DIGITAL TRANSFORMATION

SHPiK
SHOQATA PROFESIONALE
E INFORMATICIENTËVE TË KOSOVËS
KOSOVO INFORMATICS SOCIETY

NEWSLETTER
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Keynote

Dear Members and Supporters of the ICT Association of Kosovo - SHPIK,

I am honored to serve as the Executive Director of this esteemed organization and am pleased to welcome you to our annual newsletter.
Over the past year, we have made tremendous progress in advancing the ICT sector in Kosovo. We have fostered a collaborative and innovative environment, and I am proud of the results we have achieved.

With financial support from the Austrian Development Agency (ADA) and the Austrian Computer Association (OCG) we have developed five new modules. These modules, which cover topics such as computing, artificial intelligence, robotics, computational thinking, and information literacy, will help to broaden and deepen the knowledge and skills of our members and the wider community. This project was a true collaboration, involving the expertise and contributions of many individuals and organizations.

The adoption of these new modules has already had a tangible impact, improving the capabilities of our members and the competitiveness of the ICT sector in Kosovo. We believe they will be valuable resources for many years to come and are excited to see the positive impact they will have on the ICT industry in Kosovo.

As we look ahead, I am confident that we will continue to make great strides in the ICT sector. With the support of our members, partners, and the wider community, we can build on our successes and create a brighter future for all.

Thank you for your continued support and dedication to the ICT Association of Kosovo. I look forward to working with you to build a stronger, more innovative, and successful ICT sector in Kosovo.

Sincerely,

Bekim Kasumi
Executive Director, ICT Association of Kosovo – SHPIK

One of our standout accomplishments has been the establishment of partnerships with leading global associations and organization in the ICT industry, such as ICT Berufsbildung Schweiz and CEPIS.

ICT-Berufsbildung Schweiz is the national organization of the world of work (OdA) for information and communication technology (ICT) occupations and profiles and as such the sole sponsor and representative for vocational secondary education for ICT occupations and mediamatics in Switzerland. SHPIK has become member association of ICT-Berufsbildung Schweiz and will promote Swiss ICT curricula in Kosovo.

CEPIS, the Council of European Professional Informatics Societies represents the national informatics societies of over 30 European countries. Established in 1980, CEPIS is dedicated to promoting the development and recognition of the informatics profession, and to advancing the use of information technology for the benefit of society. SHPIK has successfully became member of CEPIS.

We have also made a concerted effort to support the next generation of ICT professionals in Kosovo. Through our DUAL ICT education initiatives, we have supported 11 ICT VET schools in Kosovo to equip students with the skills and knowledge they need to succeed in the fast-changing world of technology.

Emerging technologies and innovations in 2022 and their potential to shape skill needs for the near future

The year 2022 has been a significant one for information and communication technology (ICT). From widespread adoption of Artificial Intelligence (AI) to the continued growth of Internet of Things (IoT) and Virtual Reality (VR) / Augmented Reality (AR), there have been many notable developments and innovations in the world of ICT. In this short review, we will take a look at some of the key trends that have shaped the industry in 2022 and discuss their implications for the future skills demand.

Artificial Intelligence (AI) and machine learning (ML)

The development of more advanced AI algorithms in 2022 has led to an increased adoption of AI by organizations throughout various industries, including, health, finance, retail, education, transportation, etc. Here are some representative examples:

In the healthcare industry, AI and MK are being used to assist with diagnosis and treatment planning, to identify patterns in medical data, and to assist with drug discovery and development

In the transportation industry, AI and ML are being used to improve the efficiency of logistics and supply chain management, and to develop autonomous vehicles, such as self-driving cars and drones

In the retail industry, AI and ML are being used to personalize customer experiences, to improve supply chain management, and to assist with product recommendations

In the education industry, AI and ML are being used to personalize learning experiences, to assist with grading and assessment, and to assist with language translation. This contributes to improving the effectiveness of education and making it more accessible to a wider range of students.

Internet of Things (IoT)

The internet of things (IoT) refers to the growing network of physical objects that are connected to the internet and can collect and exchange data. Some trends in the IoT include:

In the healthcare industry, collection and transmission of data from patients in real time, thus helping to make more informed decisions about diagnosis and treatment.

The growth of smart cities, where IoT technology is used to improve the efficiency and sustainability of urban environments

The development of new IoT-based technologies and applications, such as smart homes and connected vehicles.

One of the biggest gamechangers in IoT is the use of wearables and in-home sensors to enable healthcare professionals to monitor the condition of patients outside of the hospital or doctor's surgery. In 2023 it is expected to achieve the breakthrough for the concept of the "virtual hospital ward", where doctors and nurses will oversee the monitoring and treatment of patients in their own homes thanks to sensors and telemedicine.

VR and AR

Virtual reality (VR) and augmented reality (AR) are technologies that are expected to cause significant disruptions in a wide range of industries:

VR and AR technologies can be used to create immersive and interactive experiences that are more engaging than traditional forms of entertainment, such as movies and video games.

VR and AR technologies can be also used to create immersive and interactive learning environments that can be more effective at teaching and training than traditional methods. This has the potential to disrupt the education and training industries by providing students and workers with more effective and engaging ways to learn, and by changing the way that education and training are delivered

Additionally, VR and AR technologies are expected to also disrupt the healthcare industry by providing new and innovative ways to diagnose and treat patients, create immersive simulations of medical procedures, which can be used to train doctors and other healthcare professionals, provide remote consultations, etc.

Impact on future Skills Demand

The widespread use of AI, IoT and VR/AR may lead to a reduction in the demand for certain jobs that are susceptible to automation, while as data continues to play a crucial role in informing decision-making across various industries, it has become increasingly important for individuals to possess a range of soft and technical skills.

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> ### *The widespread adoption of AI, IoT, VR, AR and ML will have a tremendous implication for future skills demand*

Some **general skills** that are likely to be essential in the AI-powered economy are:

· Strong problem-solving and critical thinking skills
· Strong communication and collaboration skills
· Creativity and innovation skills
· Emotional Intelligence

In the AI-powered economy, workers will need also a wide range of **technical skills**, such as:

· Data literacy skills
· Programming
· Computational Thinking
· Data Science
· Machine Learning

To thrive in today's modern workplace, it's essential to possess a range of skills that allows to identify problems, think creatively and come up with new and innovative solutions, gather data from various sources, interpret and use that data to inform decision-making, and utilize tools like Excel and SQL for statistical analysis and visual communication of findings. Additionally, the ability to work effectively with diverse and virtual teams is crucial for success in the AI-powered economy.

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> ### *Overall, the advancements in AI, VR/AR, and the IoT in 2022 and their expected growth in 2023 have the potential to change the way we live and work!*

To remain competitive in an AI-powered economy, it is essential for individuals to continuously update and expand their skills, which may involve investing in continuing education and training.

This is where SHPIK comes in, as our mission is to support the advancement of these digital and soft skills that will be so important in the future. In 2022, SHPIK has established the largest online shop for ICT learning contents, accessible under https://learn.shpik.org/, accessible and open to all publishing houses and authors that provides also the e-commerce functionality for easy access and enrollment.

SHPIK has also launched the training information platform https://trajnimet.info/ that provides information on all non-formal education courses from the field of ICT.

Basic digital education with ICDL

The pandemic has made it very clear how important it is that everyone is digitally fit. Home office and distance learning showed us the limits of our digital skills and were a big challenge for many. We are not alone in this in Europe, but for those responsible it should be an indication that there is still a lot of catching up to do in the area of digitization.

The range of basic digital skills within the population of the European Union is very large. Even if Austria appears in the first third of this chart, it should be noted that a third of all Austrians have little or no digital skills [1].

As early as 1997, the European computer companies recognized the need to certify basic digital skills in a standardized way. The summary of the necessary skills led to the European Computer Driving License (ECDL). In 2006, the European Commission also recognized that digital skills are essential and included them in their definition of key skills for lifelong learning [2]. The term computer competence was understood to mean the "secure and critical application of the technologies of the information technology society for work, leisure and communication. It is supported by basic knowledge of ICT: using computers to query, store, produce, present and exchange information, to communicate via the Internet and to participate in collaborative networks" [3].

Austria, together with all other EU countries, has committed itself to implementing these competences through a resolution of the National Council.

At the beginning of 2018, the European Commission published an updated version of this document with a reorganization of the eight key competences [4].

OESTERREICHISCHE COMPUTER GESELLSCHAFT ®
AUSTRIAN COMPUTER SOCIETY

The current eight EU key competences include:

1. Literacy
2. Foreign language competence
3. Mathematical competence and competence in natural sciences,
4. Informatics and Technology
5. Digital literacy
6. Personal, social and learning skills
7. Civic Competence
8. Entrepreneurship
9. Cultural awareness and cultural expression

Digital skills in education

In order to take account of the importance of digital skills for work and everyday life, the EU formulated the action plan for digital education [5]. After a public consultation in 2020, this program was adopted in early 2021.

In the years 2021 to 2027, digital skills are to be anchored more firmly in the national training systems of the EU countries.

With a more efficient digital education ecosystem, the Commission wants to drive the digital transformation in Europe forward, for the success of which these skills are essential.

It is to be welcomed that in Austria the subject of basic digital education will be introduced at lower secondary level in the school year 2022/23 and that the Ministry of Education has launched an 8-step plan for digitization in recent years [6].

The plan includes, among other things, providing teachers and students with devices. However, there is largely no plan for teachers to acquire the necessary basic digital skills. The OCG therefore advocates mandatory basic digital computer training for all teaching staff at Austrian schools.

Digital natives are not good at computer

It is a fallacy that the so-called digital native generation or Generation Z learns basic digital skills from their user behavior. It is a fallacy that the so-called digital native generation or Generation Z learns basic digital skills from their user behavior.
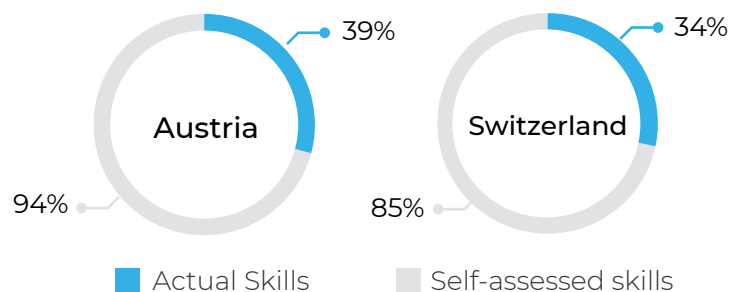

Results from all of the analysed countries indicate that people cannot adequately assess their digital skills. Respondents incorrectly evaluate their competences, most often by overestimating. For example, in Austria, 94% of survey participants assessed their general computer skills as 'average' to 'very good'.

However, in the practical test, only 39% of them scored that high (see Figure 1). Very similar results were reached in Switz erland. For example, 85% of survey respondents indicated that they were 'good' or 'very good' in using the internet and email, whereas, in reality, only 34% of them answered the practical questions correctly.

Many studies came to similar conclusions: there is a big discrepancy in the young population between self-assessment and actual computer skills. Even in countries with a high level of digital affinity, there is evidence that people overestimate their skills (Figure 1). Although generally age-independent, this gap is even more pronounced among the under-30s.

Figure 1: Results of the individual studies (self-assessment versus actual computer skills) in Switzerland and Austria.

Austria — 39% — 94%
Switzerland — 34% — 85%

■ Actual Skills   ▢ Self-assessed skills

Source: The Digital Competence Framework for Citizens, European Union, Joint Research Center JRC106281 (2017)

Everything in support of ICT up-skilling and re-skilling

SHPIK has worked intensively to develop and integrate various tools and systems, that will help the ICT community to keep up with rapid changes in develop competitive skills. From knowledge base, learning management system to informal training management information system, there are plenty of platform to support skills growth of ICT community in Kosovo.

https://www.shpik.org/en/knowledge-base/

The ICT Association of Kosovo - SHPIK is proud

to offer its members access to a comprehensive knowledge base, a valuable resource for staying up-to-date with the latest developments in the ICT sector.

The knowledge base is accessible to all members of SHPIK and is organized into different special interest groups, or SIGs. These SIGs cover a wide range of topics in the ICT industry, from software development and cybersecurity to project management and data analytics

Within each SIG, members can find a wealth of information and resources, including articles, tutorials, and best practices. The knowledge base is constantly updated with new content, ensuring that our members have access to the most current and relevant information in their areas of interest.

The knowledge base of the ICT Association of Kosovo - SHPIK is an invaluable resource for our members, providing them with the tools and information they need to succeed in the ICT sector. Whether you are a seasoned professional or just starting out in the industry, the knowledge base has something to offer everyone. We encourage all of our members to take advantage of this valuable resource.

https://learn.shpik.org/en/

The learning management system (LMS) learn.shpik.org, is an essential tool for the growth and development of the ICT sector in Kosovo.

Through our LMS, we provide our members with access to a wide range of online learning resources and professional development opportunities. These resources include online courses, webinars, and workshops, covering a wide range of ICT topics. Our LMS allows our members to learn at their own pace and on their own schedules, making it an accessible and convenient way to stay up-to-date with the latest trends and technologies in the field.

In addition to providing professional development opportunities, our LMS also serves as a platform for networking and collaboration. It allows our members to connect with each other and share knowledge and experiences, fostering a sense of community and teamwork within the ICT sector in Kosovo.

One unique aspect of our LMS is that it is open for all authors to publish their content. This means that any member of SHPIK can contribute their expertise and experience to the LMS, making it an even more valuable resource for the entire community.

Overall, the LMS of the ICT Association of Kosovo - SHPIK is an invaluable resource for the ICT sector in Kosovo. It helps to ensure that our members have the skills and knowledge they need to succeed in an increasingly competitive and fast-changing industry, and it helps to build a strong and cohesive community of ICT professionals in Kosovo.

https://trajnimet.info/

We are excited to announce that SHPIK has launched a new platform for finding ICT training providers and courses in Kosovo. trajnimet.info is a user-friendly and comprehensive platform that allows individuals and businesses to easily search for and find the perfect ICT training solution for their needs.

With trajnimet.info, users can search for training providers and courses by location, course type, and many other attributes.

They can also view detailed information about each provider and course, including prices,

schedules, and reviews from past participants.

In addition to providing a convenient way to find training solutions, trajnimet.info also aims to promote the development and growth of the ICT sector in Kosovo by connecting individuals and businesses with the best training providers in the country.

We are convinced that trajnimet.info will be a valuable resource for anyone looking to improve their ICT skills and advance their career.
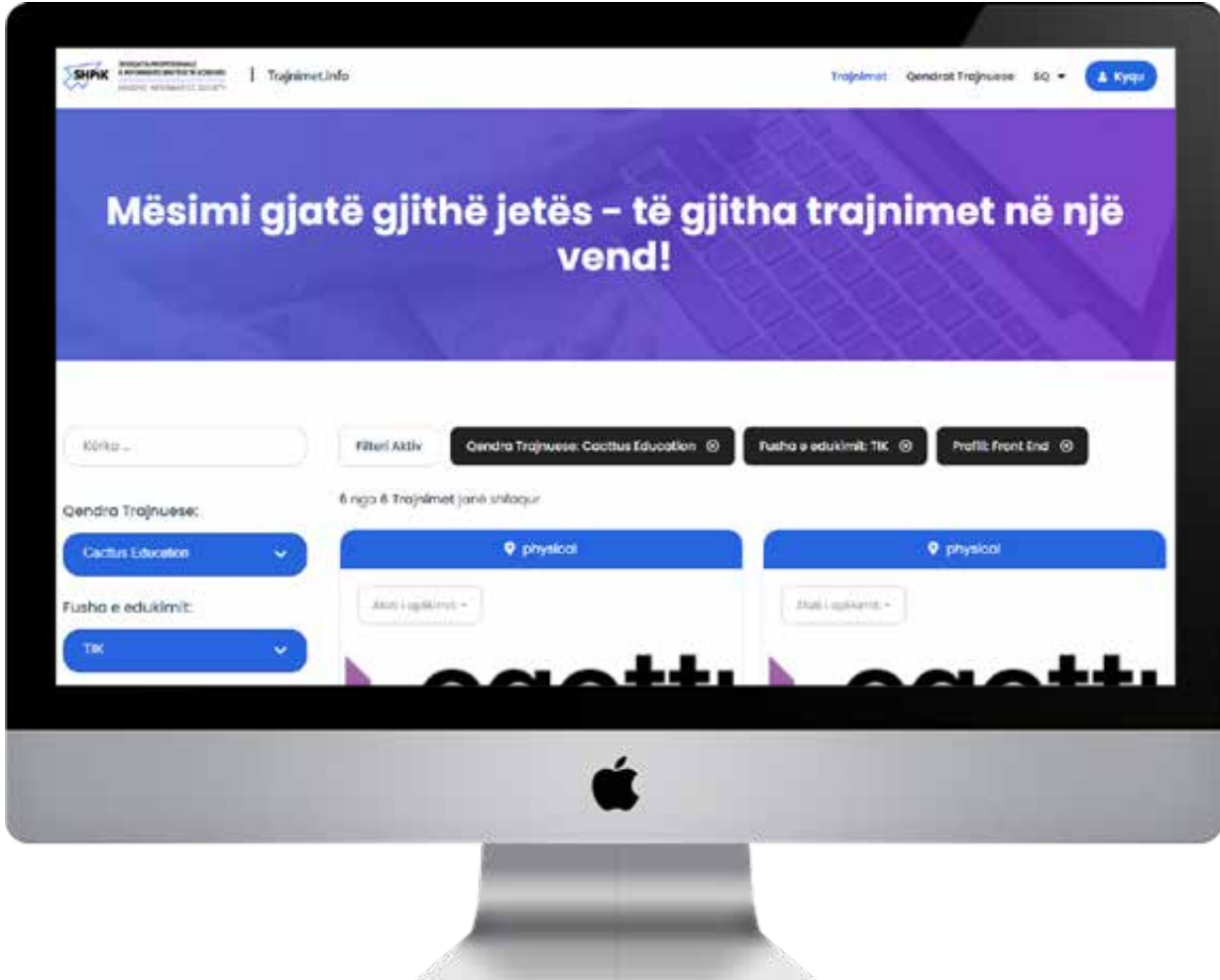
Useful Resources

The Agile methodology has revolutionized the way software development projects are managed, delivering better results and higher customer satisfaction. At its core are the Twelve Principles of Agile, which provide a set of guiding values and practices for achieving this goal. These principles serve as the foundation for the Agile Manifesto and provide a clear, concise, and actionable guide for teams to follow.

Whether you are an experienced Agile practitioner or just getting started, these principles will help you deliver better results, faster:

Twelve Principles of Agile Softwares	
1	Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2	Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3	Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
4	Business people and developers must work together daily throughout the project.
5	Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6	The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
7	Working software is the primary measure of progress.
8	Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9	Continuous attention to technical excellence and good design enhances agility.
10	Simplicity--the art of maximizing the amount of work not done--is essential.
11	The best architectures, requirements, and designs emerge from self organizing teams.
12	At regular intervals, the team reflects on how to become more effective then tunes and adjusts its behaviour accordingly.

We are pleased to announce that SHPIK will be organizing a series of training sessions on Agile/Scrum and Project Management for its members throughout the year. These training sessions are designed to help our members stay up-to-date with the latest industry trends and best practices, as well as develop their skills and knowledge in these critical areas. Whether you are an experienced professional or just starting out, these training opportunities will provide valuable insights and hands-on experience to help you succeed. So don't miss out on this exciting opportunity and join us for these informative and engaging trainings. For more detailed information about the upcoming events please visit our events site: https://events.shpik.org/en/

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