóság (National Authority for Data Protection and Freedom of Information) or either directly from customers, which were duly investigated by the Data Protection Group of Magyar Telekom, and the findings were reported to the complaining customer and/or the authority. In 2014 we received 12 requests, to investigate personal data management complaints, and only 1 of these was found to have grounds.



Activities in the field of data protection in 2014 at Crnogorski Telekom:

- PPSA process: training for employees.
- ICS control is done.
- New UARM directive is adopted.
- During the public consultation process CT sent comments on bylaws refer to data retention and categories on retained data.
- Supporting One.ERP project and HR suit project.
- CT regularly sends reports to Group Privacy (quarterly).
- Intensive cooperation with National Data Privacy Agency.

Makedonski Telekom and T-Mobile Macedonia, as members of the Deutsche Telekom Group, pay great attention to protection of personal data of customers, employees and other individuals in all of its business processes, by implementing the standards stipulated with the personal data protection regulations in the Republic of Macedonia and the standards existing within the Group. MKT and TMMK are aware that the success of the companies is dependent not only on global networking of information flows, but also above all on trustworthy and safe handling of personal data.

The principles for personal data protection are more thoroughly elaborated in the Privacy Code of Conduct of Deutsche Telekom, implemented and valid for all the companies across the Group. The Privacy Code of Conduct is adopted by the both companies as a CEO Directive. The Privacy Code of Conduct conforms to the requirements by the Macedonian Law for Protection of Personal Data, as well as DT Group Privacy. Regarding the extent of implementation of the provisions of the Privacy Code of Conduct, Data Privacy Officers (DPOs) in both companies perform annual self-assessment and the employees are surveyed by DT Group Privacy. Data privacy issues are always considered in the early stage of development of the new products and services, as well as in development of new IT systems, providing high level of privacy for all users and customers.

In 2014 the initiative for implementation of new Group Directive, Binding Corporate Rules Privacy is raised and the process of synchronization and adaptation of the text by all companies through the Group is completed. The new Directive, Binding Corporate Rules Privacy is intended to provide more unified and standardized privacy for all the company

members, as very often Deutsche Telekom Group is perceived by its customers and the general public as a single entity. Data privacy shall make an important contribution to the joint success of the company and to support the claim of being a provider of high-quality products and innovative services by implementing new Binding Corporate Rules Privacy. MKT and TMMK shall initiate the process for adoption in the year to come.

A lot of projects and products in 2014, such as Loop, E-care, Mobi Wallet, Olive box, Cloud message, DoxBee, Cloud Media Storage and others, have been addressed by Data Protection for potential privacy implications in the design of the services, data protection requirements in the processing of personal data, as well as all necessary contractual obligations to the vendors or other third parties involved.

MKT and TMMK had active participation in process of creating standardized Commissioned Data Processing agreements through the companies of the Group, that are used for specification of the rights and obligations within the data processing by shared service centers of the group.

The level of privacy and data protection within MKT and TMMK is inspected on regular basis by different kind of revisions. Several privacy audits took place during 2014: audit by Directorate for Personal data Protection (DPDP) for Max TV Product, internal audit for MKT/TMMK customer documentation, and also Group Privacy audit were conducted. The identified measures and recommendations from all these audits are always used for improvement of some segments of the process for data protection.

#### 4.7. ADDRESSING LEGAL AND ETHICAL ASPECTS OF CONTENT SERVICE PROVIDING

Today internet is the main forum for the exchange of knowledge, information and goods, as well as of amenities and recreation. Together with the continuous development and the accelerated world, customer needs have also changed: internet is used more intensively, frequently and to access more diverse contents.



Origo Media and Communication Services Private Limited Hungary (Origo Zrt.) operating origo.hu portal, as an affiliate company of Magyar Telekom Group and the founding member of the Association of Hungarian Content Providers (MTE) is committed to the Code of Ethics of Content Providers. The Code of Ethics can be accessed on MTE's web site: [http://www.mte.hu/dokumentumok/mte\\_kodex\\_eng.doc](http://www.mte.hu/dokumentumok/mte_kodex_eng.doc). Apart from the commitments through MTE origo.hu avails of its own code of ethics, which is constantly revised and expanded.

For videa.hu, which belongs to the portfolio of Origo Media and Communication Services Private Limited Company, one of the most important development in 2014 is the cookie-based parental lock, which can be used without registration. With this development the adult videos can be filtered from the videa.hu contents, and grant 100% control for the parents to secure the young users.

Regarding data bases of Origo Zrt., all types of access rights for users is authorized by Origo's Media and Communication Services Private Limited Company. In the course of licensing and in compliance with the recommendations of the Ethical Code of Content Providing, the company pays attention to protect personality rights and intellectual property, as well as to be compliant with the Ethical Codes of Content Providers.

At clickshop.hu we reuse paper boxes used during delivery, and we try to minimize plastic packaging. In the past two years the amount of printed marketing material (e.g. flyers) was minimal. According to our legal obligations we collect electronic waste on demand from our costumers.

At Crnogorski Telekom several activities in 2014 resulted in savings and new group contracts for content acquisition across the DT group. In addition, group level approach is reducing risk. Most content providers are centralizing their sales activities, eliminating resellers, distributors and partners, which further reduce risk, and CT is benefiting from joint acquisition. Video on demand acquisition is also continuously handled on the group level, reducing legal and ethical risk.

All content provisioning related activities within Makedonski Telekom and T-Mobile Macedonia are in full compliance with all

areas of all relevant regulations and legal framework, including but not limiting to copyright laws, but also all other relevant laws related to content acquisition, production and distribution. Special attention is dedicated to providing content and content related services via equal treatment to all customers, regardless of the ethnicity, nationality, sex and age, but the content nature as well, in order not to encourage or incite to military aggression or ethnic, racial, gender or religious hatred and intoleranc.

#### 4.8. SAFE USE OF MOBILE PHONES, ELECTROMAGNETIC FIELDS

Beyond providing high-quality services to these customers through mobile telecom network, UMTS licenses were distributed for operators in Hungary in December 2004, for operators in Montenegro in June 2007, and for operators in Macedonia in June 2009. Furthermore in December 2011, Magyar Telekom obtained the license for launching LTE services, the commercial sale of which took place in 2012. At the end of 2014, with the newly acquired 800 MHz bsn, Magyar Telekom's LTE service was available for approximately 80% of the total population.

LTE-related network may heighten the interest of communities in the issue of electromagnetic fields, which will increase the importance of the company's strategy in addressing the issue.

The electromagnetic exposure limits in Hungary have been determined in line with the guidelines set by ICNIRP (International Commission on Non-Ionizing Radiation Protection), which are based on the practice applied in most European countries and on Recommendation 1999/EC/519 of the European Commission. As a result of the relevant Hungarian decree, adopted in August 2004 (63/2004 [VII.26.] ESzCsM) on the basis of ICNIRP guidelines, the legal situation in Hungary complies with the EU regulation on electromagnetic fields.



As a part of the corporation's general training program and in the course of mandatory orientation training, every new employee is enabled to obtain information regarding issues related to electromagnetic fields.

Within Deutsche Telekom Group, issues related to electromagnetic fields (EMF) are regulated in the objectives related to EMF topics, the so called EMF policy recommendations, with special emphasis on transparency, providing information, support of and involvement in research. Deutsche Telekom's relevant recommendation has been applied as mandatory to it by Magyar Telekom since 2004, by T-Mobile Macedonia since March 2011. The Management Committee of Crnogorski Telekom adopted the company's EMF regulation aligned with DT's relevant regulation on October 27, 2011.

To support preventive measures, both Magyar Telekom and T-Mobile Macedonia set up dedicated work groups, which meet regularly each quarter, and continuously monitor EMF-related national and international research and developments, and furthermore respond to any arising queries by authorities, residents or employees. Further information about T-Mobile International's EMF Policy Recommendations adopted by Magyar Telekom is available in English on the website of T-Mobile International.<sup>(31)</sup>

Within this framework, Magyar Telekom and its subsidiaries address complaints and inquiries in an efficient manner.

The EMF policy was also endorsed by Crnogorski Telekom and T-Mobile Macedonia. The policy defines the core principles of responsible use of mobile communication technologies. In this document we assume commitment for greater transparency, information providing and involvement in the relevant processes.

#### Mobile network, network development

According to the practice applied at base stations, the antennas are always installed in such a manner that employees should not be able to be in the area facing the antenna, they should not and need not have to work in that zone, and passageways should not cross that particular area.

If in an extraordinary case they do need to pass by or work in the area facing the antennas – which occurs mainly with external contractors, for example when renovation work is carried out on the exterior of buildings – safety distance data is made available. If necessary, the possibility to carry out local measuring is also available and, in justified cases, antennas can be temporarily relocated or their transmission performance reduced to the desired extent.

When Magyar Telekom employees who perform work near the antennas come across some unidentified signal source, they determine the boundaries of the safe zone using their personal RADMAN radiation detector, thus avoiding any consequent health hazards.

Compliance with the value limits defined by law for Magyar Telekom's mobile network is, whenever necessary, audited and certified by independent measurement bodies. In 2014 the company had 17 local measurements performed for non-ionizing electromagnetic exposure, which in all cases demonstrated values well below the limit values related to electromagnetic fields.



As a result of cooperation between three mobile operators, an EMF portal was established in 2006 and continued to operate in 2014 as well for the purpose of information (<http://www.emf-portal.hu>). In this portal questions regarding EMF topics can be asked, the latest relevant news is made available along with the results of EMF-related measurements, and research is requested by operators from external organizations.

Prior to each and every base station construction or tower installation the company reaches agreements with and cooperates with all those concerned. Where a need for it is shown, citizens' forums are held in an effort to reach an agreement.

#### Communication

Despite the fact that Magyar Telekom in all cases remains far below the limit values identified by the ICNIRP guidelines regarding both handsets and base stations, the company considers it important to keep its employees as well as its customers<sup>(32)</sup> informed.

In the internal training programs conducted in 2014, 30 colleagues attended presentations delivered by an expert from the Frédéric Joliot-Curie National Research Institute for Radiobiology and Radio Hygiene (OSSKI). Furthermore, Magyar Telekom had high-level discussions with experts from the National Media and Infocommunications Authority (NMHH), also supporting them with mobile network data for their on-site measurements.

In addition to internal communications, Magyar Telekom continued to be open in 2014 to answering any enquiries related to safe mobile phone use.

Alongside the EMF portal, Magyar Telekom also runs its own website addressing the same topic (<http://www.bazisallomas.com>), which also provides answers to questions about the health, legal and technological aspects of mobile networks.

The SAR values<sup>(33)</sup> of each device are available in the user manuals in the mobile set boxes and in the Telekom shops. In addition, Magyar Telekom's web shop also provides the same data within the detailed descriptions of devices.

#### Research

The exposure of the world's population to non-ionizing electromagnetic radiation and electromagnetic fields has increased considerably during recent decades. As civilized society cannot go without using appliances emitting non-ionizing electromagnetic radiation—among others mobile telecommunication devices, satellite and terrestrial television and radio broadcasting devices, meteorological satellites, flight navigation, radio astronomy and space exploring devices—the exposure of the environment and the population is expected to increase further in the future. The World Health Organization (WHO) and several other international organizations and research groups analyze the impact of technological development on human health.

The assumed health impacts of mobile telecommunications have already been studied and analyzed for twenty-five years. Until today, scientific research has not been able to confirm any kind of negative health effects of mobile telecommunications on the human organism.

The largest research project of this kind conducted so far, the INTERPHONE project organized by WHO-IARC (International Agency for Research on Cancer) with the participation of

13 countries was closed in 2011. After closing the INTERPHONE project on May 31, 2011 WHO-IARC classified electro-magnetic fields in carcinogenic category 2B. According to the chairman of the WHO-IARC working group 'evidence is strong enough to confirm the 2B categorization and also the conclusion regarding the occurrence of some risk. In view of this the studies into the connection between mobile phones and the occurrence of cancer must be continued.' At present the agents classified to category 2B are among others, black coffee, petrol, exhaust fumes of petrol fuelled engines, nickel and alloys, talcum powder, network frequency magnetic fields and mobile telephone use.

Through its GSM Association membership, Magyar Telekom contributed directly to the promotion of independent research analyzing the health impacts of mobile networks.

Every national affiliate of Deutsche Telekom is committed to supporting independent research that expands our knowledge regarding the effects of electromagnetic fields. For this purpose T-Mobile International, in cooperation with operators in the UK and Germany, has been jointly supporting an international research program since 2002 in the value of over twenty million EUR, and additional six million EUR through the GSM Association. This makes Deutsche Telekom Group one of the world's largest supporters of research on this subject.

(32) [https://www.telekom.hu/about\\_us/society\\_and\\_environment/society/health\\_and\\_safety](https://www.telekom.hu/about_us/society_and_environment/society/health_and_safety)  
 (33) The SAR value (Specific Absorption Rate – specific absorption value) enables the measurement of the amount of energy absorbed by the body's tissues.