

# Digital Transformation - A Prerequisite for Sustainability in all Economic Sectors and for Society at Sibiu Innovation Days 2021

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## **Abstract**

Launched as an initiative of the Cluj IT cluster and supported by the Hasso Plattner Institute in Potsdam, Germany, Sibiu Innovation Days (SID) represented a necessity for Sibiu, for the university, for companies in the area, in the idea of bringing together of all decision makers that acts around the concepts of digitalization, innovation and knowledge transfer to a smarter society and a better life for its members. During the three days of the SID2021 conference we explored, with the guidance and expertise of our invited speakers, the process of digital transformation and how this can help our community of students, researchers, business, and decision makers to add value to their projects, initiatives and day to day activities. This paper briefly highlights the societal, economic and environmental challenges to which digitalization should solve and that have been brought up at SID2021.

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According to European research studies [1], the only way for the EU to maintain a strong, sustainable and competitive economy is through innovation. However, at present there are large imbalances between degrees of innovation of EU countries. Relatively recent statistics at European level place Romania as modest innovator. In terms of digitalization, Romania is on the last position in the DESI classification<sup>1</sup>, with many areas lagging behind, such as human talent, public administration, and adoption by the business environment. Greater collaborative efforts are needed on the part of clusters, universities, and research institutes to position themselves as vectors for the transfer of technological progress and to boost the regional innovation. One solution to alleviate this disadvantage is to develop international collaborative networks that replicate the best innovation models in advanced countries and adapt them to less developed countries or regions in Europe by stimulating territorial innovation. The partnership between universities and private sector has become a defining factor for the growth of innovation and quality in the research area [2]. Launched as an initiative of the Cluj IT cluster and supported by the Hasso Plattner Institute in Potsdam, Germany, Sibiu Innovation Days (SID) represented a necessity

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<sup>1</sup> <https://ec.europa.eu/newsroom/dae/redirection/document/80563>

for Sibiu, for the university, for companies in the area, in the idea of bringing together of all decision makers that acts around the concepts of digitalization, innovation and knowledge transfer to a smarter society and a better life for its members.

We are currently facing a complex of societal, economic and environmental challenges that require courageous structural transformation measures at the level of companies, public institutions and administration to ensure balanced and responsible development. To enable this, we need to extract and use massive data from anthropogenic and natural ecosystems, as well as technical systems capable of transforming data into information and then knowledge, which will then allow us to make wise decisions. We find that extended digitization and the transformation of the way we do things through the contribution and help of digital technologies cannot be associated with a cult for digital, but with an urgent need regarding the quality of people's lives and the economic health of companies. Sibiu Innovation Days 2021<sup>2</sup> brings to our attention several vectors that reflect these transformative paradigms.

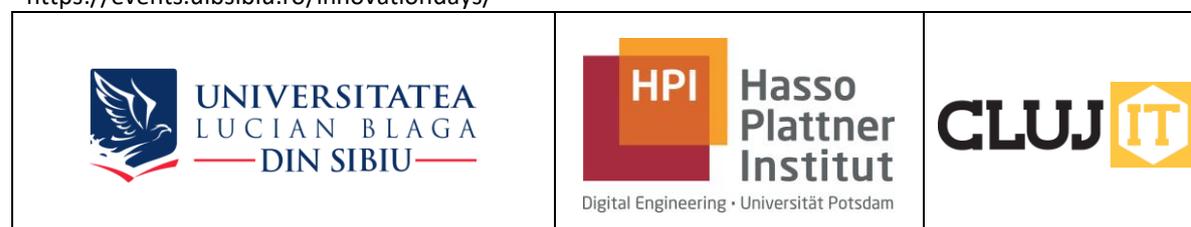
Challenges at the societal level through the emergence of digitalization in all sectors of activity, from industry, medicine, smart city management, smart and autonomous mobility to the changes introduced, and the challenges posed for business and education by the pandemic, the advancement in digital technologies like Artificial Intelligence and Cybersecurity, the specificity of technology transfer in Romania, the importance of startup development and entrepreneurship education, all these are current issues for all members of the Sibiu community and were discussed at Sibiu Innovation Days. At the same time, the participants learned the vision of the European Commission for Research and Innovation on these issues through the presence of decision-makers from this European institution.

For the second time, *Sibiu Innovation Days* reconfirmed its position on the regional and even national scene, positioning itself as a promoter of innovation and also a connector between private actors, representatives of public authorities, the local ecosystem and academia, research, bringing into attention current issues at a supranational and implicitly national level. SID conference series are already a reputable reference of the academic environment in Romania and played from its first edition in 2020 a fundamental role in the development of collaborative networks between specialists from industry, administration and research community from universities.

During the three days of the SID2021 conference we explored, with the guidance and expertise of our invited speakers, the process of digital transformation and how this can help our community of students, researchers, business and decision makers to add value to their projects, initiatives and day to day activities. The event was looking to strengthen the collaboration among all these stakeholders, while also improving the

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<sup>2</sup> <https://events.ulbsibiu.ro/innovationdays/>



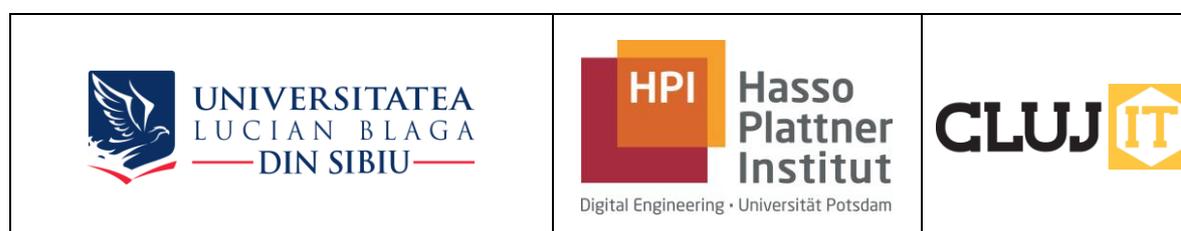
way in which we understand and use the innovative services available in Transylvania and the Sibiu region. The conference activities emphasized current research and development concerns of companies active in the area, as well as created new opportunities for collaboration among participants active in a wide array of industries and fields. While highlighting contributions from Hasso Plattner Knowledge Transfer Institute, active in “Lucian Blaga” University of Sibiu, to the development of the local innovation ecosystem, the conference represented an important component in consolidating Sibiu City’s position as an emerging innovation center.

With this 2nd edition, SID offered a very rich and exciting program, focused on digital transformation seen as a prerequisite for sustainability in all economic sectors and for society. SID2021 topics and presentations aimed adapting industrial and administrative processes in the context of digitalization, as well as towards value creation through structural transformation and generating of new businesses, startups or spinoffs. At SID2021 a particular attention was paid to the successful knowledge transfer, seen as a boost for a territorial innovation, to its challenges and specificities in Romania. The topics are very timely, focusing on the challenges of the ongoing 4th Industrial Revolution and the growing role of Artificial Intelligence (AI) and Cybersecurity in systems development. Very interesting lectures presented the European approach Towards Digital Sovereignty and Cybersecurity challenges in 2021 in two main multinational companies from Sibiu – Continental and VISMA.

The „*Artificial Intelligence*” panel included interesting lectures and debates regarding immersive media augmentation through cognitive computing, personalization of customer experience in modern systems with applicability in automotive and autonomous driving, interoperability and infrastructure requirements for an AI-enabled architecture, reducing downtime, improving productivity and optimization of operational processes through AIOps and DevOps.

In the „*Digitalization*” panel the speakers revealed the Industry 4.0 challenges and innovative technologies with emphasize on Automotive sector and Digital Signage, the gearing up for the digital transformation of manufacturing through collaboration, the necessity to apply digital technologies to optimize processes and reduce costs but also to reinvent experiences, focus, and ways of work, thinking future products from the research stage.

For the second consecutive year, the health domain was approached at SID. The lectures presented digital solutions for shaping the future of healthcare, for mobile screening for diverse populations with genetic syndromes. It was highlighted the necessity of collaborative efforts between software and hardware developers and medical sector for a personalized coach for healthy aging, for implementing medical information systems that allow patients’ access to their electronic medical file, and empowering citizens with new generation technologies to build a healthier society.



One new panel organized for the first time at SID was “*Startups, Entrepreneurship and Personal Development*” knowing the importance of startups for effective and efficient innovation ecosystems and also the lack of entrepreneurship skills for many of computer science and engineering students. The lecturers presented the challenges but also success recipes for building tech startups in Romania, what skills you need to developed from graduation to entrepreneurship, why the agility and the human factor is important in the entrepreneurial process and funding opportunities from European level for training entrepreneurship competences of employees.

The „*Future of work: upskilling, reskilling, the long-life-learning, new jobs, new skills*” panel radiographed the extent to which companies and universities have evolved following the pandemic in terms of how employees work, whether by teleworking employee productivity has remained unchanged or what changes generated by pandemic has brought good and what not, both at the level of companies and employees. The panelists have shown their research results about workforce analytics in teleworking and how digitalization transforms the future of work, examples of digital platforms that drives innovation and digital transformation through open models, what are the hard and soft skills required for success within digital society, how the recruitment process evolved and why is needed a matchmaking between candidates and employers.

The „*Innovative Partnership*” panel presented the changes in the European research and innovation landscape post-COVID 19 which aim restarting the economy and helping private investment to get moving again and also, the health research funding opportunities by Horizon Europe program. The debates tried to identify how can Romania support cross-sectoral actions to optimize costs and results so as to increase the effectiveness of EU funding in the field of innovation and how can Romania create a friendly environment for innovation that supports the transition to the green economy through the programs and mechanisms provided by the EU. The panel was ended presenting two success recipes implemented in Italy and Romania, first illustrating experiences of innovation in the field of digitalization in public and private sectors and second illustrating how developing innovative concepts are focused on manufacturing and work environment using state-of-art technologies.

Even if society in the digital age is dynamically developing, the changes must be sustainable and take into account the limited natural resources. In this context, Sibiu Innovation Days 2021 tackled issues related to development of smart societies from a greener perspective. The last day of conference tackled the challenges and holistic actions from multiple perspectives (digital, smart, connected and green) for building smart and sustainable digital cities. It was revealed the importance of creative communities, deeper collaboration and using of smart technologies for connecting citizens with the city. A smart city need to have smart citizens. The quality of life for citizens in a smart city may be improved by efficient governance and proactive approaches to buildings management and maintenance, reducing the carbon emissions



by smart parking solutions, smart mobility, etc. Exploiting of concepts like IoT, 5G, Big Data, cloud computing, data analytics under restrictions of data privacy, security, integrity in the context of smart city were debated during the panel.

The last panel of the Sibiu Innovation Days 2021 was dedicated to „*Smart agriculture applications, Sustainability, Green society*” panel. The sustainability issues of modern society like waste management and proposed economic solutions, food ensuring in the context of population growth, modernizing agriculture practices using IoT systems, drones and robots, using of unmanned aerial vehicle systems in collecting agro-climatic data, and reusing of existing ADAS solutions from passenger cars for the safety of agricultural equipment all these represented topics of discussions in the panel.

In collaboration with ULBS partners – the industrial companies Continental Automotive Systems Sibiu and Marquardt Schaltsysteme Sibiu, we organized two industrial demonstrative workshops as part of Sibiu Innovation Days 2021 conference program.

On 28.10.2021 took place the first industrial workshop entitled „*WS2: Demo session - Building Blocks for Autonomous Driving*”. It started with a short introduction about the technical background of lecturer and included on agenda the presentation about what Continental does in the Advanced Driver-Assistance Systems (ADAS) Business Unit, and more importantly, how does this. The applicative part of the WS2 consisted in a set of exercises, where, starting from short datasets of test which encodes „*what the vehicle sees*” the participants should use some development tools / environment (MS Excel, Python, Matlab, Visual Studio Code etc.), to parse tests and to create a simple visualization application to understand the way the environment “*looks*”. The users need to write small functions that have specific purposes (discussed during the workshop). In the end of the workshop the conclusions were drawn and open discussions took place and the participants were required to provide feedback. Judging by feedbacks and also that the time allocated for workshop of the 90 minutes was overtook with more than half of hour, important conclusions were that the young students and participants appreciated the technical quality of the presenter and of the workshop in general and are eager for such demonstrative events in future, if possible, in physical mode.

On 29.10.2021 took place the second industrial workshop entitled „*WS3: Innovation in Triad: Perfect synergy of mechanics, electronics and software!*”. The goal of the workshop was to promote technologies and smart products developed and produced by the Marquardt company and how the students/participants with complementary skills (mechanical, electronical and software) could be part of the development and test process in a synergic way to realize a one-of-a-kind product for the Automotive Industry. The WS3 also added to this innovation triad the possibility to automate the production processes through the use of collaborative robots, which is another area of



competence in Marquardt and which is emerging rapidly at a global level. Finally, the workshop concluded with a preview of the future of gesture-recognition technology and with predictions on how it can be implemented in daily use: for controlling various functions and characteristics of the vehicles all the way to controlling household appliances. The workshop was disseminated in live stream available on the Marquardt Romania social network platforms, on the Sibiu Innovation Days website and on the local newspaper web page reaching a large target audience of different ages and on different countries.

We are glad to say that this second edition of the event was a real success which set an example of good practice especially in the current „normality” marked by the epidemiological context. More than 400 participants registered for the event, and almost 2000 people were following online stream with 8 technical panels, 3 keynote presentations and 3 workshops involving more than 54 experts from industry and academic environment and delegates from local, national and international authorities and organizations, European Commission experts, and businessmen (from multinationals and established international brands to local startups) from Romania, Germany, France, USA, Italy, Norway, Austria. At the same time, they presented points of view, challenges and solutions related to digitalization in public services, representatives of local administrations (various services of the mayor’s office and of the Sibiu City Council) led by the Mayor of Sibiu.

At the same time, we are convinced that the collaboration relations between organizers and all participants will not only continue but will flourish in the interest of the ecosystem we represent.

## References

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