Microsoft

WHAT IS MICROSOFT DOING FOR HUNGARY?

2021

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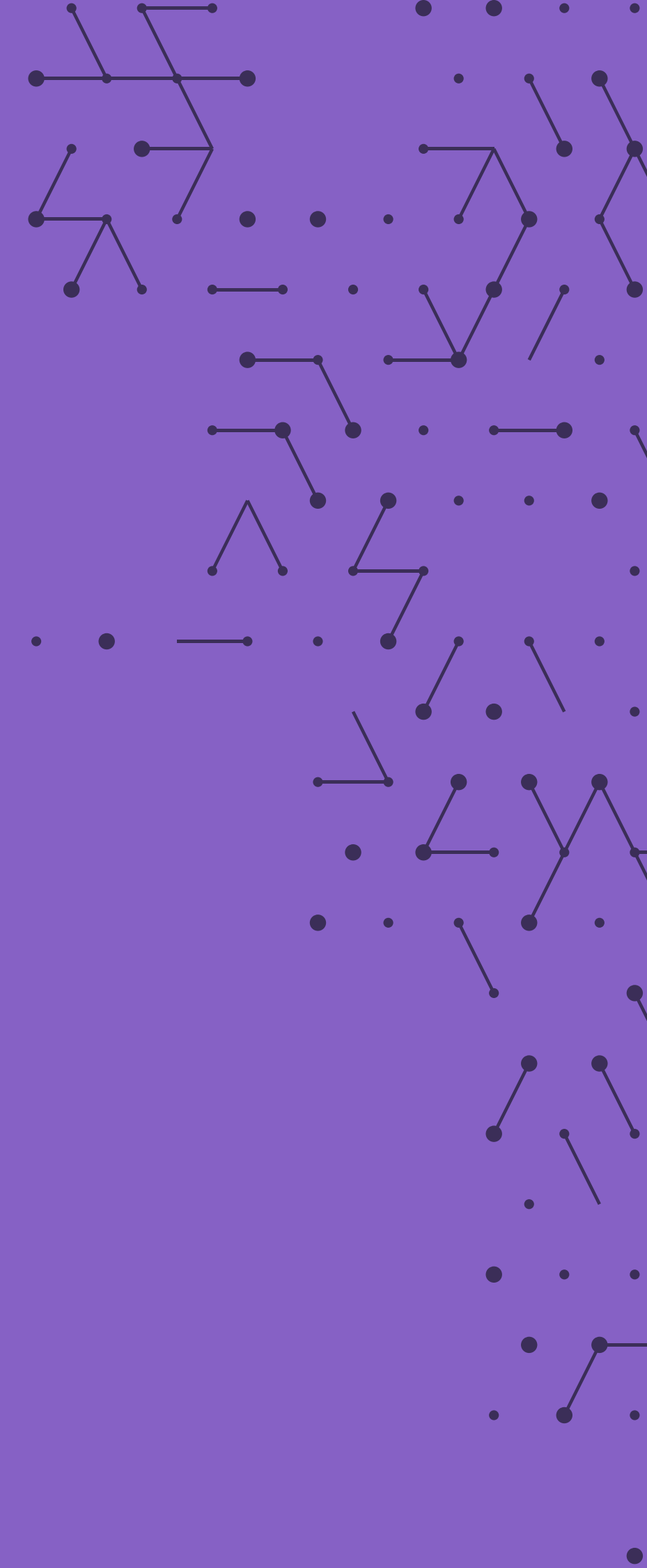Innovation for sustainability
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INNOVATIVE SOLUTIONS FOR HUMANITY AND THE PLANET

RECOVERY,
REVIVING THE ECONOMY

Innovative solutions for humanity and the planet

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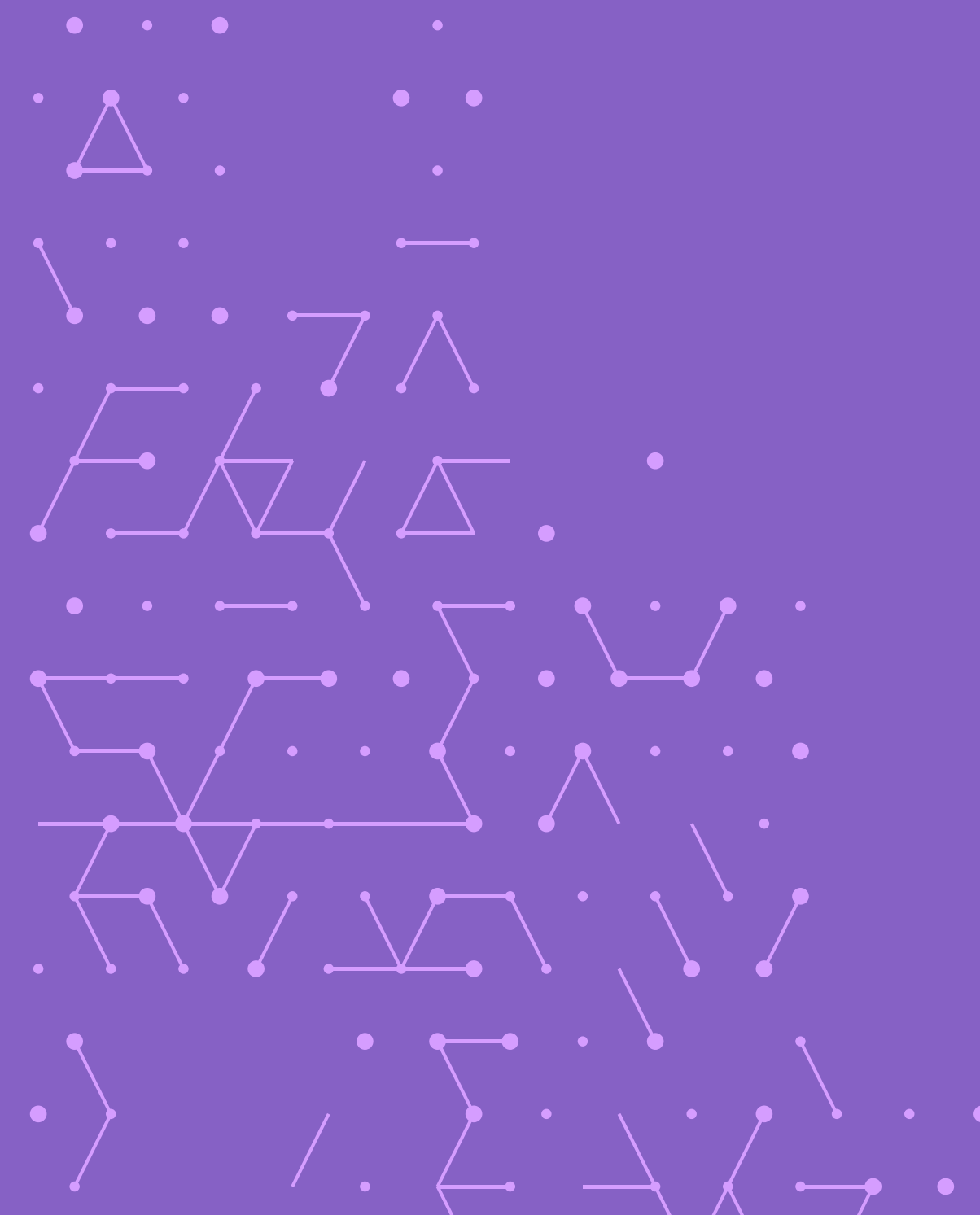
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- **Creating digital resilience has never been so urgent,** as organizations rely on digital technologies to operate and adapt to unexpected situations. Rethinking business, work habits, and our way of life are more pressing issues than ever. Digital technologies help in all of them.

- **The digital economy produces an increasing share of domestic GDP,** to which we actively contribute with our technologies. The advancement of digital technologies is a major driver of growth.

- **We bring value-creating innovation to Hungary:** unceasing renewal is our trademark. We also provide our customers with technology that can transform their own markets.

- **More than 130,000 developers around the world work on artificial intelligence and cloud-based technologies,** which also help the development of treatments for the coronavirus as well as the adaptation of healthcare, transport, education and businesses to the epidemic situation in Hungary.

- **Microsoft Hungary is the central organization of an evolving, thriving ecosystem** – a community of partners, suppliers, learners, teachers, and customers. As the engine of this community, Microsoft provides powerful support to organizations for rapid digital transformation and for skilling their employees.

- **Microsoft supports the skilling of 25 million people worldwide,** 12,000 people in Hungary are currently further developing their IT skills through the opportunity.linkedin.com website. Their knowledge is essential for the digital transformation of companies, for the recovery of the economy.

- **In 2020, Microsoft Teams was one of the most successful teamwork platforms;** it currently has 115 million daily active users.

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BUILD AND MAKE THE FUTURE SUSTAINABLE

WE MAKE EDUCATION AN EXPERIENCE

CARBON NEUTRALITY

Microsoft's **carbon footprint will be negative by 2030,** and by 2050 it will remove as much carbon dioxide from the environment as it has emitted directly or indirectly from its electricity consumption since it was founded in 1975.
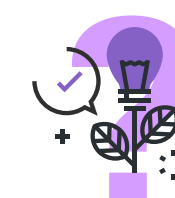
SUSTAINABLE GROWTH

We are all responsible, day after day, for making ethical and fair business decisions, and thereby ensuring our sustainable growth.

CLEAN DRINKING WATER

Microsoft wants to return more water than it uses.

ETHICAL OPERATION

Microsoft Hungary was also one of the first companies in the global group to introduce the standard of ethical operation, the international standard ISO 37001.

MICROSOFT TEAMS

During the COVID-19 pandemic, Microsoft Teams helped hundreds of Hungarian schools and thousands of businesses implement distance learning and remote work.

DIGITAL EDUCATION PACKAGE

Through the Digital Education Basic Package, provided free of charge to teachers and students, we support the digitalization of education with software and knowledge in the amount of HUF 52 billion.

EQUAL OPPORTUNITIES

We are committed to the next generation—which is why we strongly support the development of digital skills and abilities and the creation of equal opportunities.

WE MAKE THE CLOUD SECURE

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■ **Our cloud services, platforms and data centers meet the highest security standards in the world.**
Security audits are part of our operations, and we also provide legal guarantees for the security of the technology.

■ **Almost 570,000 developers in 60 countries around the world are improving, making smarter, day by day, Microsoft's cognitive services** to enable artificial intelligence applications to understand and interpret the needs of human users better.

■ **3,500 cybersecurity experts work full-time at Microsoft,** using artificial intelligence to protect our systems and personal information and prevent 6.5 trillion cyber-attacks each year.

60
COUNTRY
570 000
DEVELOPERS

3500
CYBERSECURITY EXPERTS

Microsoft

Innovative solutions for humanity and the planet

1. DIGITAL TRANSFORMATION FOR A FUTURE-PROOF HUNGARY

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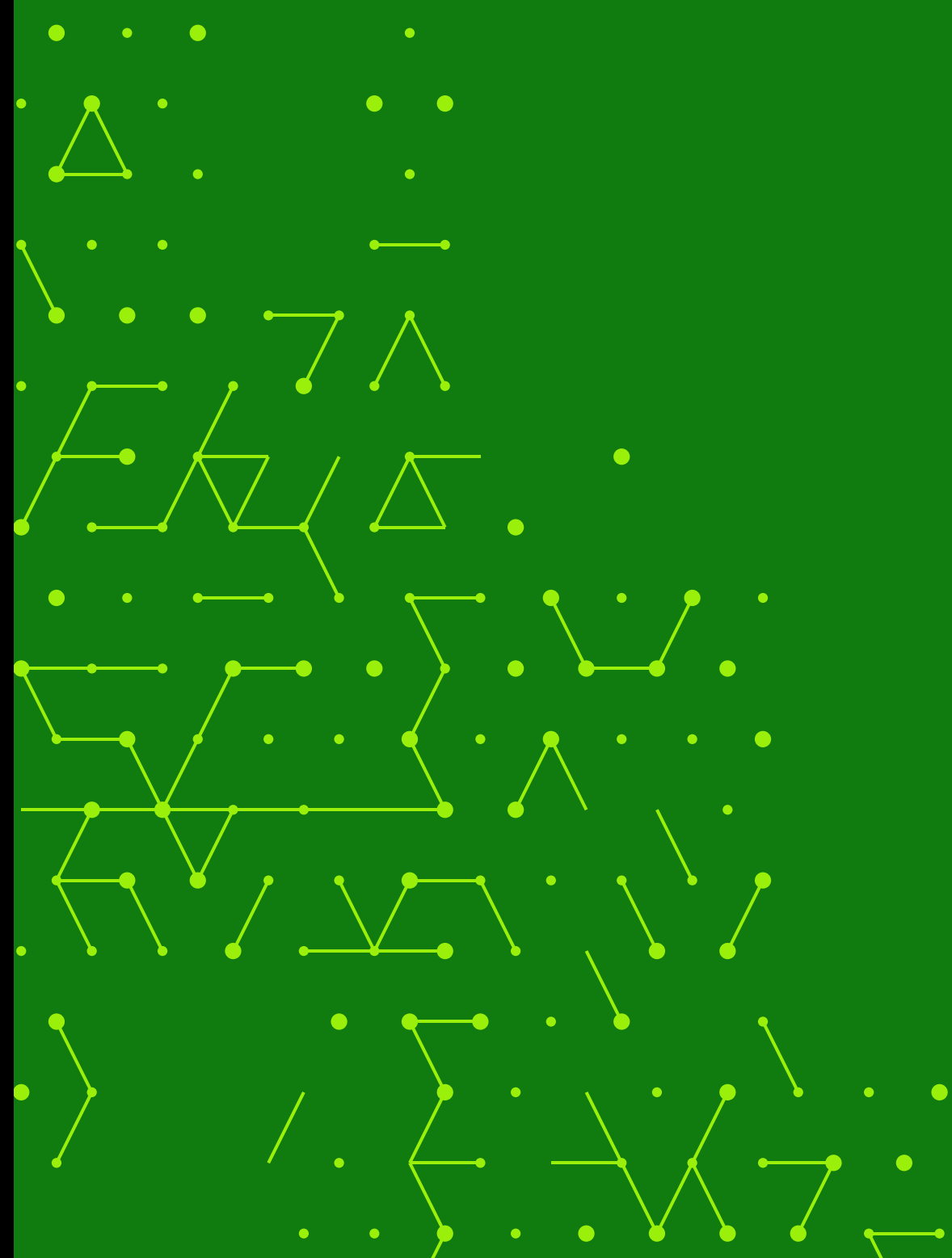Innovation for ethical business conduct

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Microsoft's mission is to empower every person and every organization on the planet to achieve more, gain more experience, and be more efficient in their everyday life through their talent and work, using technology and innovative solutions.

Microsoft's commitment guides everything we do as a company in Hungary. We demand a high standard from ourselves and our partners in order to maintain the trust of our customers, government, investors, partners and each other.

In the last almost three decades, Microsoft Hungary has become an integral part of the Hungarian technology industry, economic and social life, as well as its active shaper. It is a member of IVSZ, the Artificial Intelligence Coalition, and the **5G Coalition**, and also participates in the Digital Hungary program. It will use its resources to strengthen Hungary's competitiveness through the digitalization of the economy and education, which is also a recipe for recovery from the crisis caused by the epidemic.

The year 2020 highlighted that the digital readiness of economic actors was a key factor in the first phase of protection against the coronavirus, and it will be in the period of rebooting the economy. We are committed to supporting the government and economic actors in adapting to the epidemic situation and beyond.

The very first task now is to defeat the virus and protect human health; therefore, we provide artificial intelligence-based and Big Data technology and cloud computing capabilities for resource management in healthcare, and processing clinical and laboratory data in COVID-19 vaccine development. By creating the conditions for remote consultation and chatbots, we help the work of general practitioners and finding plasma donors.

During the coronavirus epidemic, we do our best to ensure the effective and safe functioning of organizations. Our Microsoft 365 solutions are designed to help people to continue to work, learn, and stay connected around the world.

Microsoft Hungary is committed to making the digital transformation happen everywhere, with state-of-the-art solutions for every part of Hungary, thus reducing the backwardness of disadvantaged regions. We participate in programs and support initiatives in Hungary in which everyone can be equally involved: every community, every business, every employee. **We help teachers, students, the unemployed, engineers, but also the youngest, boys and girls alike, to prepare for the challenges of the digital world.**

During the epidemic, development projects that had previously been planned for years had to be implemented in a few weeks. Microsoft Hungary rushed to the aid of organizations with its own tools, thus giving a significant impetus to the digital transformation of the entire domestic economy. We are proud that Microsoft Hungary has been able to make an active contribution to these results during a very busy and professionally challenging period.

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2. WE MAKE OUR CUSTOMERS MORE SUCCESSFUL

![Microsoft logo] Microsoft

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Our goal is to make our customers, Hungarian companies and businesses successful. To do this, we need to have a deep knowledge of their needs and opportunities, and work with them to find the solution that best fits their profile. It is this attitude and the trust that comes with it that keeps Microsoft running and makes it successful in the long run.

Hundreds of thousands of highly qualified developers are working worldwide to provide our state-of-the-art services. Not only does Microsoft bring these technologies and make them accessible to the Hungarian economy and society, but it also transfers all the knowledge without which these technologies cannot be leveraged. Through our extensive partner network of resellers, system integrators, developer companies, training centers, and other professionals, we assist Hungary's technology transformation. That is, Microsoft experts and partners not only sell software packages developed by Microsoft and widely used worldwide, but also help customers with up-to-date knowledge, consulting, and operational support.

Microsoft and its Hungarian partners contribute approximately HUF 300 billion every year to the Hungarian GDP.
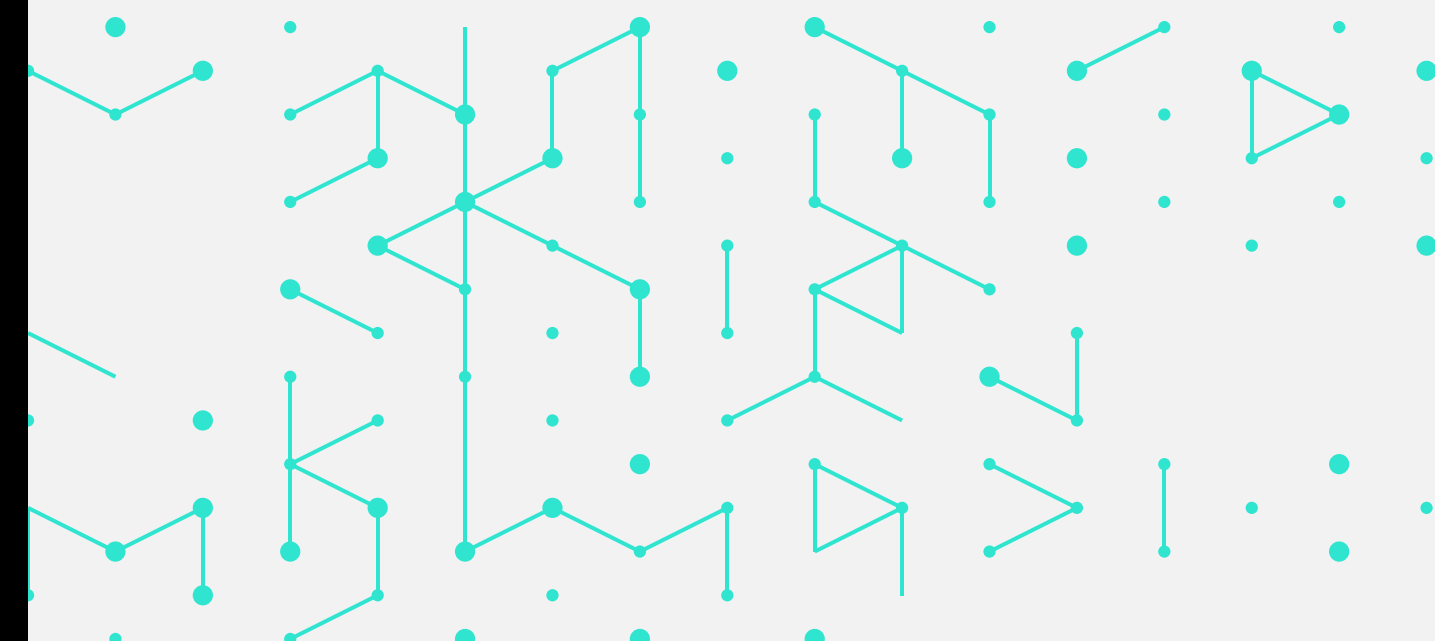
■ PARTNERS

Through its key registered partners, Microsoft provides technology skilling to about 4,000 people a year. Every year it upskills 600 engineers; additionally, it provides free access to its cloud services for all of its partners acquiring professional certification.

YEARLY
TECHNOLOGY TRAINING TO
4000 PEOPLE
600 ENGINEERS WORKING AT KEY PARTNERS

■ STARTUPS

We support everyone in making their ideas come to life and turning them into a viable and profitable business. Supporting startups can bring concrete and tangible economic benefits to individual countries, therefore it is part of the economic strategy in Hungary, too.

Microsoft for Startups is a free global program designed to facilitate the growth of startups. The primary means of this is to ensure access to state-of-the-art technologies such as **Azure** or **GitHub Enterprise** as well as sales support provided by Microsoft and its global partner ecosystem. **Last year alone, startups generated more than $ 1 billion in revenue through our program;** the average value of the transactions run into a six-digit amount.

>1 BILLION DOLLARS INCOME

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So far, for example, the Budapest based Hungarian startup, Shapr3D, has received $ 1.5 million in foreign investment; its solution can revolutionize the design of various objects. With its help, even those who have little experience in such work can create 3D models easily and quickly without an Internet connection. The Shapr3D application, which is compatible with all major CAD programs, is already in use in 150 countries around the world – the company's growth is outstanding.

Microsoft Hungary recently signed a strategic partnership agreement with **Hiventures Venture Capital Fund Management,** in the framework of which our company supports innovative ideas of Hungarian startups with professional consulting, technology services and skilling programs. Through its skilling programs and projects, Microsoft is present at the **Millenium Startup Campus,** which is the center of the Hungarian startup ecosystem.

Avatao was founded by key members of the data security laboratory of the Budapest University of Technology and Economics, CrySyS Labor. They envisioned an online service that teaches software developers how to build and operate secure applications through hands-on, game-like tasks. The system, which offers nearly 800 tasks, is suitable for supporting both self-learning and guided courses with IT security tasks. The company has won the title of the most dynamically developing startup in Hungary. The company has won the title of the most dynamically developing startup in Hungary.

■ **SMB**

Digital businesses create more value, create more jobs and benefit society as a whole. In addition, high-tech companies create high value-added jobs, as employees can focus on their tasks that require knowledge, innovation, and creativity. It is precisely this—namely, that employees can focus less on their routine tasks and spend more time on substantive business development—that is the surplus that enables companies to continually adapt to change. Thanks to cloud services, state-of-the-art technologies are now available not only for large enterprises, but also for organizations of all sizes and ages. This also means that the "small fry" can gain the agility and competitiveness previously characteristic of only the big ones. Today, we are witnessing the leading companies in the use of digital devices reshaping their markets and forcing dominant players to rethink their business strategies.

Microsoft is a major player in the information technology industry: of the approximately 2,500 domestic companies active in the Hungarian economy, it maintains regular contacts with 1,800 Hungarian partners, 157 of whom are key accounts. Through its network of business support services, it provides a secure livelihood for 15,000 Hungarian IT professionals.

OUT OF
1800
HUNGARIAN PARTNERS
157
ARE KEY PARTNERS

A SECURE LIVELIHOOD FOR
15 000
HUNGARIAN IT PROFES-SIONALS

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A major challenge is that, according to research studies, 30,000 jobs in Hungary requiring an IT qualification are unfilled. **According to some estimates, just filling these jobs would generate more than one percent more economic growth.**

30 000
JOBS REQUIRING AN IT QUALIFICATION ARE UNFILLED

>1% MORE
ECONOMIC GROWTH

Small and medium-sized businesses employ two thirds of Hungarian workers; therefore, in 2020, Microsoft paid particular attention to enabling all domestic businesses to enjoy the benefits of remote work and technologies such as machine learning, the cloud and artificial intelligence. Applying them makes businesses flexible, so they can adapt quickly to changes and retain their employees.

> *Teams and KingSol gave us a chance to continue working in March when the epidemic made our face-to-face meetings impossible. Today, online meetings in exciting and diverse formats have become the foundation of our long-term operations. We are able to hold more meetings now than in the past: we have eight to ten events per week, from club talks for eight to ten people to events for over 100 people. And our clients "show up" in larger numbers than before, because they can join anytime, anywhere, and because our meetings have become a bit more focused. We look forward to starting again offline, but Teams and the cloud will stay with us forever—to the great delight of our customers.*

János Horváth
CEO & Owner
MVÜK – Hungarian Association of Business Managers

Remote work in the cloud

At **BPION Services Kft.,** an accounting and payroll firm, Microsoft Teams has helped accelerate decision-making and reduce travel costs by orders of magnitude. For example, regular online orientation meetings were introduced in the emergency caused by the epidemic. During the video conferences conducted via Teams, the materials are easy to present; nobody has to travel far, yet eye contact is maintained throughout the meetings. The platform also allows for co-authoring of documents, which is used with great affection by the company's colleagues working in three different countries.

The company has been using cloud-based systems since its establishment, so they don't have to spend on hardware or running on-premises IT infrastructure either. Remote access to platforms and data files is provided by the Microsoft Azure cloud. An important aspect in the selection of the latter was a high level of security, which is essential for international tenders and large corporate partners.

Microsoft Dynamics 365 Business Central has been available in Hungarian and in compliance with Hungarian law on the Hungarian market from mid-April 2020. This ensures the state-of-the-art functionality of an integrated business management system for domestic small and medium-sized enterprises in a unique way, at predictable costs, without a significant one-time investment.

The system, also available as a cloud service, supports real-time data-driven business administration and business decision-making with artificial intelligence, machine learning and Power BI technologies. The complete cloud-based business management system is also unique in that it can be accessed from mobile devices, PCs and tablets on a single platform.

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3. ADAPTATION AND RECOVERY

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Epidemiological restrictions have put all groups of societies around the world in a difficult position, including companies, businesses, educational institutions, social organizations, and institutions in Hungary. An important experience is that the use of digital technologies makes organizations more flexible and resilient, allowing them to recover faster and meet customer needs better. These are the organizations that were able to stay operational even in the quarantine situation, because they were able to switch to working from home quickly.

"

Even in a family business, it is possible to respond to customer inquiries using a chatbot instead of people, to summarize meetings using digital assistants, or to forecast a malfunction or emergency at a factory.
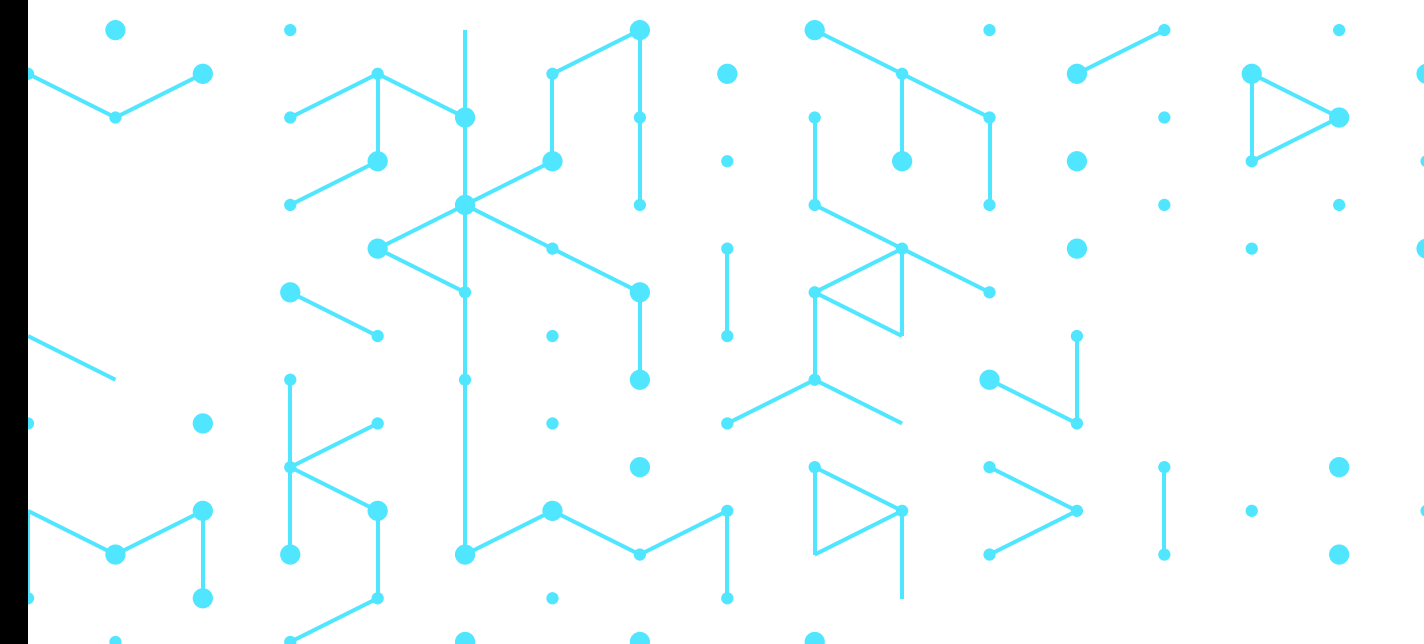
Gabriella Csanak
Marketing and Operations Director
Microsoft Magyarország

"

Organizations need to adopt cutting-edge technologies at a rapid pace in order to meet the dynamic economic challenges posed by global health, travel and trade constraints; at the same time, they need to create the conditions to implement and develop their own digital capabilities.

They need to empower their employees with better tools to optimize their operations and gain new markets more efficiently. In order to take advantage of new business opportunities, they may even need a radical transformation of their products and services. **Leaders need to break with the old methods, and rethink what productivity means.**

In these challenging, uncertain times, our customers expect us to help accelerate building their own digital resilience. Our cloud solutions contribute to this in an efficient and secure way. The use of new technologies alone is not enough—organizations also need to improve with their help. **Technology focus is the key to business resilience. Organizations that build on their own digital capabilities will be able to recover faster and emerge stronger from the epidemic-induced crisis.**

Virtual desktop at Egis

Egis has chosen an effective, quick-to-implement and cost-effective solution to create the technical conditions for remote work during quarantine: instead of devices, the company contributed to the work environment of co-workers working from home with Microsoft Virtual Desktop subscriptions. Thus, it provided remote access to corporate computers, the working environment and the software for work through the cloud, without new assets.

People are increasingly in need of acquiring new skills. Therefore, we support general recovery as follows:

- **We help small businesses recover with tools, resources, and guidance.**

- **We help people learn new skills, thereby finding employment.**

- **By developing Internet access, we also create new opportunities for rural communities.**

- **We support vulnerable communities.**

Working with LinkedIn, Microsoft Learn, GitHub, Microsoft Philanthropies, and Microsoft Education, we enable job seekers, students and workers to acquire new skills and knowledge that are in high demand in the digital 'hybrid economy'.

MICROSOFT TEAMS HAS PROVED TO BE AN EFFECTIVE HELP

![Microsoft logo]

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Many collaboration and teamwork applications such as Microsoft Teams have helped many adapt to the changed situation. The use of cloud technologies has become more widespread than ever before, with companies and businesses starting to store their files in remote data centers and using cloud computing capabilities to solve their current challenges. Organizations that had previously planned to introduce these tools accelerated their efforts in the spring of 2020, followed by others at a rapid pace.

In this situation, Microsoft Hungary has mobilized its resources to help its customers respond and at the same time implement their digital transformation quickly. Microsoft has been working globally to make its systems more responsive to increased demands. For example, a Microsoft Teams Live Event was held at the Budapest University of Technology in March this year with the participation of 2,600 people to test the load capacity of the system. **The meeting went completely smoothly.**
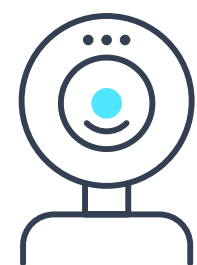
2600 PEOPLE LIVE EVENT

THIS IS HOW THE EPIDEMIC SITUATION WAS DEALT BY...
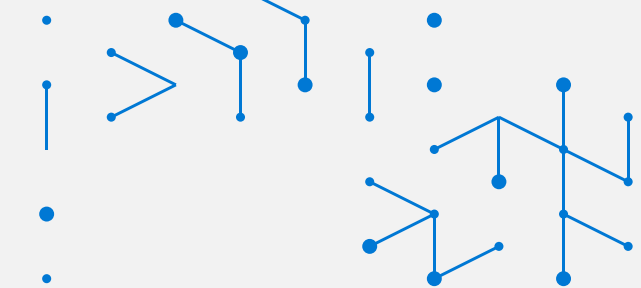
■ RICHTER GEDEON NYRT.

"*The epidemic situation rewrote our previous plans: we had to switch to online business operations in just a few weeks rather than months. The cultural shift brought about by this change has really taken us a leap forward: in April, in two weeks, the number of Teams users at Richter increased by 960%, and today it is more than 5,000. Today, 90% of our meetings take place via Teams, and nearly 1,300 of our employees work from home, and they also track their tasks and their progress here. Each department takes advantage of the new opportunities in its own way: IT also holds Teams briefings for two hundred participants, while HR has launched online yoga and spinal exercise classes.*"

■ SOCIAL AND PHARMACOLOGICAL EDUCATION CENTER

"*We have twenty county offices, with 109 institutions nationwide. The epidemic situation made it particularly difficult to keep in touch with them. We first mobilized Skype for Business, and not much later Teams, and switched to a digital work schedule. Our on-premise devices were well-coordinated using Azure, Intune and Microsoft 365 applications, so we were able to meet central expectations even in a crisis situation. Currently, about 700 of our employees use digital solutions on a daily basis: our training sessions and consultations with the staff of the county offices take place online, but the plan is that task management will move to Teams soon as well.*"

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■ **OTTHON CENTRUM**

"Before the epidemic, we insisted that our email should be hosted on a physical server. By now, we've moved to the Microsoft Cloud, but we didn't have to compromise on security. The transition took place within a few days, and in April we had more training in Teams than before in our classrooms. We can see each other in the same way as before, which is especially important to us! Life is now slowly returning to its usual track, but we mostly stay in Teams because time and money matter. Whatever restriction may come in the future, we are prepared for it."

According to Microsoft's own data, a very fast transition took place not only in Hungary, but all over the world: the number of daily active users of Microsoft Teams has now grown to 115 million. At the Budapest University of Technology, for example, the number of Microsoft Teams users rose from a few dozen to 10,000 in two weeks. According to dr. Charaf Hassan, the dean of the University, ten years of development took place in ten days in digital culture shift, and he was not the only one in Hungary with this insight at that time.

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WE ARE AT THE DOORSTEP OF A NEW "HYBRID WORLD"

The COVID-19 virus continues to have a major impact on everyday life, with more and more companies deciding to introduce remote work on a permanent basis after experiencing the second wave of the epidemic. Magyar Telekom, for example, has raised the proportion of remote working to an average of 40 percent, which means that it will have employees who do not go into the office at all, who will only partly work there, and those who will continue to work regularly at their workplaces.

At T-Systems, a similar conclusion has been reached and the "not-in-office" way of working has been introduced, which is emphatically not working from home, but it is characterized by the freedom of place and time. What this and the home office have in common is that employees connect to a common teamwork application that can be accessed from multiple platforms and devices: they communicate with each other, store, and edit—even simultaneously—their documents, assign tasks, and keep track of each other's duties. Microsoft is constantly developing one of its most successful applications, Teams, which serves as a framework platform, essentially for all other office applications.

Microsoft Teams did well in these features in recent months. Its most obvious and popular features are related to communication: in addition to chat, voice or video calls, Teams can also be used to hold meetings online. A call can be joined by up to 250 participants, but this number can be increased to ten thousand for Microsoft Teams Live Events.

MAGYAR TELEKOM
HAS RAISED ITS PERCENTAGE OF
REMOTE WORK TO **40 %**

![Microsoft](Microsoft logo)

As its use became more widespread and work from home became part of the new normal, Microsoft examined the impact on employees' mental health in a comprehensive, global survey and with the involvement of VR and AI experts and its customers.

Among other things, the research revealed that the vast majority of employers and employees (71%) would like to settle in both remote and flexible work in the future. According to Microsoft, we are on the threshold of a new "hybrid world," in which many will continue to work from their workplaces, but even more people will be joining in common activities from remote places. According to research, in addition to the advantages, there are also disadvantages to working remotely: such as the stress and fatigue caused by online meetings and the lack of personal interactions. In response to new needs, Microsoft has further developed its tools to mitigate disadvantages and increase the efficiency of teamwork. The aim of the improvements is to make working in cyberspace as lifelike as possible

From August 2020, the new **Together mode** will be available in Teams: this allows meeting participants to meet in a common virtual space, such as a meeting room, where they can talk to each other, make eye contact, and read from each other's nonverbal cues. A new feature of Teams is **a virtual "commute" feature that will simulate, for those working from home, the previous going to the office in a virtual way inserting breaks.** The app already automatically inserts short breaks between work periods as well, to prevent teleworkers from burnout.

71% OF

EMPLOYERS & EMPLOYEES
WOULD OPT FOR A
FLEXIBLE WORK SCHEDULE

TOGETHER MODE

DIRECT HELP FOR THE RAPID DIGITAL TRANSFORMATION OF EDUCATION

In March, Microsoft Hungary staff skilled teachers over many hours of voluntary work and built a distance learning infrastructure in about 100 Hungarian schools. At the same time—in cooperation with non-governmental organizations—the company launched a skilling scheme to prepare and retrain teachers.

As part of the Microsoft Skills and Employability program, 1,400 educators have received skilling so far with the help of the HTTP Foundation, so the program indirectly contributes to the quality education of about 21,000 students.

1400 EDUCATORS
HAVE RECEIVED SKILLING

Thanks to direct financial support this summer, an additional roughly 700 teachers will be skilled, who will gain expertise in topics such as **Internet of Things, web and application development, cloud technologies, virtualization, network and cybersecurity technologies, and database management.** In addition, some IT teachers participating in the program may receive a free Microsoft Office Specialist qualification.

Knowledge is the best investment. Broadening up-to-date digital capabilities is one of the most important goals of Microsoft Hungary. The digital transformation of Hungary can only be successful if more young people choose engineering and IT as a career. Teachers have a key role to play in this, and we are very pleased to be able to support an initiative this time that contributes to the development of teachers' skills across the country,

said of the success of the HTTP Foundation

Christopher Mattheisen,
Microsoft Hungary
Country General Manager

Microsoft

Innovative solutions for humanity and the planet

1. Digital transformation for a future-proof Hungary

2. We make our customers more successful

3. Adaptation and recovery
Microsoft Teams has proved to be an effective help
   Direct help for the rapid digital transformation
   of education
      Coding—the key to the success of
      the next generation
   Skilling, skilling, skilling

4. Value-creating innovation
Innovation for sustainability
Innovation for communities
Innovation for experience-based education
Innovation for ethical business conduct

5. Security and privacy in the cloud

6. Research, academic relations

7. Technology against the virus

Within the framework of the Innovative School Program, Microsoft Hungary supports schools open to change in the use of 21st century solutions that make learning an experience.

Currently, nearly 100 Hungarian schools are participating in the program, which is taking place for the fifth year in a row, and has now become one of the most progressive, fastest-growing modernization projects in the digital transformation of public education, with convincing results. Microsoft provides the technology and professional background for the initiative, and develops the knowledge base with a professional community formed by past and present participants, to adapt the experience to the needs of Hungarian students and the characteristics of the domestic school system.

100 HUNGARIAN SCHOOLS ARE PARTICIPATING

IN THE DIGITAL TRANSFORMATION OF PUBLIC EDICATION'S MODERNIZATION

MICROSOFT EDUCATION CENTER:

Microsoft Educator Center, one of the world's largest innovative social media sites for teachers, is available in Hungarian. Thousands of educators can find best practices, ideas, free lesson plans, or take part in online training. There is an increasing amount of in-house content among the courses, supporting the opportunity for peer-to-peer learning by sharing practices that originate from Hungarian teachers and that can identify and follow the curricula of Hungarian schools.

The program is based on four pillars:

- the **leaders,** who it helps in visioning, strategic thinking;
- the **experience of expert teachers,** who already have the practical knowledge to teach in the 21st century, and some of whom have taken part in the enormous work that has now resulted in a gap-filling series of courses published as the MIE Academy;
- the **beginner teachers,** who can learn the approach and techniques of modern education through practical training;
- finally, **school IT administrators,** who are able to create the conditions for all this.

These four pillars make up a strong and inspiring professional community that takes its own course. The focus is on team play, because innovation is most successful when it involves all stakeholders.

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CODING
– THE KEY TO THE SUCCESS
OF THE NEXT GENERATION

Coding is of the utmost importance at Microsoft, as it helps students to create the technology of the 21st century; they will be able to acquire the skills that will later enable them to succeed in the labor market. Therefore, Microsoft embraces all initiatives, professional organizations, and foundations that effectively popularize coding.

Microsoft sets a good example by offering free coding platforms for the 7–20 age group, where everyone can learn coding science from an age-appropriate curriculum. It provides educators with free materials and advanced training in coding.

Microsoft provides special programs at various levels of the Hungarian education system, which are designed to improve the IT skills of the given age group.

FREE
CODING
PLATFORMS
FOR THE
7–20
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Digital Education Core Package:

Microsoft provides a free software suite (Office 365) for elementary school teachers and students. The HUF 52 billion donation supports education and learning with the latest technology. The software facilitates school correspondence, teamwork, virtual learning environments, and video conferencing. Depending on the stage of digital transformation, each school will have access to the package according to its requirements and operation. From unifying communication to a paperless school, the service caters for all phases and provides structured, effective learning and teaching.

Safe Internet training:

Microsoft has been talking to hundreds of children in recent years on the risks and opportunities of the Internet. The company also has its own 10-point Internet Security Guide, which is widely disseminated on Safer Internet Day in February each year, extending education to educators and parents.

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IT has exciting challenges
for girls as well

Microsoft sees it as its mission to increase equal opportunities in education, in the workplace, and in the job market. It considers it particularly important to have more female workers in the IT sector than currently. The Hungarian economy cannot do without their work in the digital transformation.

According to Microsoft, in order for girls to love coding and studies related to artificial intelligence, it is worth addressing them as early as in primary school. In science careers, girls are no less successful than boys. That is why it is important for them to take up this career with confidence, to move boldly to the starting line: they need to be given the opportunity to discover the technologies, their own personalities, and their abilities.

That's why we launched the **DigiGirlz** program, which continues in 2020 with even greater participation. It aims precisely to bring the potential of the IT profession closer to girls, to give them an insight into the exciting world of the digital profession and programming through their own experiences, and to break down the prejudices that still exclude girls from this world today. The aim is also to present role models who can encourage girls to take up employment in digital professions.
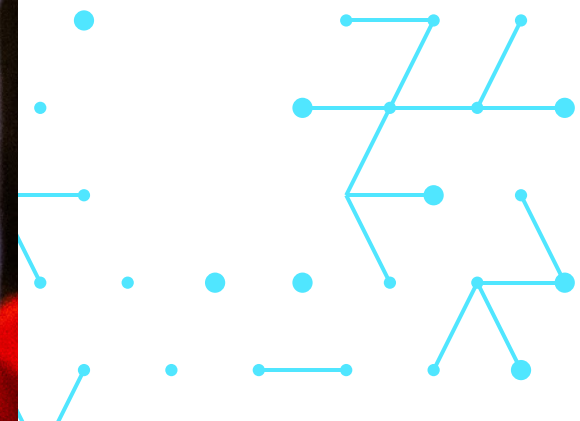
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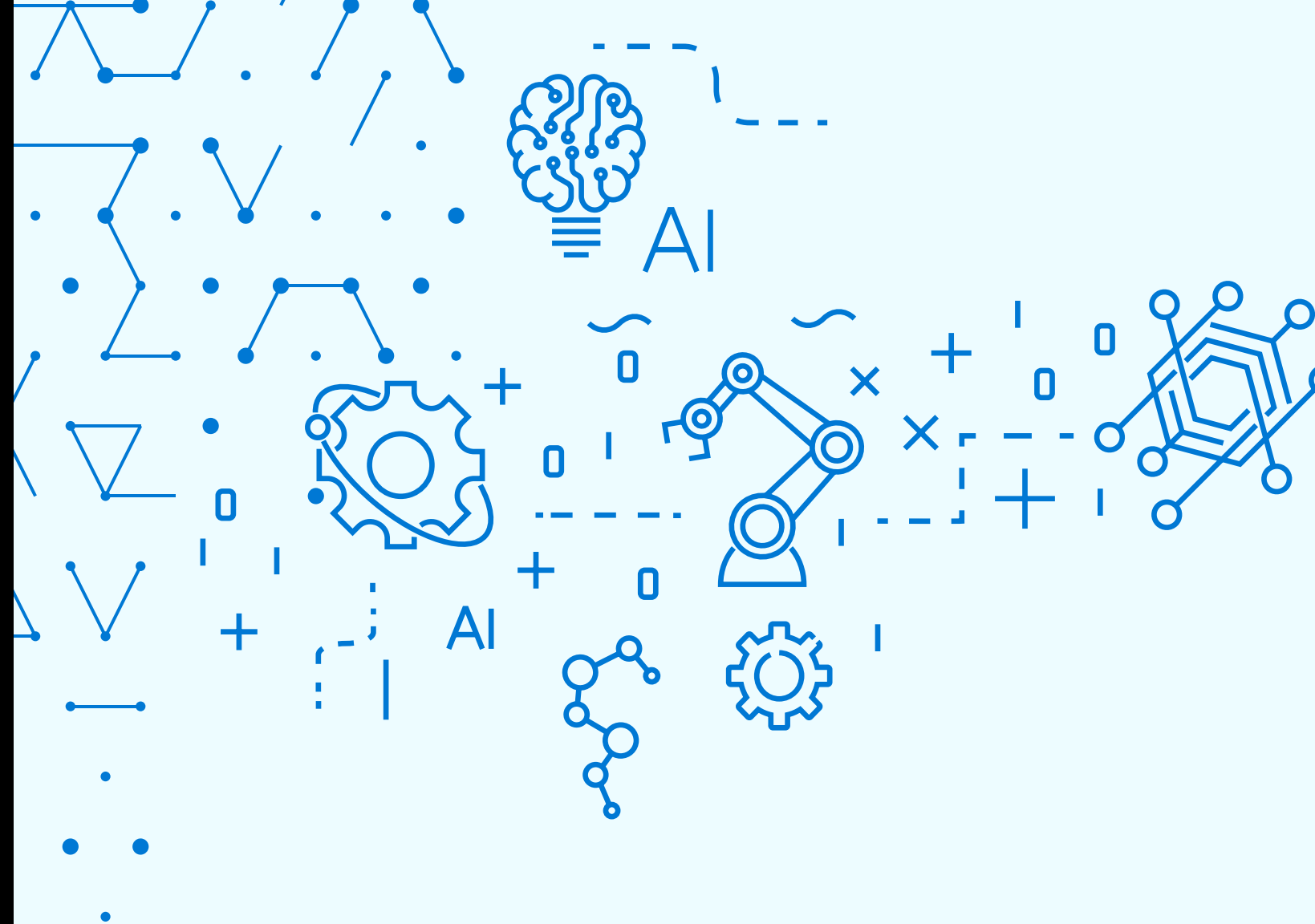Innovation for sustainability
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SKILLING, SKILLING, SKILLING

DigiGirlz AI Challenge, announced for the second time this year, is a challenge where participation is a victory in its own right, both individually and socially: everything else—meeting people, friendship, knowledge and success—is just an addition. Last year more than 200 girls entered the competition that was co-organized with the Digital Knowledge Foundation. The organizers are also expecting at least as many participants this year; this time they will have to answer how artificial intelligence can help children's lives.

Through occasions like the DigiGirlz AI Challenge, girls can also personally experience the perspectives that unfold before them as they get closer to the world of IT. There is no more exciting and rapidly evolving field of informatics today than artificial intelligence—we invite 8 to 18 year-old girls interested in technology to this world full of adventures.

In June this year, Microsoft announced that it would support the skilling of 25 million people worldwide, so skilling programs will continue in Hungary; this is also justified by the significant increase in the demand for IT professionals in the labor market due to the digital transformation.

At the end of November 2020, 12,000 people in Hungary developed their IT skills within the framework of this program via the **opportunity.linkedin.com** site. Their knowledge is essential for the digital transformation of companies, and for the recovery of the economy. Microsoft is ready to make the knowledge and information accumulated through the program available to governments so that their economic, employment, and education policies can be even more targeted and effective.

12 000 PEOPLE DEVELOPED THEIR IT SKILLS VIA THE **opportunity.linkedin.com** SITE
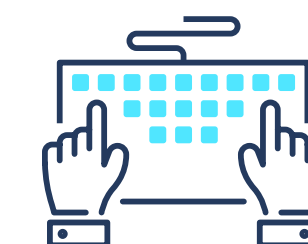
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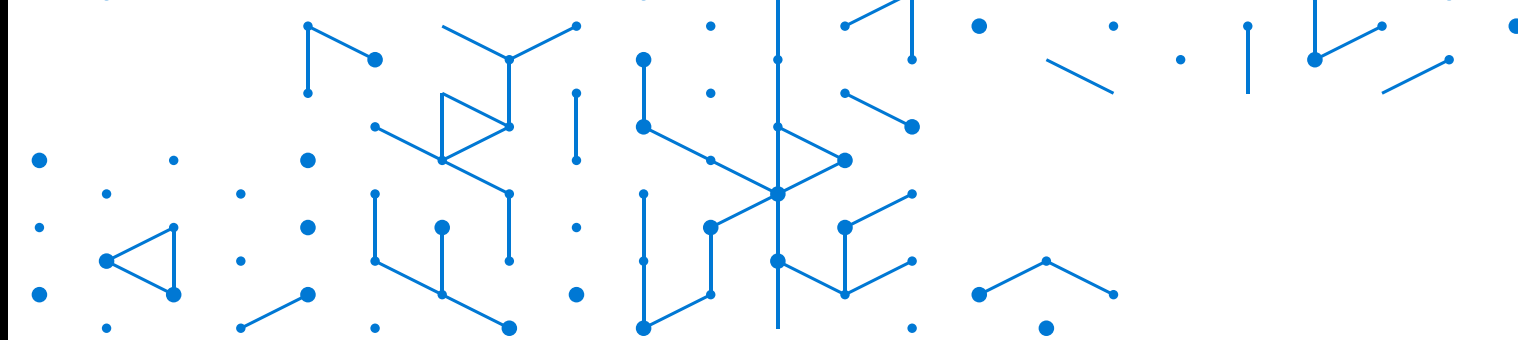Innovation for sustainability
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■ **CHARITY SERVICE OF THE ORDER OF MALTA**

It was **digital competency development skilling,** implemented in collaboration with the Charity Service of the Order of Malta, that helped **disadvantaged unemployed people to find employment.** Digital training has so far guided nearly a hundred people through the digital skills now expected by companies. However, with their knowledge, they can now take part in a selection process with an advantage. During the training exercises, prospective employees received up-to-date knowledge and practical opportunities that they can immediately utilize in the labor market. Among other things, they learned how to organize and lead a Teams meeting, re-learned file management and online teamwork using cloud-based solutions, and learned how to use OneNote, Whiteboard, and Forms.

■ **CIVIL TECH HUB**

Within the framework of the Civil Tech Hub, with the support of Microsoft Hungary, **the NIOK Foundation provided theoretical and practical assistance to nonprofits in order to address workplace challenges caused by the epidemic effectively.** Since the launch of the initiative, participants have learned about the operation of cloud services and their flexibility, the master-strokes of Office 365, and this year's workshops - responding to the epidemic - focused on telecommuting solutions.

Without trained IT professionals, there is no business renewal

Although the epidemic focused attention on it, skilling is nonetheless extremely important in the lives of organizations, as it is only through skilling that they can make the most of the benefits of new technology.

Microsoft's own global survey this summer also confirmed that more and more people in business are recognizing the importance of continuing education and the benefits it brings: not just for employers, but for employees as well. Continuing education ensures that the knowledge of employees does not become obsolete within the organization, while those who participate in the training and can improve themselves will be more satisfied with their new responsibilities and see their future more secure within the company.

According to that survey, companies in Central and Eastern Europe see that artificial intelligence has brought them significant benefits; they also consider the skilling of their employees to be a priority at the same time as the introduction of new technologies. The results also show that only trained employees are able to rethink the role of technology (artificial intelligence or anything else) in their work—thus transforming the company's market operation and factors of competitiveness.
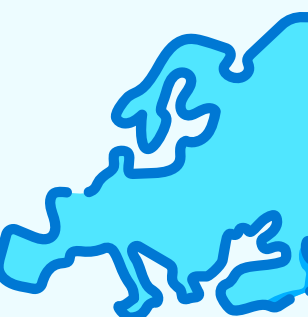
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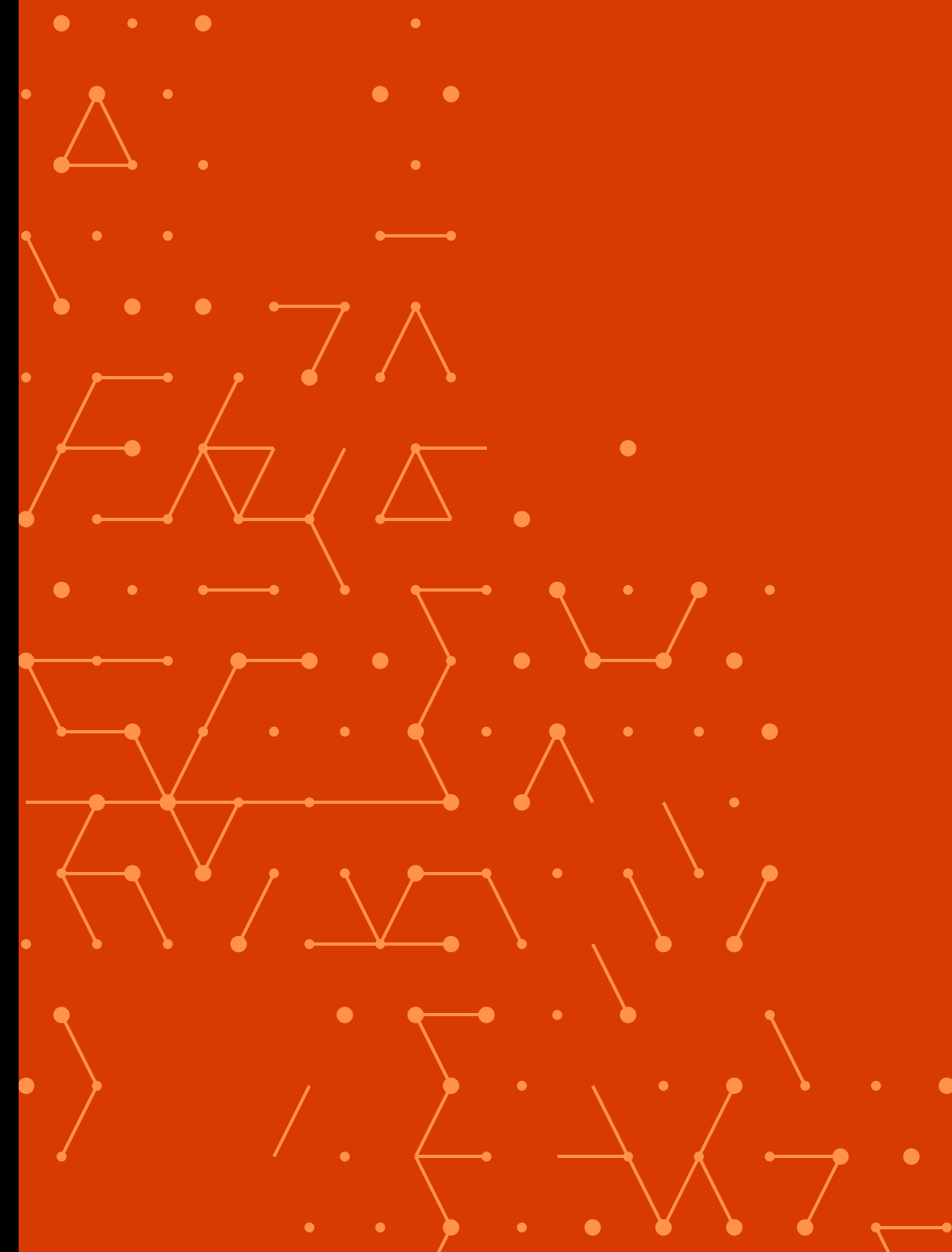Innovation for experience-based education
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7. Technology against the virus

Continuing education, especially the ongoing maintenance of the knowledge of IT professionals, will certainly pay off for companies. For both employers and employees, as both sides strive for flexibility and competitiveness. Recognizing the importance of skilling, Microsoft decided last year to partner with the world's leading digital platform and software developer, **EPAM Systems.**

Together with them, the company has created its largest cloud technology skilling program in Central and Eastern Europe. **Last year alone, more than 2,200 engineers and developers from 14 countries joined the program.** This summer, EPAM upskilled more than 400 new Azure experts in our region, in Hungary, the Czech Republic, Poland, Romania, Bulgaria, Russia, and Belarus. The qualifications obtained covered the following areas: Azure Expert, Azure Developer, Azure System Administrator, DevOps Engineer, Solution Designer, Data Engineer, AI Engineer, and Security Technology Expert.

FROM
14 COUNTRIES
>2200 **ENGINEERS & DEVELOPERS**
JOINED

EPAM SKILLED
400 NEW
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Microsoft

4.

VALUE-CREATING INNOVATION

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> *Our industry does not respect tradition,*
> *it only respects innovation.*
>
> ————————————
>
> **Satya Nadella**
> CEO
> Microsoft

Our goal is value-creating innovation that can change the world. Microsoft sees innovation as a way to make our lives more humane and the economy more sustainable. Microsoft develops its applications, especially artificial intelligence-based ones, very carefully, subject to strict ethical standards, so that their use will lead us to an even more humane and non-discriminatory world.
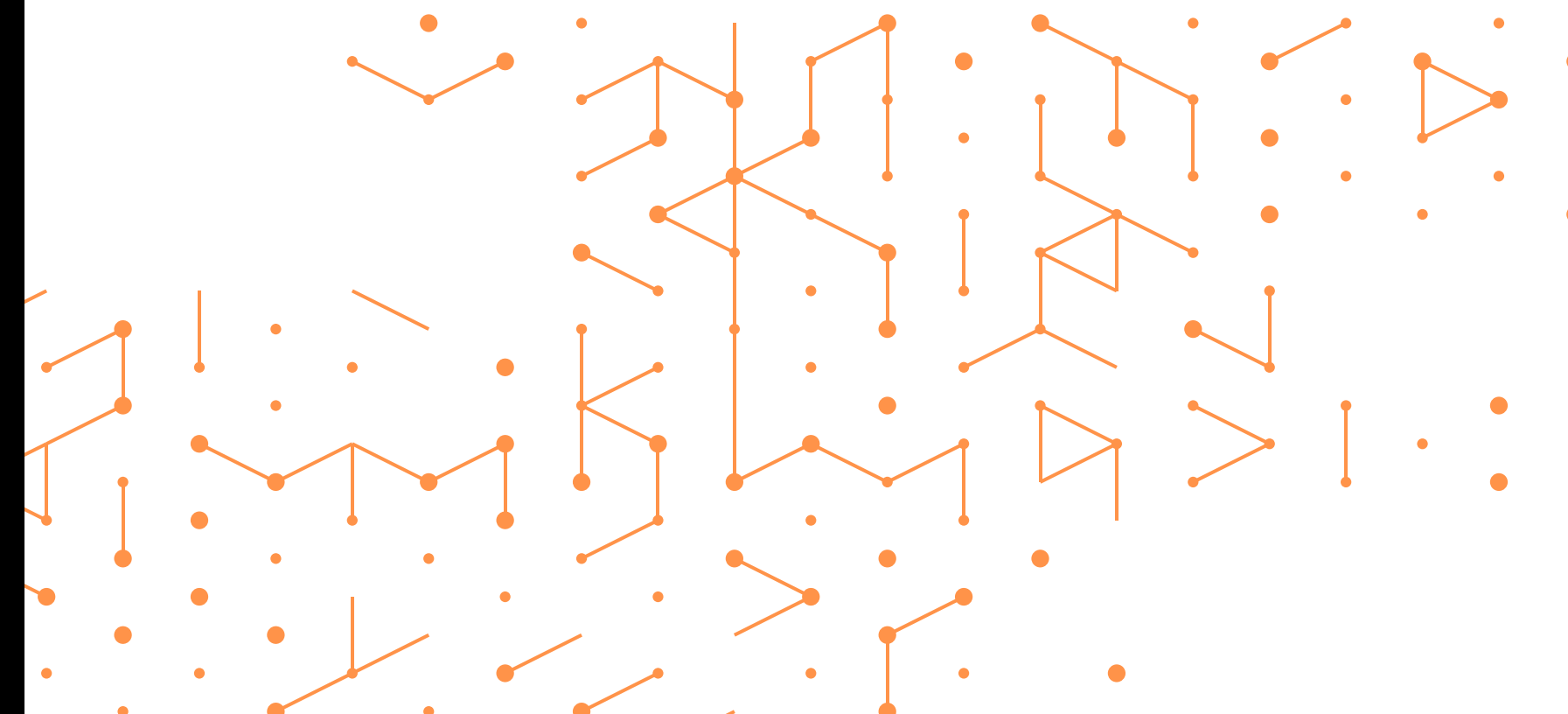
Based on the feedback from the users of our innovations, we can continuously improve our solutions by analyzing the data generated during their use. We can show all this through the most tangible examples. Of these, our love is the most for those that do not parade technology, but show what one can achieve through innovation. Our solutions provide the tools to create value-creating and bold, responsible and trust-based, inclusive and widely feasible ideas.

We believe that technology can and must be used for good purposes, and we hope that innovation will play a significant role in making the world and the lives of everyone in the world a better place.

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INNOVATION FOR SUSTAINABILITY

Microsoft is committed to having a negative carbon footprint by 2030 and radically reducing its water use. Microsoft has created a new $ 1 billion climate innovation fund to accelerate the global development of carbon reduction, capture and sequestration technologies.

In addition to using its tools to achieve ambitious goals, Microsoft Hungary also announced that it will help its partners and customers achieve carbon neutrality: it will develop technology that can help anyone reduce their ecological footprint. The biggest change in sustainability and the protection of environment may be achieved by Microsoft products themselves - in the hands of customers, public institutions and NGOs, with the support of Microsoft staff.

HELPS ITS PARTNERS ACHIEVE
CARBON NEUTRALITY

LOGISTICS AT THE TOP LEVEL

The cloud-based route optimization application used by Waberer's International, one of Europe's leading transportation and logistics companies, also serves to reduce air pollution. Using artificial intelligence, Waberer's International is able to fully automate its freight planning processes, achieving 92% utilization of its trucks, exceeding the industry average.

WIPE, Waberer's Intelligent Planning Engine, is a cloud-based, automated freight planning platform that can efficiently and infallibly associate drivers, shipments, and destinations using complex mathematical models and algorithms.

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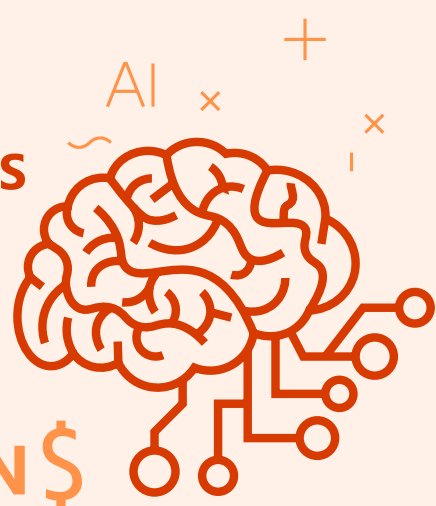
INNOVATION FOR COMMUNITIES

It is a commonplace that the more knowledge a citizen of a country has, the greater their chance of achieving prosperity. Today, digital literacy is a required competence in almost every job, which is not only an economic issue but also a social one. Without digital literacy, there is no equal opportunity. Microsoft Hungary is making great efforts to provide all Hungarians with the knowledge they need to thrive in the digital world.

Microsoft Hungary also participates in the implementation of the actions included in the Digital Welfare Program, thus helping citizens and businesses to use e-government services by developing their digital competence.

AI for Good, launched in 2018, is a global program in which Microsoft is spending a total of $ 115 million over five years to bring artificial intelligence within the reach of NGOs. As part of the AI for Good program, Hungarian civic groups can apply for support to implement some of their most useful ideas. As part of the initiative, Microsoft Hungary launched a series of information and awareness-raising events for NGOs and startups, with the aim of giving agile and open NGOs working for the common good a glimpse into the world of technology and learning how digitalization, artificial intelligence, and cloud services can support their goals. At the event called Tech for Social Impact, Microsoft business partners and startups sought solutions based on artificial intelligence, cloud and other digital technologies to meet the challenges identified by NGOs.

OVER
5 YEARS
115 MILLION $

TO BRING
ARTIFICIAL INTELLIGENCE
WITHIN REACH FOR NGOS

INNOVATION FOR EXPERIENCE-BASED EDUCATION

**During the epidemic, the number of digital devices in domestic education increased fivefold. A change that had been anticipated for years in schools took place in a few weeks. Nevertheless, it would be a mistake to see digital education as an alternative to face-to-face education; it is much more complementary to it. The future belongs to hybrid education, in which digital work is made more colorful, playful, information-rich, and more tangible for the imagination. Creating the conditions for hybrid education requires both digital tools and the training of teachers and students.**
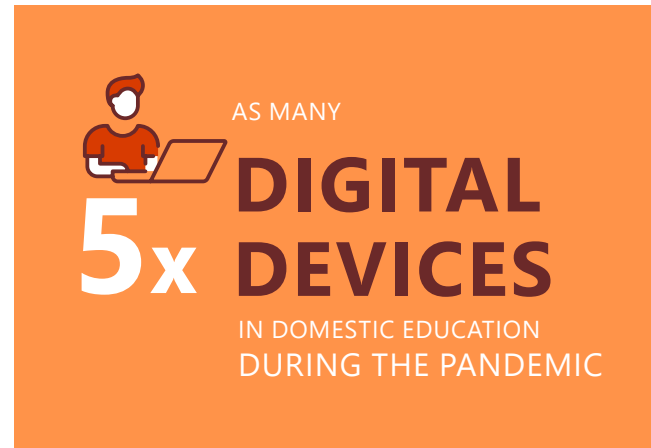
AS MANY
5x DIGITAL DEVICES
IN DOMESTIC EDUCATION
DURING THE PANDEMIC

At the Széchenyi István High School in Sopron, for example, the introduction of digital education began long before the restrictions due to the epidemic situation. According to Tamás Egész, the school's deputy head of methodology, our whole world is dynamic and impulse-based, so lessons should also provide children with stimuli to which they are accustomed in life outside of school.
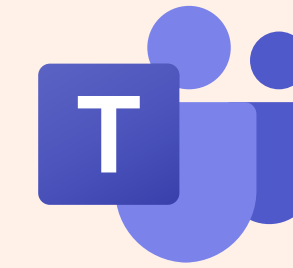
By incorporating Teams into education, the walls of the school can be expanded. Language learning has become easier, but not only in the field of languages; many renowned foreign guest lecturers are available through this channel, and Hungarian teachers have the opportunity to join an international network of innovative teachers.

Microsoft has developed a range of creative digital learning materials to demonstrate that entertaining digital learning brings abilities we never dreamed of before to our children. With **Minecraft Education Edition** or even **Kodu,** kids can master the most important digital skills in a fun way—giving them an opportunity that fundamentally determines their lives.

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■ **MINECRAFT:**

Education Edition is a world of creativity, collaboration and problem-solving. With Code Builder, students can learn programming in a fun way while immersing themselves in the IT world.

■ **3D AND MIXED REALITY:**

Paint 3D makes it easier for students to create. With Windows 10 Creator Update, they can quickly and easily find and remix 3D content or create objects that they can model in the virtual world as part of their own reality.
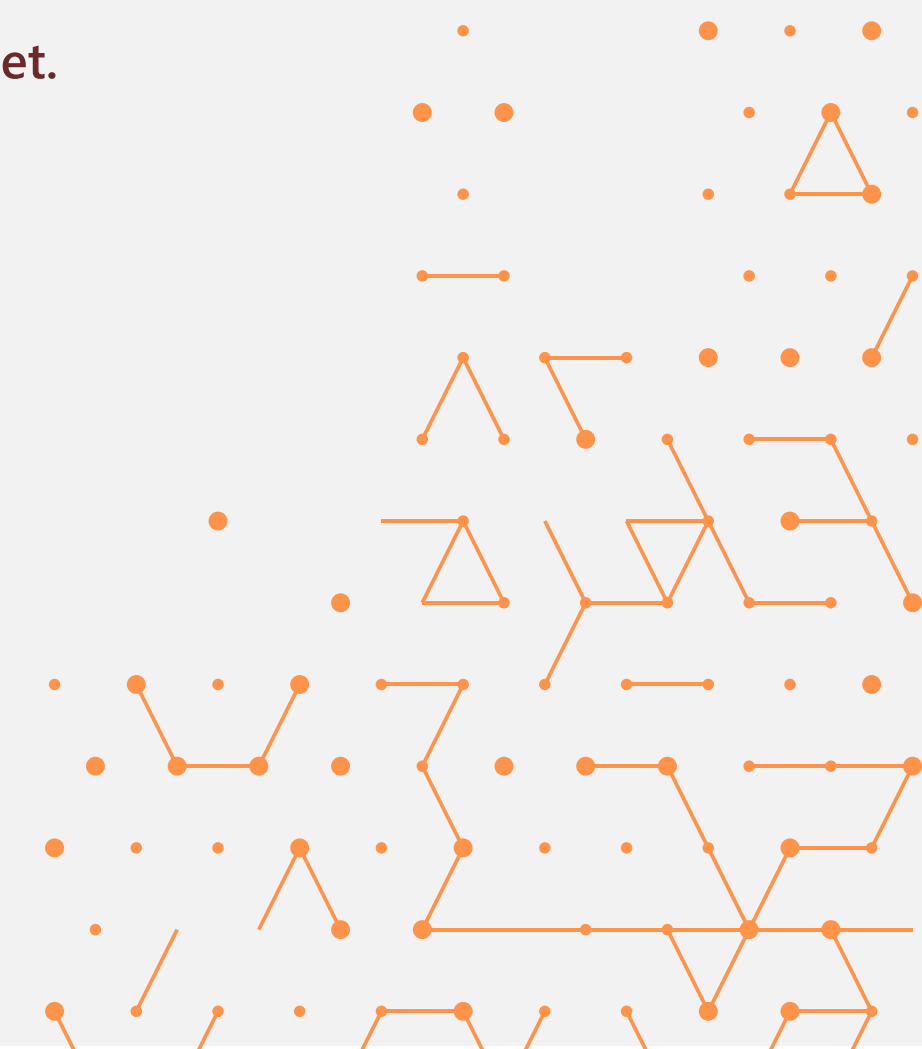
■ **MICROSOFT HOLOLENS:**

Microsoft HoloLens and the mixed reality of Windows goes beyond this and opens new avenues for learning and teaching: the revolutionary application transforms abstract concepts into a 3D classroom experience, allowing students to explore more deeply, see more clearly, and learn through active action and experience through their own senses.

INNOVATION FOR ETHICAL BUSINESS CONDUCT

Microsoft Hungary was also one of the first companies in the global group to introduce the ISO 37001 international standard for the prevention of bribery and corruption.

Enforcement of the standard is aided by artificial intelligence-based algorithms built into everyday practice: these constantly alert workers to compliance with the conditions at the time of contracting, and do not allow the process to continue until they are met.

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5. SECURITY AND PRIVACY IN THE CLOUD

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Respect, trust, and a commitment to diversity fundamentally affect Microsoft's product development and operations.

> *Microsoft is kept in operation by the trust placed in it.*
>
> **Christopher Mattheisen,**
> Country General Manager
> Microsoft Hungary

This is the trust placed in us by the organizations that entrust their data and the operation of their mission-critical core infrastructure to Microsoft. And that's the trust people vote for us on a daily basis as they run their affairs, and do their day-to-day work using our software and services, often entrusting us with sensitive data.
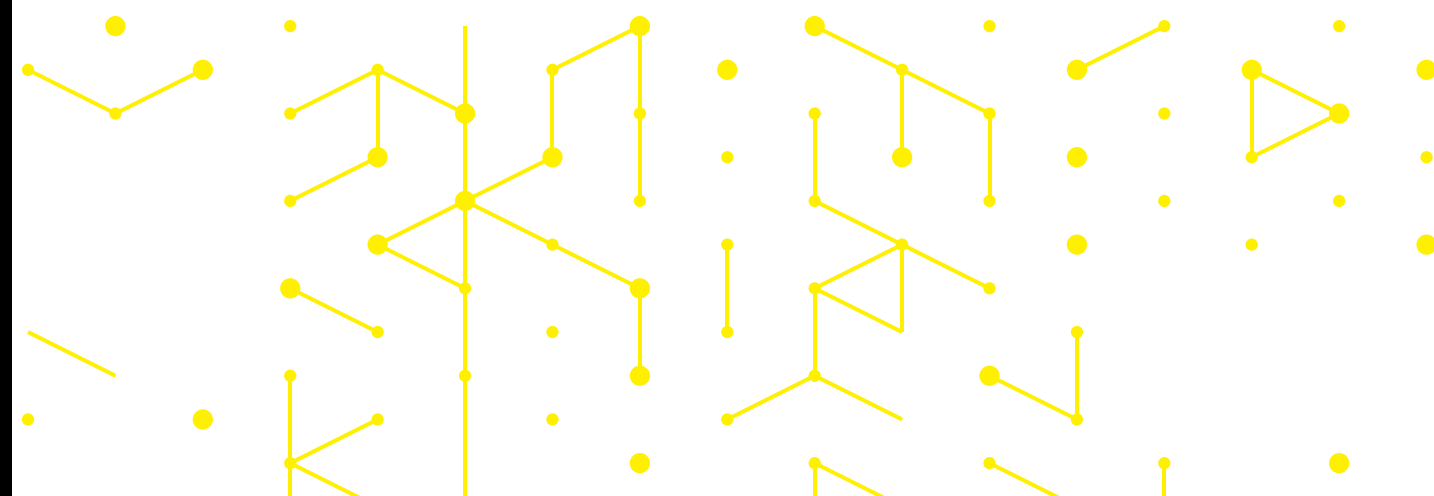
The growing importance of remote access makes it increasingly necessary to develop a security architecture based on the principle of zero trust, which provides comprehensive protection for people, devices, applications, and data. In addition, we are the only company to provide integrated, full-featured security capabilities based on the analysis of more than 8 trillion signals per day.

We provide a reliable and secure digital infrastructure for companies, small and medium-sized enterprises, government and state agencies, public service companies, local governments, non-governmental organizations working for the common good, and, of course, all segments of education. It is no coincidence that, upon the outbreak of the COVID-19 pandemic, organizations that already based their day-to-day operations on a reliable cloud infrastructure started with an advantage.

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Cybersecurity is not a task to be completed on a single occasion, requiring a single investment, as the security of online space is threatened by tens of thousands of attacks every day. Data must be protected continuously and with increasing intensity, and potential vulnerabilities must be identified. It's no small task: Microsoft spends more than $ 1 billion a year on defense and R&D for secure cyberspace, using innovative technologies such as artificial intelligence and machine learning. More than 4,000 people work on the security of our systems every day and we are a leading supporter of initiatives such as the Paris Call and the Cyber Security Tech Accord. Just to highlight the importance of the effectiveness of the fight for a secure cyberspace, according to research, in 2022 cyber defense will cost the world economy $ 800 billion globally.
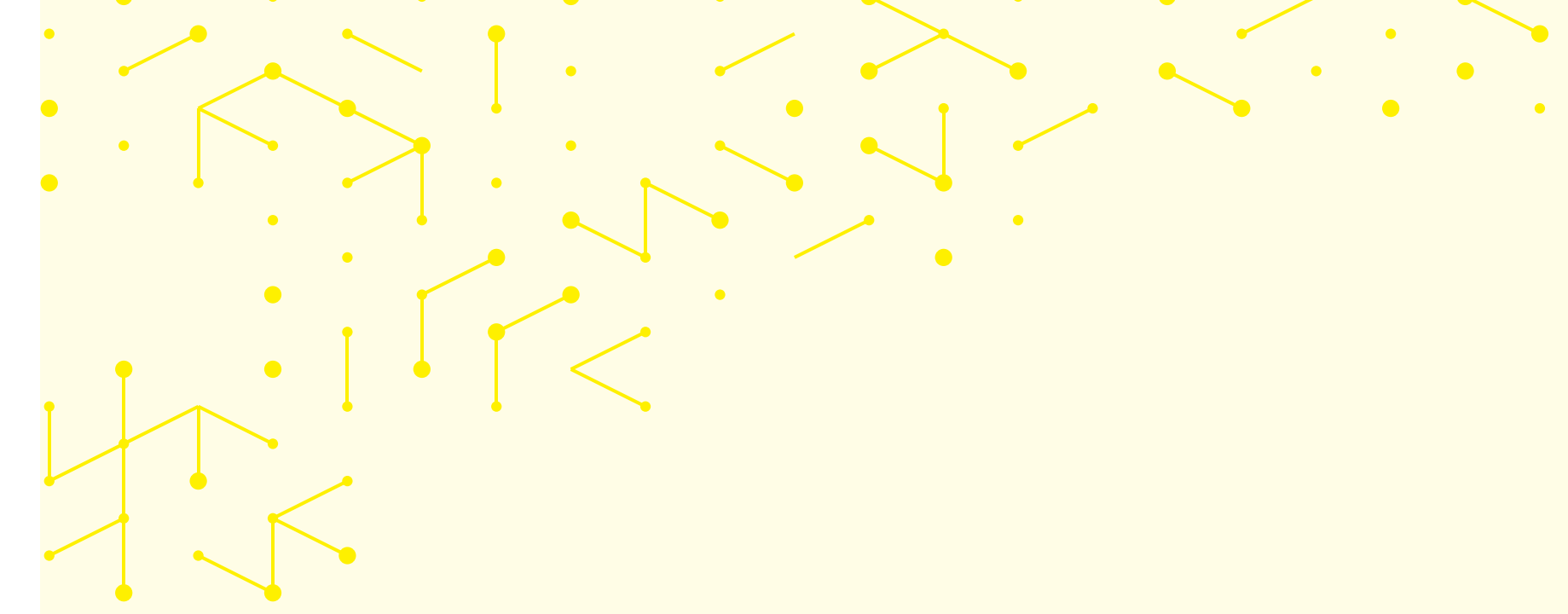
PARIS CALL: COMMITMENT TO CYBERSECURITY CONTINUES TO INCREASE

The number of states, organizations and companies joining the cybersecurity initiative Paris Call for Trust and Security in Cyberspace, launched by the French Government on November 12, 2018, is growing steadily and dynamically. This is the largest voluntary multilateral advocacy initiative; its nine principles focus on the real challenges of cyberspace processes, such as preventing cyberattacks against electoral processes, protecting Internet access and stopping attacks on critical infrastructures. The increase in cyberattacks during the coronavirus pandemic, in particular attacks on the health sector at the forefront of the fight against the pandemic, has further reinforced the need and importance of working together for the security of cyberspace.

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WE PROVIDE OUR CUSTOMERS WITH THE MOST SECURE INFRASTRUCTURE IN THE WORLD

Our cloud, that is, our data centers and super- and quantum computers are recognized by both the US and the EU as meeting the highest standards of data protection, in addition to providing maximum availability. We provide our customers with the highest levels of data and technology security, and the most secure infrastructure in the world.

Microsoft's cloud infrastructure meets all EU and NATO standards and the highest security standard, so moving to the Microsoft Cloud is the most obvious way to secure digital operations. It is no coincidence that security was also the topic at the first stop of our series of professional events on current issues in cloud technologies. Cristopher Mattheisen, Country General Manager and his guests, experts in cybersecurity, presented several aspects of the topic.

> *Less than 30 percent of SMEs have a security policy, which means the situation is bad, but there is room for improvement. The cybersecurity institute also recommends that SMEs use a cloud provider rather than resorting to "tinkering" with solutions themselves.*
>
> – said **Balázs Bencsik,**
> Head of the National Cyber Defense Institute,
> at our Cloud Forum event

> *The cybersecurity protection of Hungarian SMEs is far below that of cloud providers, so if someone puts their data in the cloud and uses cybersecurity tools to do so, they can store their data much more efficiently and securely.*
>
> **Arthur Keleti,**
> founder of the ITBN event series

CyberServices Zrt is among the Hungarian members of the already mentioned Cyber Security Tech Accord initiative. According to Deputy CEO, Anett Mádi-Nátor, cloud-based solutions already provide the best quality service amongst Internet security solutions, even if they are still more expensive today than traditional methods. Cloud infrastructures and cloud-based security solutions may, of course, provide the required availability significantly more cost-effectively and at a higher service level. For Microsoft cloud solutions, a security update is immediately available throughout the system, so security is always at the highest possible level.

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Today, large financial institutions already believe in the cloud.

Cybersecurity is a critical issue for banks. The solutions chosen are determined by several considerations. The role of security in banks continues to grow, but they need to keep pace with the fintech world; they have to compete with them. The cloud environment can help banks to modernize at the infrastructure level, said **Roland Kovács**, Head of IT and Banking Security at OTP Bank Plc., at the Cloud Forum about the openness towards the cloud.

Microsoft provides a binding compliance guarantee, both technologically and legally, to all users of its cloud infrastructure.

IT IS NOT ONLY THE COVID VIRUS THAT CAN INFECT

Cybercriminals are exploiting our hunger for epidemic-related news. They are phishing our sensitive data with old viruses, but using click-hunting bait adapted to the situation. Microsoft has integrated automated cybersecurity capabilities into its applications and provides special assistance to IT administrators against coronavirus-related threats.

Confidential information changes hands en masse via email and various teamwork applications, and cybercriminals view this immeasurable amount of data as a dinner-table and hungrily hurl themselves at unsuspecting people who are impatiently searching for news about the epidemic.

Trickbot and **Emotet virus families,** also known in the past, and specialized in banking data theft, have become specifically active recently: they have 76 different versions specialized for COVID-19 around the world. Microsoft stops millions of phishing emails every week, with around 60,000 of them each day containing a COVID-19 lure attachment or URL.

76
DIFFERENT VERISONS SPECIALIZED FOR COVID–19

60 000 /DAY
COVID–19 LURE ATTACHMENT OR URL

Microsoft protects its users against unauthorized intrusion, data theft, and viruses with a number of tools built into its software. **Microsoft Defender ATP subscribers will get protection for five devices to monitor threats independently of the platform. Multi-factor authentication and Azure Active Directory Conditional Access protect our credentials.**

Microsoft Threat Protection aggregates alerts from Azure ATP, Microsoft Defender ATP, Office 365 ATP, and Microsoft Cloud App Security, and is able to identify attack sequences, prioritize them according to the danger they pose, and automatically restore mail accounts, credentials, and applications. The system keeps track of changes in threats, with built-in defensive features doing their thing in the background, taking a heavy burden off IT administrators.

6. RESEARCH, ACADEMIC RELATIONS

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A major part of Microsoft's educational activities is HUF 100 billion in software offerings for students and teachers in Hungarian schools, which has given them free access to the latest technology to support their learning and teaching activities since 2012.

Microsoft is offering more than HUF 700 million in computing capacity and AI services to the university and public education sectors each year, to help bring more R&D projects to the education system and academia.

OFFERING **700 million** HUF **IN COMPUTING CAPACITY AND AI SERVICES**
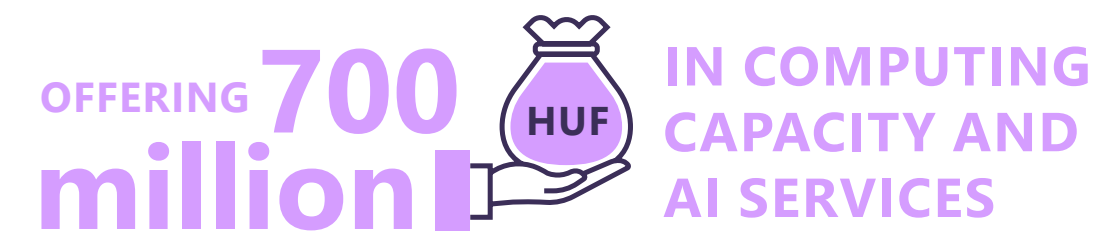
In addition, Microsoft, a member of the ICT Association of Hungary (IVSZ), participated in the IT curriculum modernization project, which aimed to develop an alternative IT framework curriculum.

A strategic partnership known as the AI Knowledge Center has been launched with leading Hungarian universities, announced by Jean-Philippe Courtois, Microsoft's global vice president in November 2019 in Budapest. As part of the collaboration, universities will develop applications based on artificial intelligence with high societal benefits, using state-of-the-art Microsoft technologies. With the strategic alliance of the Hungarian university sector and the technology industry, as well as the professional and strategic support of Microsoft, a new quality of cooperation has been created.

The aim of the Artificial Intelligence Knowledge Centers is not only to make modern technologies an integral part of technology education, but also to enable the most talented students and their professional mentors to implement extraordinary ideas and contribute to the integration of these developments into Hungarian technology training. With the help of AI Knowledge Centers, the already high standard of Hungarian technological education will improve, the number of high value-added developments can increase, and the number of young professionals familiar with new technologies in the Hungarian labor market can raise the competitiveness of the Hungarian economy.

At **Budapest University of Technology and Economics,** the researchers used image recognition neural networks to analyze images taken by drones, using Microsoft's FPGA-based technology. In the project of the **University of Pécs,** a database containing the text of hundreds of thousands of drug user opinions was developed by the developers, using text mining. **Debrecen University's Clinical Center** examines the predictable complications of diabetes through a large-scale analysis of clinical data. **With the help of AI Knowledge Centers, the already high standard of Hungarian technological education will improve, the number of high value-added developments can increase, and the number of young professionals familiar with new technologies in the Hungarian labor market can raise the competitiveness of the Hungarian economy. With the support of Microsoft Hungary, work started in five AI Knowledge Centers in six months: the centers cover the fields of healthcare, engineering-IT, and economics.**

One of the unique development projects at Debrecen University, which also aims to preserve a centuries-old local tradition, is related to the observation of Przewalski's horses. These are the last surviving subspecies of the wild horse depicted in prehistoric cave paintings that once inhabited the grassy steppes of Eurasia. Led by Professor Zoltán Barta, the most modern technology is used for research aimed at the conservation of the species. The last descendant species of ancient wild horses was identified by science at the end of the 19th century; the last specimen in the wild was identified in 1969. On the Hungarian Puszta, 30 km from Debrecen University, the equestrian lifestyle is a thousand-year-old tradition. In the late 1990s, some specimens were introduced to the Hortobágy Puszta to preserve the species, and today 300 of the world's 2,300 Przewalski's horses live here.

With the help of artificial intelligence and machine learning, drone recordings make it possible to monitor the population and research its lifestyle to conserve the species. For intelligent aerial video analysis, artificial intelligence was used to recognize animals, track their movements, identify individuals, estimate herd size, and analyze population lifestyles. The method is extremely useful for other national parks around the world in conserving wildlife populations, contributing to the rescue of this animal of nearly cultic-like significance.

In parallel with the operation of the knowledge center established at Debrecen University, cloud and AI services have become integral parts of the university curriculum. In the 2019/2020 academic year, the number of such courses increased from three to nine; now 19 instructors pass on knowledge related to cloud, artificial intelligence and machine learning, and nearly six hundred students have completed courses based on Microsoft Azure technology.

600 students
HAVE COMPLETED COURSES BASED ON Microsoft Azure

Microsoft Hungary strives to make the most modern technologies that effectively help science reach everyone in Hungary. Through the AI Knowledge Centers, we make international experience, our state-of-the-art technologies and the knowledge needed to use them also available in Hungary, so that successful developments can be born from the meeting of talent and knowledge.

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EGIS PHARMACEUTICAL FACTORY: VALIDATION OF CLINICAL TRIALS FOR GENERIC MEDICINES

Egis' biological business development division uses the Azure Databricks solution to validate drug trials. There is a huge demand for personalized medications in rheumatoid arthritis therapy where the best treatments are currently still mostly sought through continuous testing and conclusions inferred from mistakes. However, Azure allows the use of an algorithm that performs gene expression profiling (PCR) of a given gene pool by analyzing the data.

RICHTER GEDEON NYRT.: ARTIFICIAL INTELLIGENCE IN NEUROPHARMACOLOGY

Richter researchers use Microsoft's Azure Databricks solution to analyze data from the IntelliCage system used for animal-based cognitive testing. IntelliCage is an intelligent cage in which the behavior of animals can be monitored continuously, without having to disturb them in their daily activities. The system monitors the behavior of subjects, i.e. animals, 24 hours a day, every day of the week, and collects tens of thousands of data about them for data analysis.

In addition to Debrecen University, the AI Knowledge Centers currently operate at the Budapest University of Economics, the University of Pécs and five other universities (OE, SZIE, SZE, ELTE, BME). The network is supported by Microsoft Hungary with training courses and a special curriculum for instructors. Microsoft is also making Azure's computing capabilities available to teachers and students to further experiment and test their developments with their newly acquired knowledge of artificial intelligence technologies. In the 2020–2021 semester, the Artificial Intelligence Knowledge Centers will present further projects, and the number of centers will also increase with the involvement of new Hungarian institutions.

AZURE CURRICULUM:

Microsoft has teamed up with the Budapest University of Technology and Economics to develop its Microsoft Azure Curriculum on cloud technology. The university curriculum is designed to provide students with insight into cloud-based technologies and architectures, as well as the principles of developing and operating cloud applications, with the aim of understanding the core Azure services and designing standalone cloud-based applications.
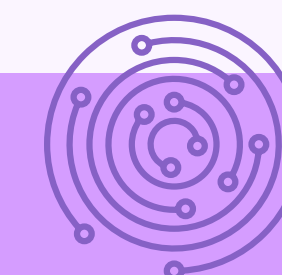
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7. TECHNOLOGY AGAINST THE VIRUS

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Technology will also play an extremely important role in overcoming the epidemic, and developing antiviral therapies and a vaccine. For example, we have collaborated with researchers to provide them with our advanced AI technologies and expertise; we have increased support for front-line institutions and not-for-profit organizations that help communities to respond and recover.

PLASMA BOT
FOR BLOOD PLASMA THERAPY

Plasma therapy is currently one of the most promising therapies for the treatment of coronavirus patients, and it is faster to produce and license than drugs currently under development. With a Plasma Bot application available in Hungary, Microsoft is contributing to the search for plasma donors who have already been infected with coronavirus, and ultimately to the development of a new serum.

With the help of Microsoft, the **Co-Vig-19 Plasma Collaboration** website was set up, where key information on plasma donation is available. The company announced on April 20, 2020 that it will also launch a CoVIg-19 Plasma Bot. It is a chatbot based on artificial intelligence that helps potential donors decide if they are really suitable for donation by asking various questions. The application also provides information on how plasma is collected and where the plasma center closest to the donor's location is. Plasma Bot is also available in Hungary.

ARTIFICIAL INTELLIGENCE FOR COVID-19 VACCINE DEVELOPMENT

Microsoft Hungary supports the RIGHT not-for-profit organization, a research group within the framework of the AI for Health Covid program, which has been developing vaccines, and therapies against AIDS, allergy, and cancer for 25 years. Researchers intend to use Azure-based deep neural networks to analyze variants of virus strains and human immune system responses. Microsoft provides computing capabilities to Hungarian researchers to model immune responses. This method can greatly accelerate the development of an effective vaccine against COVID-19.

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