European Commission

8 December 2023 – Charlemagne building, Brussels

AGRI-DIGITAL CONFERENCE 2023

EU Agri-Food days

A digital transformation for farmers and rural communities for a sustainable future

Agriculture and Rural Development

DISCLAIMER:

December 2023, Directorate-General for Agriculture and Rural Development, European Commission

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Conference web page: EU Agri-Food Days - European Commission (europa.eu)

This report assembles the contributions made by participants in the context of the 2023 Agri-Digital Conference held on 8 December in Brussels. The contents of this document do not necessarily represent the official position or opinion of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of information in this document.

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Introduction

The first-ever Agri-Digital Conference was organised by Directorate General for Agriculture and Rural Development of the European Commission in Brussels on 8th December 2023, under the umbrella of EU Agri-Food Days 2023. The event focused on the "*Digital transformation for farmers and rural communities for a sustainable future*" and gathered 200 onsite and 1000 online participants, including farmers, agri-food industry representatives, entrepreneurs, policy makers, advisors, and representatives from non-governmental organizations.

The main objectives of the conference were to:

- bring together the community to showcase the rapid and tangible progress of digitalisation in agriculture;
- exchange on the potential of digitalisation and data in achieving sustainability across the agricultural value chain and the role of policies for the digital transformation with focus on mitigating digital divides, small farms, generational renewal and boosting local economies.

Session 1 - Opening speech

In his keynote, Mr. **Wolfgang Burtscher**, Director General of Directorate General for Agriculture and Rural Development of the European Commission highlighted two key issues from the 2023 Outlook Conference: **the importance of the young generation of farmers, and the significance of digitalisation in agriculture**. Research, innovation and technologies can assist agriculture in addressing key challenges, such as providing sufficient food within planetary boundaries while balancing food production with sustainability. Real-time data, enabled by digital tech like precision farming technology providing valuable information for farmers on soil conditions, such as moisture, temperature, and nutrient levels, is becoming increasingly important in policymaking to demonstrate progress towards policy's objectives.

Figure 1: Mr. Wolfgang Burtscher, Director General opens the conference. © European Union, 2023

Increased data availability, both public and private, will enhance effective policy design, monitoring and management of resources as well as implementation of performance-based delivery models. At the same time, technologies will provide the right balance between controls and performance leading to real simplification.

However, digitalisation also raises questions and concerns for farmers. "Can I afford it? Will I be still able to repair it easily? Can I still consider myself a farmer?" Divides, e.g. small vs. big farms, can be further exacerbated if digitalisation is not managed responsibly.

Enabling factors are crucial to this regard: broadband connectivity, skills, advisory services and tailored financial support. The Common Agricultural Policy supports farmers in the uptake of digital technologies through interventions such as eco-schemes, investments, and advice. At the same time, it is necessary to unlock the complete potential of technology and data while guaranteeing their responsible and fair use. The data sharing regulatory framework that is being established will allow farmers to be in control of their data while profiting from the data economy.

Mr. Burtscher concluded by emphasising the necessity of a **long-term vision and a strategic approach at the EU level to facilitate the digital transition in agriculture and rural areas for a more resilient and sustainable future.**

Session 2 – Digitalisation in action: experiences from the field

Figure 2: Mr. Max Schulman presenting his experience with digitalisation in agriculture. © European Union, 2023

The session aimed at illustrating the transformation occurring in the agricultural sector due to digitalisation, showcasing real-world examples from stakeholders across the food chain. Mr. **Max Schulman**, farmer and Senior Advisor at Central Union of Agricultural Producers and Forest Owners from Finland (MTK), shared insights into his farming practices describing agricultural activity as a blend of digital tools and "seeing and feeling".

Technology and data are central throughout the farming cycle, from planning and planting to soil preparation and harvesting. Mr. Schulman underlined that the data he gathers primarily benefits his own farming practices, even though it is also valuable for policymakers, research, and academia. He highlighted that while farmers have always used information for their activities, digital tools enable them now to use such information faster while optimising inputs and saving costs and time. Connectivity and interoperability were stressed as crucial for digital tools to work on the field, together with the importance of trust and clear communication from authorities when it comes to data sharing. At the same time, cooperatives and contractors can play a significant role helping farmers to deal with the technology and overcome barriers linked to costs of adoption. Mr. Schulman encouraged farmers to gradually adopt digital tools and precision solutions, based on their individual needs.

Figure 3: Ms. Maria José Hernández Mendoza on agri-data integration under the SIEX project in Spain. © European Union, 2023

Ms. **Maria José Hernández Mendoza**, President of the Spanish Agrarian Guarantee Fund at Ministry of Agriculture, Fisheries and Food from Spain, explained Spain's initiative to **integrate agricultural information onto a unique IT platform using data from the farm registry and digital fieldbooks**.

Delivering on CAP indicators, simplifying farmers administrative burden, and using the information for better policy design and farm management are they key objectives of the **SIEX project**. Combining data from registries (e.g. crops, machinery registry, surface etc) and from digital fieldbooks (e.g. phytosanitary treatments, fertilization information etc.) will bring benefits to both farmers and administrations. Farmers will benefit from updated data concerning their farms, enabling them to benchmark their operations and refine their practices. Simultaneously, the administration will be able to design better and tailored policies, safeguard financial interests, and track farming activities for accounting purposes.

Ms. Hérnandez stressed that **harmonisation of information sources and interoperability** are key challenges of the delivery of such project while collaboration between public administration and the private sector is crucial to this regard. Finally, she highlighted the importance of the system to foster mutual benefits for all stakeholders.

The CEO of AgriFood Lithuania Cluster and Digital Innovation Hub, Ms. **Kristina Šermukšnytė-Alešiūnienė**, provided an overview of the organisation's activities, which bring together entities such as technological companies, startups, academia and farmers associations to create, test and implement innovations for the agrifood sector. She also introduced the **European Digital Innovation HUB (EDIH) concept**, where essential digitalisation support activities are underway to transform sectors through services such as testing before investing, skills development, support for investments, and networking opportunities.

Figure 4: Ms. Kristina Šermukšnytė-Alešiūnienė explains the role of clusters and digital innovation hubs on supporting digitalisation. © European Union, 2023

She emphasized the importance of **considering agriculture within the broader context of the food supply chain,** highlighting the vulnerability to cyberattacks linked to the increased use of digital tools and data produced throughout the chain. EDIHs play a crucial role in assisting farmers in adopting digital solutions for environmental purposes, in maintaining economic vitality and achieving social benefits such as increased free time and simplified work. In that context, she gave two examples: a pilot project utilizing artificial intelligence (AI) to detect pollution based on bees' behaviour on the farm, and another illustrating how even small farmers owning half a hectare are using digital solutions for their activities. The essential element in promoting digitalisation is the collaboration of all stakeholders, with a crucial emphasis on placing farmers at the forefront.

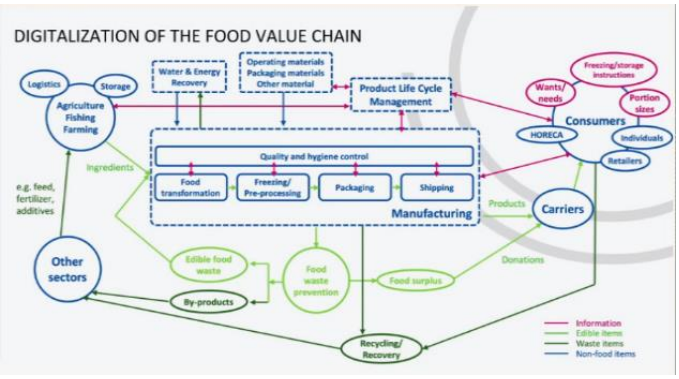

Figure 5: Digitalisation of the food value chain (source: Kristina Šermukšnytė-Alešiūnienė).

Mr. **Pierre Sultana,** Public Affairs Director of AnimalhealthEurope, together with Mr. **Eamon Sheehan,** dairy farmer, highlighted the **role of digital technologies for animal health and welfare**. Mr. Sultana explained how tools such as smart collars, pedometers, sound, and image capture, enable farmers to collect valuable data that allow to establish animal welfare indexes. These tools facilitate early detection of signs of illnesses, easier diagnoses, and timely interventions.

Live from Kilkenny, Ireland, Mr. **Sheehan** showcased a smart livestock management tool that he uses on the farm, explaining how the tool simplifies the monitoring of individual animals and how it detects and signals signs of distress early enough to intervene before the problem becomes a real concern resulting in a significant reduction in antibiotics usage. From an economic

perspective, despite the initial adoption costs, the **Return of Investment is highly favourable for the farm**. Mr. Sheehan also emphasised the role of technology in addressing the shortage of qualified staff and the advantage of having more time to spend with his family.

Figure 6, 7: Mr. Eamon Sheehan online from his farm and presenting the front-end of his cow monitoring application (source: Mr. Sheehan Eamon).

Pierre Sultana concluded by emphasizing that data collected from both the animal and its environment provide a comprehensive and objective picture of the herd's health and wellbeing. By reducing incidences, these two are enhanced thereby supporting sustainability and enhancing farm profitability.

Questions from the audience focused on the scope of an integrated IT platform to foster all farm data in respect to information coming from small farmers or the livestock sector and how authorities can create a trustful environment so that farmers will be willing to share their data esp. with the private sector. Participants also inquired about the economic benefits of digital investments.

Session 3 – Digitalisation for sustainability: policy support

The session focused on the challenges and opportunities of digitalisation for the farming sector, emphasizing the need for a supportive policy framework. Digitalisation can contribute to economic and environmental sustainability by reducing production costs and helping to use natural resources more efficiently while creating at the same time better working conditions.

Figure 8: Dr. Sjaak Wolfert in his keynote speech on policy support for the digital transition in agri-food systems. © European Union, 2023

In his inspirational speech, Dr. **Sjaak Wolfert**, Senior Scientist, Wageningen University & Research, highlighted the profound and transformative impact that digital technologies and data have on the agri-food sector. He underlined the potential of these emerging technologies to achieve increased production levels while maintaining environmental sustainability, as evidenced by research. However, **low adoption rates of digital solutions by farmers may hinder the progress and impact on sustainability**. Policy support should encourage the adoption of digital technologies and allow farmers to take full benefit of the data they generate. At the same time, **farmers need**

integrated digital solutions encompassing all relevant information and data on their farm activities. However, recent developments suggest that many benefits tend to belong to entities surrounding the farm, such as cooperatives, processors, and advisors, who utilize farmers' data for their own gains while most farmers are not aware of the situation. Raising awareness becomes a crucial objective for supportive policies. In this complex digital landscape, the development of dataspaces, including in agriculture, connecting data platforms while allowing farmers to benefit from their own data becomes crucial.

Figure 9: Mr. Gianluca Feligini, Mr. Bjorn Juretzki, Ms. Genevieve Savigny and Mr. Michael Pielke (from left to right discussing on how digitalisation and data can support sustainability. © European Union, 2023

Dr. Wolfert concluded by emphasising the importance of lean, interactive and integrative methodologies for digital innovation, a common technical infrastructure with open standards, value stream development focusing on user engagement and fair business practices, effective stakeholder management, and strategic planning. These elements collectively aim to foster adaptability, collaboration, ethical considerations, and long-term sustainability in the development and maintenance of innovative digital ecosystems, where public administration should have an important role.

During the panel discussion that followed, Mr. **Gianluca Feligini**, Head of Precision Technology EMEA, CNH, referred to the latest trends in precision farming technology contributing to more sustainable food production, and these are: the development of artificial intelligence (AI), serving as the foundation for data production and analytics; the emergence of digital platforms as spaces where value is derived from data; and the alternative propulsion (i.e. non-fossil fuel engines), a critical factor in achieving the net-zero emission target. Harvesting equipment and sprayers are examples of advanced technology combining sensing control systems and data production and reuse throughout the farming processes. He underlined that the **return on investment is critical**. The financial viability of the technology is the key factor that makes it financially sensitive for farmers to invest in the product. This is the only way to truly encourage widespread adoption and be successful in the digital transition.

Regarding the fair distribution of data, he underlined that farmers maintain control of their data and can decide if and with whom they want to share data or how to best use it. Interoperability and connectivity are key so that data flow between old and new machinery and digital platforms and services.

Ms. **Christiane Lambert**, President of the Committee of Professional Agricultural Organisations (COPA), highlighted that for a successful digital transition, farmers must perceive the benefits and make value out of it. Numerous challenges exist, as farmers are called to produce food, fight against climate change, and protect natural resources (water, soil, air) and biodiversity. Digitalisation can help

Figure 10: Ms. Christiane Lambert online intervention on what is needed for a successful digital transition in agriculture.

in all these directions and data can be used to measure the efforts of farmers. Digital tools can simplify farm processes, such as recording and monitoring of farm-related information or aid applications, can optimise inputs and support better decision-making that will enable faster ecological transition. It is essential that all farmers, regardless of size, understand and trust digitalisation. This will allow broader adoption and deployment also for older generations. She welcomed the Data Act that gives more control to farmers in respect to their data. Advice and skills development are also essential in the digital transition not only for farmers. She called for enhanced financial support by the European Commission on investments, training, advice, and connectivity and for creating trust towards data sharing.

Mr. **Michael Pielke**, Acting Director for Sustainability, DG AGRI, underlined that inclusiveness and data security are key in the digital transition. **Under the current CAP, Member States have elaborated digital strategies** providing a comprehensive overview of the actions that they envisage. Having a strategic approach is crucial as each Member State must look at their own needs and specificities to reflect on the appropriate way forward. The CAP offers a number of tools such as investments, eco-schemes and agri-environmental measures to support for example precision farming. AKIS (Agricultural Knowledge and Innovation Systems) and European Innovation Partnership EIP-AGRI Operational Group projects are also crucial for digitalisation especially in respect to knowledge and cooperation. However, CAP cannot support the transition alone and other EU or national funds are already being used together with the CAP in the digital transition.

Mr. **Bjoern Juretzki**, Head of Unit for Data Policy and Innovation, DG CNECT, emphasized that the Data Act established the legal basis for farmers and, in general, users, to regain control over their data. This shift aims to rebalance the power from big companies to individual users. Additionally, the creation of data intermediaries stemming from the Data Governance Act will enable users to monetise their data addressing the issue of unequal distribution of data value so that farmers will perceive the economic benefits. He also referred to the SMEs unfairness test provided in the **Data Act that aims at protecting further users and farmers, and correct imbalances**. Mr. Juretzki also talked about the publicly held data and the upcoming Implementing Regulation on High-Value Data sets that requires public administrations to share aggregated data so that farmers and other entities can use them.

Ms. **Geneviève Savigny**, representative of European Coordination Via Campesina (ECVC) expressed the view that digitalisation seems to be an end in itself and not a tool at the service of farmers and the sustainability of agriculture. ECVC members are concerned that digital transition will take place to the detriment of the agro-ecological approach. She expressed the concern that companies take full advantage of the data of farmers and **trust is a major issue** to this regard and there is the risk that companies will take over farms. Farmers should be free to decide if and how they want to use technology in relation to their practices.



Figures 11, 12, 13: Questions from the audience. © European Union, 2023

Questions from the audience focused on the rights of farmers in respect to their data when it comes to contracts with manufacturers companies and how the respective legislative framework

will be implemented. Participants also inquired about the relationship between digital technologies and agroecological objectives as well as to accessibility issues.

Session 4 – Shaping the future

The session built on the JRC foresight report on "**Long-term implications of digital transition for EU farmers and rural communities**" that was carried out in collaboration with DG AGRI. Human capacity often relies on past experiences to anticipate the future and innovate with new, dynamic solutions. The only tool that people have at their disposal is imagination and forward-thinking. Foresight relies on collective intelligence empowering decision-makers to better anticipate future developments and navigate through uncertainty.

Ms. **Jolita Butkeviciene**, Director of Innovation in Science and Policymaking at Joint Research Centre presented the main outcomes of this report outlining the purpose, values, and principles that should steer the digital transition in agriculture and rural areas towards 2040. Ms. **Yulia Barabanova**, Policy Officer from JRC Policy Lab, presented the toolkit that was developed to support policymakers in the development of digital strategies in agriculture and rural areas.

Figure 14, 15, 16: Ms. Jolita Butkeviciene (left) presents the foresight report on long-term implications of digital transition for EU farmers and rural communities (middle). Ms. Yulia Barabanova (right) presents the toolkit aiming at supporting policy makers in the development of their digital strategies. © European Union, 2023

Figure 17: Ms. Aminda Leigh (moderator), Ms. Jolita Butkeviciene, Ms. Catherine Geslain-Lanéelle, Mr. Gianluca Brunori, Mr. Rudolfs Pulkstenis (from left to right) discussing the digital transformation and the future of agriculture. © European Union, 2023

During the panel discussion, Ms. **Catherine Geslain-Lanéelle**, Director, Strategy and Policy Analysis, DG AGRI, highlighted DG AGRI's vision on digitalisation: to create an enabling environment that collectively shapes the future, **empowers all farmers of all generations, connects people and businesses, modernizes, and simplifies the CAP, and provides farmers with data-based services.** The CAP is already actively supporting the digital transition for a more sustainable and resilient agriculture. The next CAP could support even more the development and uptake of digital technologies by farmers focusing on capacity building, provision of services and advice. This would empower farmers to embrace digital technologies on their own terms, allowing them the freedom to choose whether to integrate them in their activities.

Mr. **Gianluca Brunori,** Professor from University of Pisa, underlined the importance of digitalisation in connecting people and the transformative role that it has on our society. However, he also noted a lack of awareness regarding the full potential of digital technologies. He drew attention to how digital impacts our daily life, where we navigate between online and offline situations and changes the way we live, we interact, we work, we produce, from *on-line* to *on-life*. Furthermore, he highlighted key aspects of digitalisation that influence businesses and society, including agriculture and rural areas. These aspects include dematerialisation, disintermediation and the potential for collaboration. He also highlighted the **key role of digitalisation for rural areas and the connection between farmers and the rural communities**.

Mr. **Rudolfs Pulkstenis,** Vice-President at European Council of Young Farmers (CEJA), underlined that the use or not of digital technologies is not an issue for young farmers; for instance, in Latvia, almost 50% of cereal crop land is managed with precision farming. The primary concerns of young farmers revolve around the **affordability of such technologies** and how they can effectively enhance their **well-being**. He also expressed concern regarding the outlook for the future that farmers face, suggesting that technology might offer a solution to this regard.

Session 5 - Concluding Remarks and Closure of the Conference

Figure 18: Ms. Catherine Geslain-Lanéelle concludes the key points of the day and encourages continued discussion with all stakeholders. © European Union, 2023

The conference concluded with remarks from Ms. **Catherine Geslain-Lanéelle**, Director of Strategy and Policy Analysis at DG AGRI. **Digitalisation in agriculture is happening and it evolves with fast pace**. However, while digitalisation is a valuable tool presenting opportunities for the sector to address sustainability challenges, **it also brings risks and vulnerabilities that require attention**.

Legal framework is being put in place to create a trustworthy environment. She recognised JRC's Foresight Study and Toolkit for DG AGRI and Member States as valuable resources for further developing or improving digital strategies at national, regional, and local levels. She emphasized the need for policies to be inclusive ensuring adequate support to farmers, from investment support to capacity building and advisory services. Digitalisation also plays an important role to make farming an attractive profession especially for young farmers but also making our rural areas more vibrant.

Ms. Catherine Geslain-Lanéelle concluded by encouraging continued reflection and dialogue renewing the appointment for next year.

Artistic illustration of the conference

Mr. Frédéric Tonar, the visual artist, depicted the essence of the conference discussions as presented below.

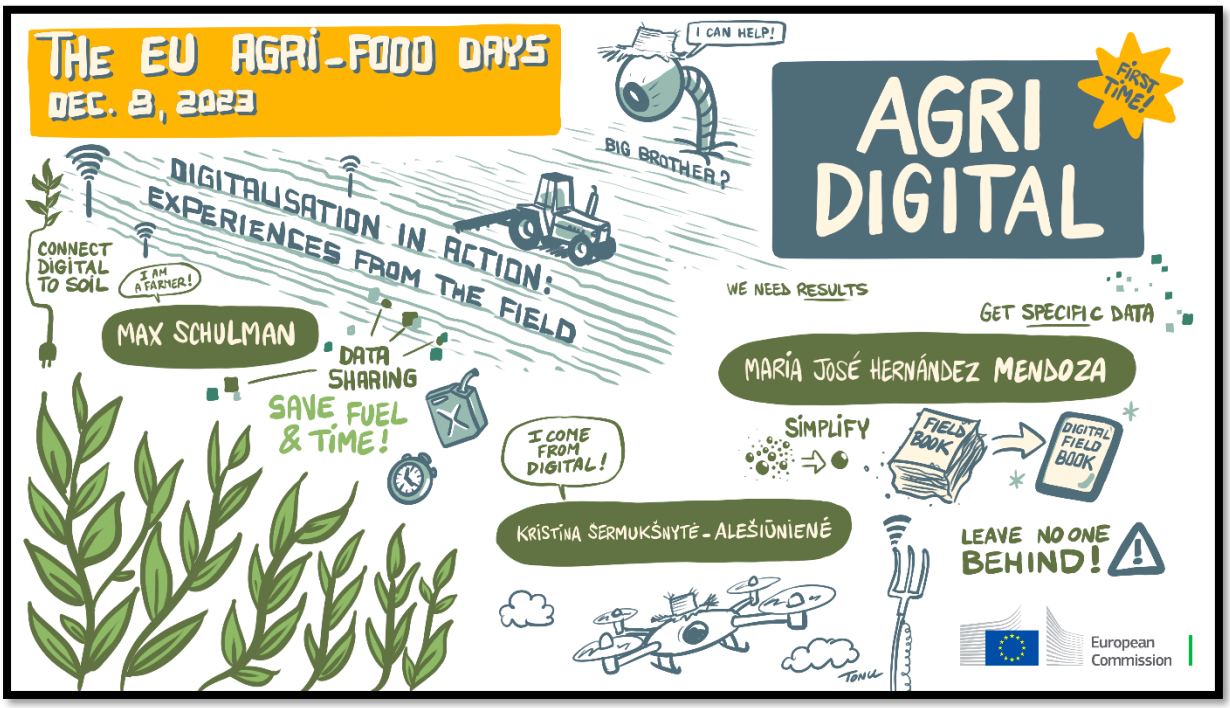

Figure 19: Session 2 - Digitalisation in action: experience from the field. © European Union, 2023

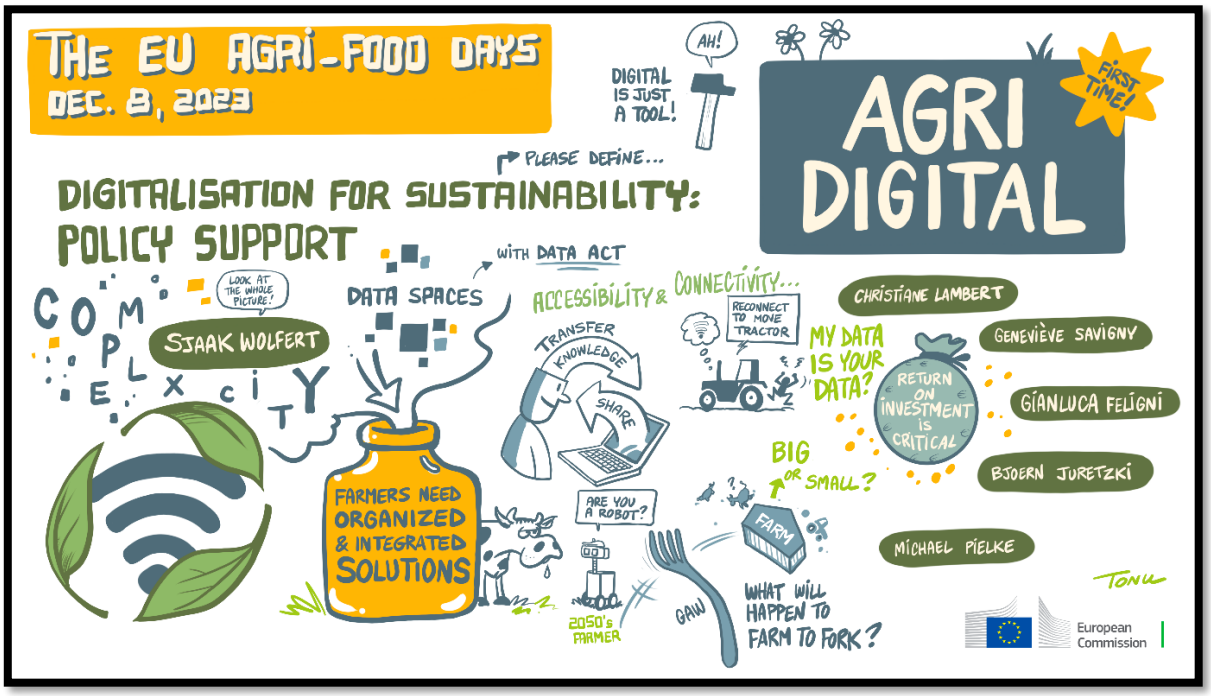

Figure 20: Session 3 - Digitalisation for sustainability: policy support © European Union, 2023

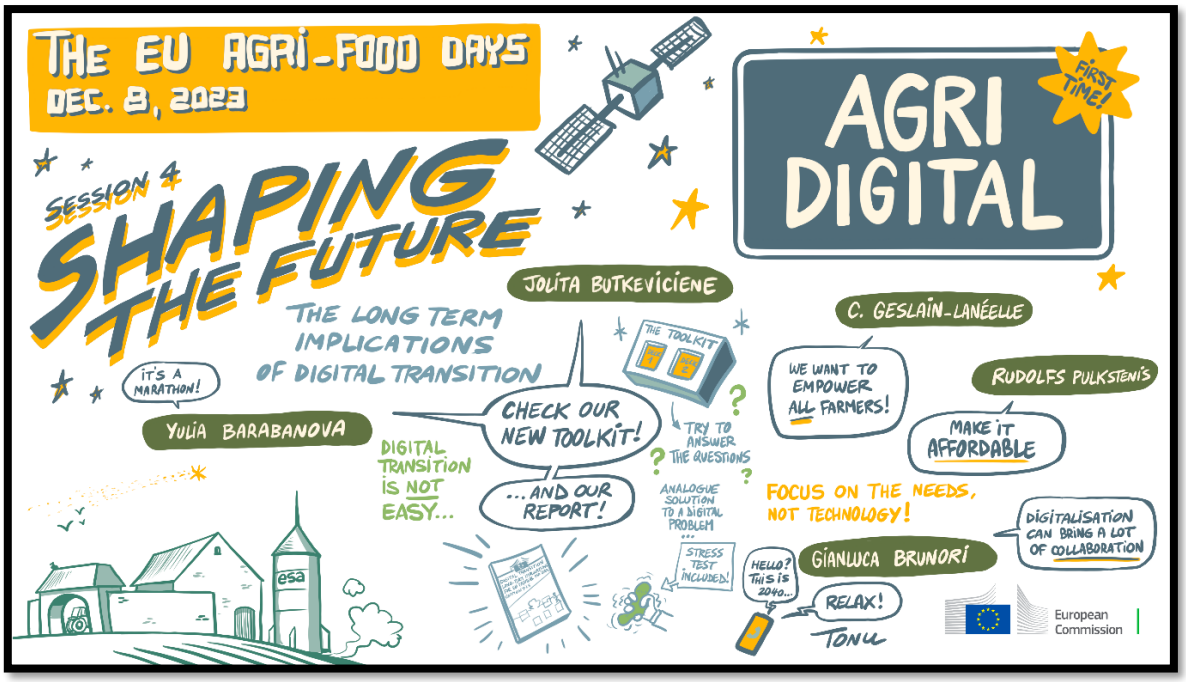

Figure 21: Session 4 – Shaping the future. © European Union, 2023

Exhibition

In parallel to the sessions, an engaging exhibition took place outside the main conference room. The exhibition provided attendees with the opportunity to explore and interact with products, services, and research projects relevant to digitalisation in agriculture and rural areas.

DG DEFIS exhibited a 1:2 Galileo satellite maquette and also presented the application built on European Union's satellite images. Satellite data can be used to support farmers and productive capacity while preserving natural resources. By complementing soil data with data from earth observation satellites, we can better understand soil conditions and nutrient management, which are the basis for food security and sustainable agriculture. With these systems, it is possible to harvest the maximum available yield from every part of the agricultural fields, while using only the necessary and effectively usable quantities of fertilisers and pesticides.

Farmtopia Horizon Europe project presented their work on empowering small farms with digital technologies focusing on the development of agricultural digital solutions, cost reduction and guidance.

AURORAL Horizon 2020 project showcased their efforts on empowering rural ecosystems to boost their potential though digitalising resources, products, and services.

DIVINE Horizon Europe project presented their work on demonstrating the value of agricultural data sharing for boosting data economy in agriculture.

Lely Industries, agricultural machine, and robot manufacturer, from the Netherlands, presented a circular manure-handling system for separating mineral streams and for converting nitrogen emissions to fertilisers.

Agrivi, technology company of digital agriculture solutions for actors of the agri-food value chain, from Croatia, presented their farm management software both on screen and different mobile devices.

DG AGRI presented the Agri-food Data Portal, where data on national and European agriculture and Common Agricultural Policy is available, provided by the European Commission's agricultural and rural development department. Participants could also discover the Agri-Sustainability Compass.

Figures 22, 23: Exhibition booths. © European Union, 2023

Messages from the future

"It is 2040 and you are visiting a rural area. What would be your message back to 2023?"

Visitors to the conference could send a short message from 2040 to themselves, to today's community, on the postcards made available to them.

The messages demonstrated that participants considered digitalisation as a **supporting tool** for agriculture and rural areas, which can help the achievement of important goals: fair income for farmers, food security, protection of soil and other natural resources, biodiversity, crisis management, better connectedness of actors in food system etc.

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