

## DigiTech, forward, march!

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When the call for papers for the Lumen online magazine was published at the beginning of February, we had no way of anticipating the situation the whole of Finland would be in at the time of publication of the magazine. Educational institutions, including the lower grades of comprehensive school, transferred to remote instruction at less than a week's notice, and remote work became a requirement for work in all jobs where remote work is possible. The call for papers included the following sentence: *“Digital technology has become a necessity; it is a requirement for the success of our daily activities.”* By now at least, this is clear to everyone.

Thank you, digitalisation and other new technologies. Although the coronavirus pandemic seems to have brought most of the world to a halt, many work tasks, operations and events have been able to continue thanks to digital technology. All those with some so-called digital competence, such as experience of electronic communication tools, network implementation models or practices of different operations or different remote and network tools have been able to start remote work at home relatively smoothly. The rest have been forced to learn, in one way or another, completely new tools and methods through enquiries, support services and experiments. Even in these situations, however, digitalisation has played the role of an enabler.

### Utilisation of digitalisation in different fields

The development of digital tools and mobile technology, augmented reality, virtual reality, drones, geographic information systems, the Internet of Things, the development of sensor technology, etc. create new methods of enhancing or improving the services of different actors and cooperation in all fields. However, the utilisation of digitalisation, automation and, for example, robotics varies greatly between different fields. Electronic processes are typically

used most widely in financial management and accounting. Digitalisation thus acts as a factor saving the resources of a company as the resources can be directed at the core business.

In her thematic article, Karoliina Majuri explains the different opportunities of utilising digitalisation in the primary production of food and in teaching in the field of natural resources. The article by Helena Kari and Sirpa Orajärvi, correspondingly, discusses the utilisation of different digital innovations and technologies, such as virtual reality, augmented reality, robots and clones, in health care. Outi Tieranta, in turn, describes the significance of the increase of digitalisation competence in health care and explains the contents and objectives of the OmaDigi project in her article.

The opportunities of utilising digitalisation in tourism are manifold. Marketing and sales are the key functions that entrepreneurs aim to invest in at the moment. In their article, Päivi Hanni-Vaara, Outi Kähkönen and Petra Paloniemi describe how actors at tourist destinations and teachers and students in the degree programme in Hospitality Management at Lapland UAS designed and implemented digital marketing for companies in the Ranua region through a co-creation process.

In his specialist article, Janne W. Matilainen gives an overview of the current situation and short term trends of consumer-level satellite localisation solutions, providing basic data on satellite localisation for the development of business and other activities. Correspondingly, the article by Wille Markkanen, Pasi Satokangas, Kristian Sievers and Mari Vähäkuopus describes the utilisation potential of mobile data in the field of tourism. The collection and analysis of mobile data and its connection to other data sources is an important part of knowledge management in tourism. Its application would allow quick, almost real-time, dimensioning of tourism services and numbers of tourists, for example, in the remote areas of Lapland.

Digitalisation and new technologies have revolutionised the construction sector in many ways. In addition to the automation of large properties and factories, people can increasingly control the energy systems or individual pieces of equipment in their houses remotely with mobile devices. In his contribution, Otto Pesonen discusses the significance of the benefits of intelligent environments, cities and buildings through the intelligent actions of people. Valteri Pirttinen, on the other hand, describes the utilisation of BIM (Building Information Model) in construction. Information modelling enables the partial models of different design fields to be integrated into a combination model in which, for example, the compatibility of different partial models can be checked and conflicts can thus be found. In the context of construction

technology, the strength of materials has great significance and importance. Olli Kuisma has written a good, concise introduction to the book *Lujuusopin perusteet* (“Fundamentals of Strength of materials”).

### Customer- and needs-orientated approach

Although digitalisation often has an enabling role, it should be remembered that it is important that the development of operations progress as a customer- and needs-oriented. Kalle Santala and Reeta Sipola discuss how the future workshops and public events of the GRUDE project can be implemented online if the corona pandemic so requires. Mari Vähäkuopus and Jenni Kemi describe the regional orientation model and virtual orientation package developed as a result of the Asiakkaan aika project for the use of the companies in Santa Claus Village. The digital solution emphasised the significance of uniform initial orientation, especially from the point of view of customer experience and employee experience. In their article, Johanna Rintala and Panu Huczowski describe how networks have been used to create a decentralised, nature-oriented operation model for villages in Salla. The model offers tools for welfare work by utilising local nature.

In her article, Iida Kalliokoski Silvestre describes the operations and results of the Dwell – Älykäs taloyhteisö (Intelligent house community) project. Among other things, the project has utilised service design in brainstorming and development work, the starting point of which has been the customer and their needs, not data and digital applications.

### Digitalisation at the centre of the development of learning, teaching and education

The very quick and partly forced transition to remote work and remote instruction requires many practical problems to be solved in the operation environments of work communities and educational organisations. In his article, Tuomo Lindholm explains these challenges from the point of view of both support processes and the requirements of technical equipment and systems and describes how the transfer to remote work has progressed at Lapland University of Applied Sciences. In their contribution, Minna Tuominen and Maarit Timonen discuss what can be done to awaken, give rise to and maintain the motivation to study, especially now during remote teaching and studying.

Digitalisation and the use of new technologies in the field of teaching require creativity and the utilisation of more creative teaching solutions. In their article, Hannele Kauppila and Satu Elo

present the implementation of the training focusing on the development of online and digital pedagogical competence, which started this year at Lapland University of Applied Sciences. In addition, Panu Huczkowski and Tiina Pekkala describe with case examples their first experiences of taking complete simulations to an online environment. The requirements of the digital age are thus met by increasing pedagogical competence and collecting experiences of novel teaching situations online. In addition, degree programmes themselves must be developed to meet the requirements related to new competence needs in current and future work environments. In their article, Merja Koikkalainen, Soili Mäkimurto-Koivumaa, Maarit Tihinen and Outi Mattila explain the development process of the completely online multidisciplinary degree programme, “Service Management in Digital Era” (Master’s degree), with newly collected student feedback.

### Targeted support to prevent exclusion

Digitalisation enables the collection and analysis of data and the utilisation of the information thus created, for example, as a new kind of service. In his article, Seppo Kilpiäinen clarifies the preliminary results of the APOA project concerning the utilisation of proactive learning analytics. Technology can be used to highlight potential obstacles or studying and learning difficulties along the learning path of the students of Lapland University of Applied Sciences so that the students can be supported in a targeted way.

Timo Puukko describes his experiences in the utilisation of different tools and software, even the features of augmented reality (AR), in communication and teaching. Although technologies and tools are developing at a dizzying speed, he stresses the importance of true presence in online and remote teaching.

Johanna Majala and Sanna Viinonen emphasise the digital expertise of those working with young people and their skills in supporting and guiding young people in developing their digital skills. The digital skills and usage habits of young people vary greatly, which means that some young people may be left completely without the benefits enabled by digitalisation and thus they are in danger for being excluded.

### Realising the digital leap

Our society completed the digital leap. Our world changed in a moment in a radical way. Although the pressure for change came from outside in the form of the coronavirus pandemic,

digitalisation was the auxiliary force that reduced the change we have experienced. The isolation and quarantines have not been total because digital technology has enabled remote work/studies, contact between family members and friends and the creation of a sense of community among teaching groups, school classes or even groups of yoga practitioners, for example. It has made these things possible, but the reality is surely harsher. However, the time will soon come when the operations of our society will be returned to the time before the pandemic. In the digital leap, there is no return to the past. Instead of obstacles, we have learned to seek and find opportunities. This is demonstrated by the contents of the articles in this themed issue. I firmly believe that we do no longer think we are marching to the beat of digital technology; rather, digital technology has become an excellent servant that we can command: **“DigiTech, forward, march!”**

*Maarit Tihinen*

Theme Editor