



KEY DIGITAL GAME CHANGERS SHAPING THE FUTURE OF RURAL AREAS IN 2040

VIEWS FROM DESIRA'S RURAL DIGITALISATION FORUM EXPERTS

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1. INTRODUCTION

This document is a contribution of the EU-funded project DESIRA to the debate on the 'Long-term vision for rural areas' (LTVRA), offering a multi-actor research and innovation-based perspective and evidence. We focus on a question, 'How can digitalisation shape and influence the future of rural areas in 2040?' in terms of its impact on rural areas/life in a broad sense (services, mobility, education, demography, governance, social life, culture, infrastructure, the environment, non-agricultural business, etc.).

In June 2019, the University of Pisa, together with 24 European organisations, launched a 4-year **Horizon 2020 project DESIRA - Digitisation: Economic and Social Impact in Rural Areas**. DESIRA's main goal is to improve the capacity of society and political bodies to respond to the challenges that digitalisation generates in agriculture, forestry and rural areas in the next 10 years. The project also aims to **make a comprehensive**

assessment of both the opportunities and threats of digitalisation in these three domains.

The project relies on the active involvement of external stakeholders to achieve its goals. For that purpose, DESIRA has established a European Rural Digitalisation Forum (RDF): an open EU-wide community of stakeholders with a common interest to work, learn and share knowledge about digitalisation in three domains: agriculture, forestry and rural areas. DESIRA's RDF also coordinates four virtual Working Groups (WGs), dedicated to i) Agriculture, ii) Forestry, iii) Rural Areas/Life and iv) Policy, formed by experts from DESIRA, Living Lab members and high-level external experts.

This document on **Key Digital Game Changers shaping the future of rural areas in 2040** has been developed within the framework of the WG on Rural Areas of DESIRA as a **contribution to the [Long-Term Vision for Rural Areas](#)** exercise, recently launched by the European Commission (EC). Due to the importance of rural areas for the future of the European project, the Commission has proposed to strengthen



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their role by developing a common vision through a public consultation, providing financial resources, and taking decisive steps to elaborate a corresponding strategy. This EC initiative on the LTVRA aims to set out a vision for the future of rural areas by 2040 and the role they play in society, covering challenges such as demographic change, connectivity, low-income levels, and limited access to services. It will also explore innovative, inclusive, and sustainable solutions related to climate and digital transformation, and the COVID-19 crisis.

In the preparation of this document, **DESIRA has sought the opinion of experts and capitalised on the knowledge already developed in the project** to contribute to the Communication on the LTVRA that the EC will publish in 2021. During the months of October and November 2020, around 19 experts on digitalisation of rural areas/life completed a questionnaire with the objective to collect and analyse their views on digital technologies that will influence the future of rural areas. These experts are partners of the DESIRA project, members of the rural RDF WG, coordinators and partners in other relevant Horizon 2020 (H2020) projects and external experts ranging from academics to local developers.

In addition, this document presents the state of play of digitalisation in rural areas, with a particular focus on its socio-economic impacts, as well as the challenges and opportunities that digitalisation poses to rural areas and life. A number of digital technologies considered as potential key '[game changers](#)' (Rijswijk *et al.*, 2020) in rural areas in the next decades are outlined, including examples of some already in use.

This paper concludes with a series of recommendations to ensure that the aforementioned threats are carefully considered in future digitalisation processes, and that rural areas make the most out of the opportunities it offers. **The document follows the understanding that digitalisation is the means to an end, and not the end itself.** Rural areas call for systemic interventions and encompassing actions towards infrastructure improvement, capacity building, and enhanced digital governance in order to maximise the benefits of digitalisation.

2. THE STATE OF PLAY OF DIGITALISATION IN RURAL AREAS/ LIFE

The importance of digitalisation has also been acknowledged in the UN's Sustainable Development Goals (e.g. SDG 9) and as a tool to achieve all the SDGs by 2030 (Brunori *et al.*, 2020).

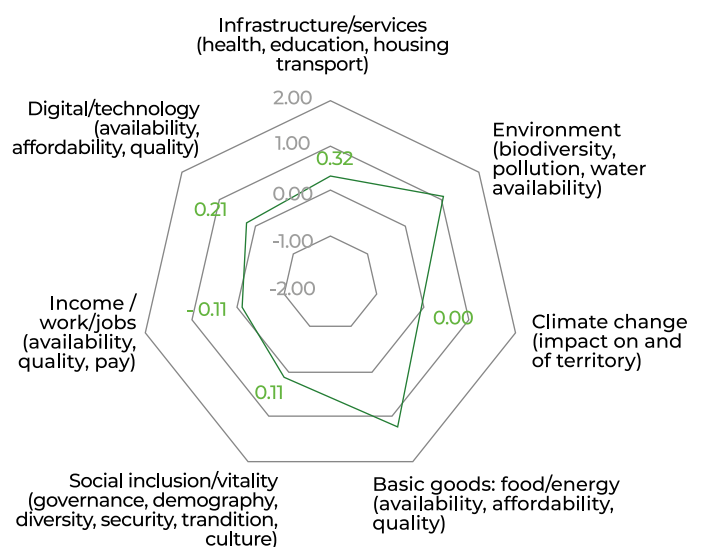
In addition, the Agenda of the European Commission for 2019-2024 has included among its six priorities 'A Europe fit for the digital age', where the EU's digital strategy will empower people with a new generation of technologies.

Digitalisation is understood as 'the sociotechnical processes surrounding the use of multiple digital technologies'. Such technologies have an impact on social and institutional contexts, which in turn increasingly require and depend on these digital technologies (Tilson *et al.*, 2010).

Digital technologies can have both positive and negative social, economic and environmental impacts on rural areas (Bacco *et al.*, 2020). The use of digital technologies often induces social, economic and institutional changes; but these changes can also lead to the demand for the development of digital technologies, as a result of ongoing and interactive processes (Notcha *et al.*, 2019).

According to the experts' responses to the questionnaire, the situation in rural areas was assessed as relatively good in relation to basic goods and the environment, while they were neutral in relation to infrastructure and services, access and functionality to the digital ecosystem and technologies, social inclusion and vitality, and climate change. On the other hand, job market and employability was considered to be in a bad situation (see Figure 1).

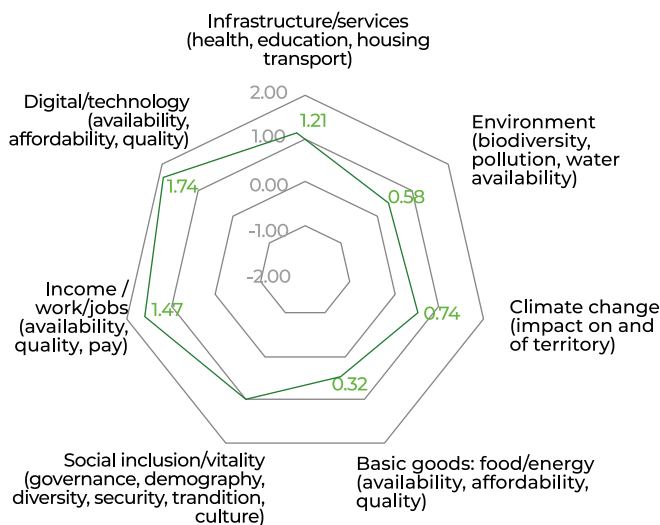
Figure 1. Assessment of the development situation in rural areas (Base: N = 19)¹



¹ Expert responses were ranked between -2 to 2 (Very bad: -2; Bad: -1; Neutral: 0; Good: +1; Very good: +2)

Figures 1 and 2 indicate that there is a considerable potential for digitalisation to support rural development. In fact, experts outlined that digitalisation could have an impact and influence the availability of technologies in rural areas as well as jobs, income, infrastructure and services in the future (see Figure 2).

Figure 2. Potential influence of digitalisation on the aspects of rural development (Base: N = 19)²



According to the experts, digitalisation creates opportunities that can be grouped along three main positive pathways: (i) improve access to information and availability of services, (ii) support new ways of working, diversification and promote businesses development in rural areas, and (iii) foster new interconnections between urban and rural areas, as well as relationship among different thematic areas.

There are many examples of the role that digitalisation can play in rural areas. It widens access to data, information and public administration services, and fosters transparency. It facilitates connection to public and private digital services such as healthcare, distant learning, housing, transport, online cultural activities and other opportunities. In COVID-19 times, digitalisation of cultural offer can help people to virtually access museums, heritage sites, monuments, libraries, etc., thereby helping to combat the negative consequences of social distancing and supporting remote socialisation. Digitalisation could also create new ways of working and boost the development of new businesses in rural areas. Digital

technologies provide precise tools for rural businesses to valorise resources, diversify and access different markets. Internet sales foster new business models, while telework enhances employment opportunities and creates opportunities that did not exist before.

The positive impacts of digitalisation stem from newly fostered interconnections, such as strengthened rural-urban linkages and boosted synergies between the educational system and the labour market.

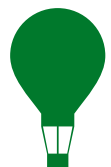
Digitalisation enables smart mobility, distant work, multiple residency and other flexible forms of life. It helps rural citizens to remain connected, compete on a more equal basis in the labour market and access a wider range of possibilities for social integration. Digitalisation may act as a counterbalance against hitherto structural divides in society and reverse some of the 'chronic' negative trends in rural development. For example, by attracting a younger generation to farming to facilitate generational renewal, inspiring rural business start-ups, stimulating an influx of new residents, or putting rural areas in the vanguard of smart regional development.

However, digitalisation also poses risks or negative consequences to rural areas. Some of them are more **visible (explicit) risks**, while others are **hidden (implicit) risks**.

Visible risks are related to issues around digital infrastructure and connectivity in rural areas. Typically, in rural areas there is less coverage by mobile networks and slower broadband internet connections compared to urban centres. In September 2016, the Commission announced its strategy on Connectivity for a European Gigabit Society. Despite significantly higher growth rates and progress in relation to Digital Agenda for Europe, the goal of providing every single European household with 30 Mbit/s access had not yet been reached by 2018. The divide between urban and rural areas remains large. While urban areas had a 91% household coverage in 2018, only an estimated 65% of rural households enjoyed access to broadband speeds of at least 30 Mbit/s in the same year (De Clercq et al., 2020). It is therefore highly important and necessary to enhance access to internet connectivity in all rural areas, not only in population centres.

Digitalisation can also place a financial and investment burden on rural municipalities that operate on comparatively smaller

² Expert responses were ranked between -2 to 2 (Very little: -2; Little: -1; Neutral: 0; Important: +1; Very important: +2)



budgets. For example, the installation of particular equipment and technology for the provision of a service might not be profitable outside the medium-sized settlements and cities. Experts also identified other risks such as poor management of digitalisation in rural areas, the digital divide between rural and urban areas, and threats to small businesses which must compete with big digital platforms. Some of these issues are short-term and can be overcome by business innovation and reskilling.

The *hidden risks* are predominantly associated with the lack of digital skills and risks of certain types of exclusion. The use of, and skills in, digital technologies remain relatively low in rural areas (ENRD, 2018). As discussed at the European Conference on Rural Development Cork 2.0 in 2016, insufficient connectivity, together with the lack of skills and adequate training, constitute two of the main barriers to unleashing the digital transformation of the sector and the rural environment. The Cork 2.0 Declaration 'A Better Life in Rural Areas'³ included in its considerations that the rural economy and rural businesses will depend increasingly on digitalisation, as well as knowledge workers who make the most of the digital transformation and enhance rural production in a sustainable manner.

While most young people still seek more urban lifestyles, older people living in rural areas, people with less scholarly capital, and individuals not used to digital tools may be left behind during the digital transformation. There are also other types of less noticed risks such as possible loss of various forms of knowledge (e.g. local, informal, and tacit), increased social alienation due to loss of face-to-face contacts.

3. IDENTIFICATION OF KEY DIGITAL GAME CHANGERS FOR 2040

Particular technologies seem to have much more potential to facilitate change in rural areas than others...

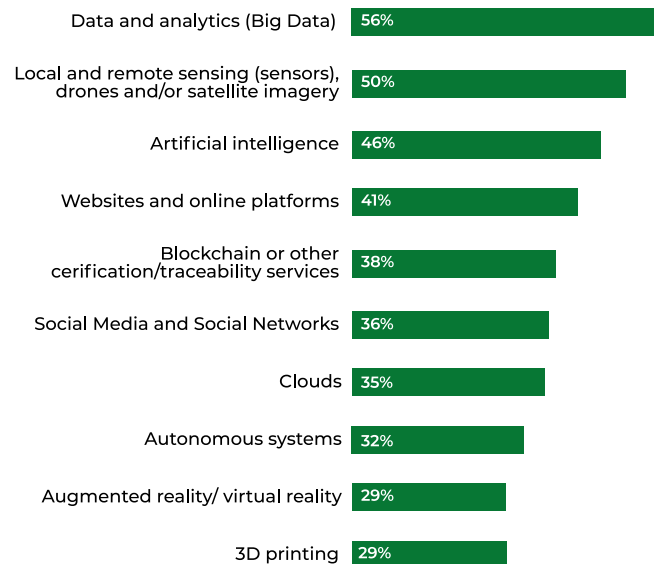
The answers of experts consulted for this report show that some technologies have a much more visible potential to bring change and facilitate rural development than others. Some of

³ Cork 2.0 Declaration https://enrd.ec.europa.eu/sites/enrd/files/cork-declaration_en.pdf

the technologies listed in the questionnaire have been chosen by respondents more consistently than others. The three most prominent technologies expected to bring about change and shape the future of rural areas are, in the order of relevance (See Figure 3):

1. Data and analytics (Big data);
2. Artificial Intelligence (AI);
3. Websites and online platforms.

Figure 3. Most relevant technologies that could shape the future of rural areas/life in 2040 (share of mentions N=19)



...while the impact of other technologies was assessed as rather limited.

Regarding autonomous systems, blockchain and 3D printing technologies, less than a third of experts reckon that these technologies could have a substantial impact in rural areas.



It is possible that the lack of current application scenarios of these technologies in rural areas might justify the results obtained. In other cases, the application scenarios related to these technologies are very specific and not widely known or applied in rural contexts. For example, two of the technologies with the lowest overall expectations are 3D printing and Social Media and networks; though the latter is acknowledged as one of the most impactful technologies around the world, creating income and job opportunities, as well as contributing to social inclusion/vitality.

The expectations associated with digital technologies vary regarding different aspects of rural development.

The expected impact of the overall digitalisation differs between various rural development aspects. For example, digitalisation-related changes in rural areas are to be observed in the fields such as infrastructure/services as well as income/work/jobs. Meanwhile, experts are significantly more hesitant when it comes to relations between digital technologies and changes

in the field of basic goods (food and energy). It is possible to suggest that some fields will likely be shaped by digitalisation, whereas others will require other non-digital instruments.

Some digital technologies might have a substantial impact on particular aspects of rural development.

The experts highlighted the most relevant technologies that could radically shape the future of rural areas in 2040 in terms of impact on specific development aspects/fields (see Table 1).

In most rural development fields, few selected digital technologies are expected to have a considerable impact. The most notable examples to mention and for which experts almost unanimously reported interlinkages between these digital technologies and their impact on a specific rural development field are: i) local and remote sensing with climate change and environment; ii) social media and networks with social inclusion/vitality; and iii) big data with the environment (see Table 1).

Table 1. Anticipated impact of digital technologies on the aspects of rural development (Base: N = 19)

Rural development field	Social Media and social networks	Websites and online platforms	Cloud	Local and remote sensing (sensors), drones and/or satellite imagery	Blockchain or other certification / traceability services	Data and analytics (Big data)	Augmented reality/ virtual reality	3D printing	Artificial intelligence	Autonomous systems
Infrastructure/ services	5	13	8	7	7	9	11	9	13	7
Digital technology	2	9	14	5	6	9	7	6	11	7
Income/ work/ jobs	8	12	11	4	7	9	6	11	9	12
Social inclusion/ vitality	17	8	6	2	2	11	11	4	9	4
Basic goods: food/ energy	2	10	2	4	6	7	2	3	6	7
Climate change	4	4	5	15	5	14	5	3	9	4
Environment	4	5	4	18	5	15	6	2	10	6

Additional explanation for the experts' high expectations for these digital technologies are illustrated in DESIRA's Deliverable 1.3 (Bacco *et al.*, 2020). For example, the Synthesis Report suggests that local and remote sensing will strengthen monitoring practices. Also, it will generate new data to be shared and reused. It is expected that in the next years, new data-sharing protocols will be developed that will accelerate the potential of sensing as well as new data generation. The strong relation between social media and social inclusion is illustrated by several Practice Abstracts (PAs) developed by DESIRA⁴. The PAs describing the cases of [DorfFunk](#), [Integreat](#), [Lormes](#) and others, illustrate that sometimes simple communication tools can have a tremendous impact on communities. The potential role of cloud technologies is also stressed by Bacco *et al.* (2020), as it allows "avoiding the need of local computing power". In relation to this, edge computing is and will continue to open new opportunities for rural development.

4. EXAMPLES OF CONTEXTS OR APPLICATION SCENARIOS

The application scenarios and specific contexts in which game changing technologies might affect the future of rural areas can be categorised along four core thematic categories:

- Technologies targeting farm management and potentially impacting rural areas;
- Technologies targeting the provision of public goods and services;
- Technologies enabling new business models and practices;
- Technologies enabling more efficient interaction across sectors and spaces.

4.1. TECHNOLOGIES TARGETING FARM MANAGEMENT AND POTENTIALLY IMPACTING RURAL AREAS

Some digital technologies employed on farms, such as sensing technologies, data and analytics (Big data), Artificial Intelligence (AI), cloud technology and autonomous systems, were seen by the experts as potentially beneficial for both farm income generation and the environment. Local and remote sensing data, Big data and cloud technology were reported as those allowing farmers to monitor emissions (sometimes even in real-time), store and share the data, and to help take effective measures to reduce emissions, as well as to mitigate and adapt to adverse climate change impacts, through smart agriculture and forestry.

⁴ DESIRA Practice Abstracts <https://desira2020.eu/resources/practice-abstracts/>

However, new technologies like robotics or automated livestock systems might also reduce jobs in agriculture. As agriculture is the largest economic sector in most rural areas – especially in sparsely populated and remote areas, there is an important risk of increasing rural unemployment. The situation is different in more densely populated rural areas with a sufficient number of non-agricultural enterprises (especially Small and Medium-sized Enterprises - SMEs) providing jobs. At the same time, introducing digital technologies, and creating digital connectivity as such, can help to address the serious problem of out-migration of youth from rural areas and the agricultural sector. Some respondents believe that this can be achieved due to, inter alia, the following:

- A shift towards agri-ecological farming practices – which means a return to human labour – that can be combined with digital technologies;
- Digital technologies on a farm such as the data from Sentinel satellites as well as geo-tagged images from drones can also be game-changing in terms of streamlining administrative processes. In practice, they can reduce the paperwork required for farm administration and the support provided under the Common Agricultural Policy (CAP). Correspondingly, less frequent on-farm checks might be needed when digital evidence of compliance with the requirements for area-based payments and cross-compliance requirements is provided.

These changes in farm management can also potentially attract and stimulate younger generations to engage in farming and remain/move back to rural areas.

4.2. TECHNOLOGIES TARGETING THE PROVISION OF PUBLIC GOODS AND SERVICES

The different rural typologies – remote, densely or sparsely populated – should be taken into consideration when assessing the impact of new technologies on rural areas.

Access to healthcare and social services, education and professional training, and transport was widely acknowledged by the experts as still problematic in many remote and sparsely populated rural areas. Social media along with online platforms and mobile applications, and sometimes technologies such as augmented reality, sensing technologies, AI and autonomous systems, were perceived as a solution to enhance the quality of education, enable online learning, professional development, remote working, access of different population groups to health and social welfare services, as well as to enhance security.

zwit PROJECT

Smart remote management of public service – ZWIT project (Spain)

The Smart Management Network (SMNet) provides quality internet connectivity for the development of Smart Villages. It is a multifunctional and multi-device tool that enables data transmitted from sensor networks to be used for the remote management of public infrastructures (lighting, water, urban waste, transport, etc.).

This is possible through a large telecommunications network at municipal level. The Network allows municipalities to offer new services to citizens, such as free internet Wi-Fi access, tools for the elderly's social healthcare using remote video support, e-health, e-learning, tourism and local business promotion, etc. This Smart Network is implemented in Los Corrales de Buelna (a village in the north of Spain), which has already changed its lighting system and installed devices that allow the remote management of services. The region optimises the provision of public services by upgrading existing infrastructure (public lighting) with sensors and internet connection that can boost entrepreneurship and investment in the area.



More information

CYBERMOOR initiative in England

The main purpose of the CYBERMOOR initiative was to bring connectivity to the village of Alston Moor and surrounding areas (England, United Kingdom), which would support the community in accessing a range of innovative services. This goal was based on an understanding that the community and local businesses were at a competitive disadvantage due to not being able to access internet-enabled services, which were increasingly becoming part of everyday life for better-connected urban and rural areas. In particular, the aim was to provide the tools needed to support and grow the local economy, create new employment, and to enable community access to a range of services (educational, health, entertainment, transport, community services, etc.) which would bring positive social impacts.



More information

Other initiatives:

- Multi-service point: social entrepreneurship, mobile healthcare and elderly care, village shops as service centres ([Eskola, community project](#) in Finland).
- Health service points: mobile healthcare vans and kiosks to do lab tests, monitor blood pressure, etc. ([Leader project](#) in Finland).
- Rural service hubs to support local services, from shops and banks to public offices (Wales, UK H2020 [ROBUST](#)).

Social media and online platforms were also recognised as important for building community resilience by helping rural citizens to stay connected (especially the elderly, who represent a significant proportion of the rural population⁵), building networks between rural and urban citizens, and developing more participatory and interactive decision-making processes in a community (see for example the platform [Integreat](#) and obile application [DorfFunk](#) in Germany).

Finally, in relation to the provision of public goods, experts noted that sensing technologies, drones and data analytics can also be deployed to monitor air quality, while big data can be used to build hydrogeological models and manage corresponding risks.

4.3. TECHNOLOGIES ENABLING NEW BUSINESS MODELS AND PRACTICES

Experts emphasised that stimulating local businesses – including new businesses – and tourism in rural areas can increase economic and social vitality. A number of experts indicated that the use of digital technologies could support valorisation of local products and services ([including natural and cultural heritage](#)⁶) and their branding. This in turn could lead to the revival of rural areas. Online platforms and social networks

were referred to as tools that can boost entrepreneurship and innovation. These technologies can be used to provide virtual services to businesses (see the project [La Era Rural](#) that supports rural young entrepreneurs in Spain), and to develop new entrepreneurial strategies and narratives for local branding to stimulate tourism (see the project [Wild Atlantic Way](#) in Ireland). The same digital technologies can support new

business models and new governance arrangements in value chains, connecting producers and consumers in innovative ways, and increasing trust (see the project [Dynamic Purchasing Platforms](#) in the UK).

Augmented reality was mentioned as a technology that could increase sensory experiences related to a local territory or product. Some experts emphasised that this technology is promising in the current pandemic context with tourism put on hold.

The potential of 3D printing could be harnessed more, also in rural areas, yet so far this new opportunity remains largely underexplored. The 3D printing technologies could efficiently produce vital medical equipment or parts of equipment (e.g. valves for ventilators to keep COVID-19 patients breathing), or temporary housing after a natural disaster.


⁵ According to Eurostat, a higher than average proportion of older people live predominantly in rural areas in most EU Member States (Eurostat, 2020).

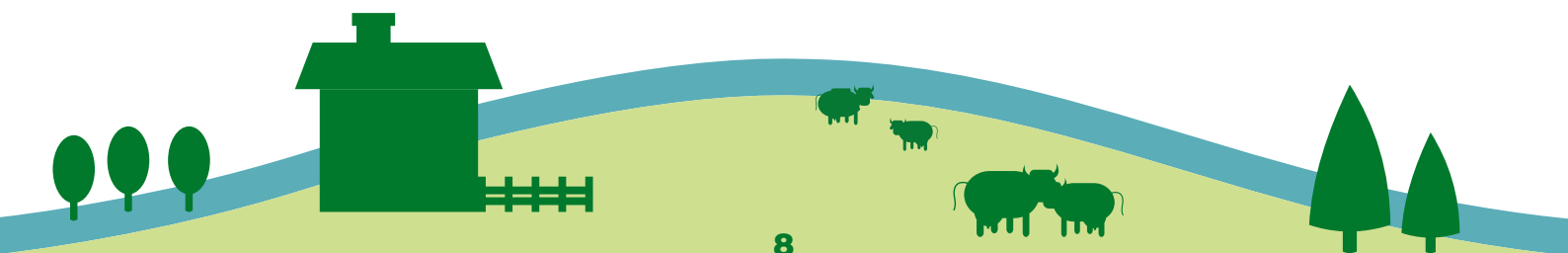
⁶ RURITAGE H2020 project. <https://www.ruritage.eu/>

Aurea4Rural: Augmented reality for rural tourism

This instrument aims at promoting the use of Information and Communication Technologies (ICT) in rural tourism. The main objective is to create innovative Augmented Reality (AR) applications using a digital platform for rural tourism, and also to provide training content for people working in this sector (e.g. managers of public parks, hotels, restaurants, companies offering leisure activities). This project further aims to strengthen cooperation among enterprises, professional organisations, and institutions by promoting vocational education and training for students and actors involved in this sector, with particular emphasis on digital skills.



 [More information](#)



4.4. TECHNOLOGIES ENABLING MORE EFFICIENT INTERACTIONS ACROSS SECTORS AND SPACES


Digital technologies like data analytics, blockchain, certification, and AI are already playing a major role in coordinating demand and supply – across sectors and spaces. Data analytics and AI are used in rural schools to gather and aggregate the needs of children for food and drink, and help local offices to adjust food procurement accordingly (e.g. [Foodlinks](#) project in the city of Malmö). Smart school food schemes can be beneficial for supply chain partners as well as children's health and safety. The same approaches and technologies can employ population data to plan public transport services to better meet

actual needs. Both play a particularly important role in sparsely populated rural areas.

Blockchain, certification and traceability services have also the potential to offer consumers greater transparency on how their food is produced. These technologies can help to enhance the value of typical local or regional food production (e.g. in implementing Protected Geographical Indication schemes), and target food quality or labour conditions. This is possible due to transparency of food origin, food production processes (e.g. biological or biodynamic), as well as labour conditions (e.g. Fair Trade).

#DONESIDOMA – Virtual Market place

#DONESIDOMA is a virtual marketplace that connects producers of food, and other products, with end-customers. In the context of the COVID-19 pandemic, with restrictions on certain activities and movements, citizens are limited in their daily activities, including buying food. #DONESIDOMA is an online shop that allows e-commerce. Producers offering agricultural product must have a computer and mobile phone devices with internet access. Displaying products and services is free for all farmers who register on the online platform. It addresses local producers and companies, by helping them find alternative channels for digital advertising and the promotion of local products and services. The method of delivery, as well as payment for purchased products, is directly agreed by the buyers and sellers.

 [More information](#)

Other initiative: An improved capacity for public services provision, e.g. smart mobility concepts connecting urban and rural spaces (for example through [Social or Smart Ride-Sharing](#) in Austria).

5. RECOMMENDED ACTIONS TO MAKE THE BEST OUT OF DIGITALISATION

The assessment of preliminary findings from DESIRA and the contributions of the experts consulted allow to identify the actions needed towards more beneficial learning and the use of digital technologies for rural development. However, it is important to outline that many of the issues and challenges in rural areas are multi-factorial and need to be considered from a multi-level and multi-actor perspective.

Reduce the digital divide and improve digital infrastructure and connectivity in rural areas

There is a need to ensure that all rural areas in Europe have access to digital infrastructure, services and affordable high-speed broadband. Investing in the necessary infrastructures and technologies, and upgrading them (for instance, broadband

and 5G network) should become mainstream among public institutions.

In addition, it is fundamental to improve the interoperability at different levels and to encourage data openness. This will improve access to information and services (education, health, administrative, businesses, etc.) in rural areas.

To make rural people beneficiaries, active participants and drivers of improvement of digital infrastructures in rural areas is a precondition.

Ensure sufficient investment, improve skills and capabilities and promote a digital innovation ecosystem

Adoption of innovations related to digital technologies is not simple. It can, for example, be hampered by the resources that

are available in a particular territory. This does not just include the availability of funds but rather relates to digital skills of local communities and other cognitive aspects, such as demographic characteristics of communities (Bacco *et al.*, 2020).

era. Moreover, as activities, jobs and life are changing due to digitalisation, digital literacy needs to be regularly updated. Online training will presumably play an increasing role in providing access to knowledge for rural people.

Insufficient funding, lack of digital skills and poor management of digitalisation processes tend to be the key factors hampering adoption of digital technologies for rural development.

Participatory and place-based approaches in rural digitalisation are to be strengthened to ensure that digital solutions are adapted to, and address the needs of, local people and territories.

In order for rural areas and their communities to benefit from digitalisation, it is important to raise awareness among citizens and businesses about existing digital opportunities. Informing about available digital tools, services and their benefits, promoting good practices and examples, such as smart villages, are crucial to build rural people's trust in the benefits of digitalisation and to support their engagement with digital solutions.

Boost local innovation processes linking local needs with innovation sources – Rural knowledge and innovation systems

Engaging with rural stakeholders, and conducting a careful analysis of the social, historical, institutional, political, environmental factors, before introducing digital and technological solutions in a particular location, community and field (health, education, jobs, etc.) would enhance the positive impacts of digitalisation and limit negative ones.

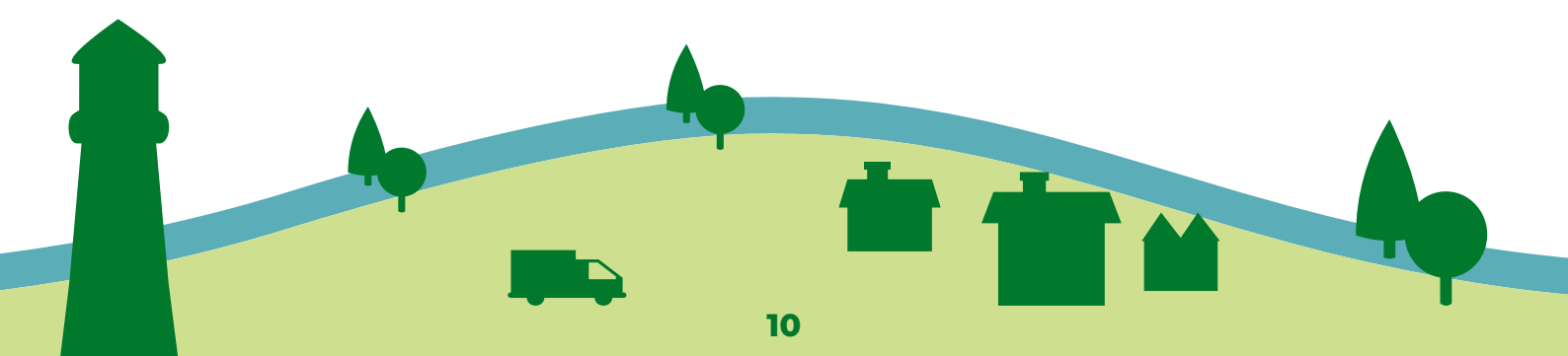
To facilitate the uptake, dissemination and advancement of digital solutions in rural settings, investment in training of rural population to acquire digital skills is necessary. To leave no one behind, development of digital capacities of different social and economic groups is crucial to reduce the digital divide and allow a full and efficient use of digital technologies.

Many rural areas do not have the capacity to link up with those stakeholders, experts and organisations that offer digital and technological innovation. The role of local innovation brokers and advisors is therefore essential to support such communities going through digitalisation processes. This will enable them to acquire the knowledge, skills and contacts needed to identify, design and implement the digital and technological solutions in a wide variety of fields related to rural life (e.g. the digital transformation of the village of Lormes in France, The small village of the future). Villages must have access to intermediaries, brokers and 'spaces' to support a digital transition. Digital hubs, Fab Labs, co-working spaces, Living Labs, Local Action Groups and other intermediate bodies can help to develop local capacity to innovate. However, support for animation, facilitation and brokerage and project preparation activities in a wide variety of relevant rural development fields such as education, health, energy, mobility, etc., is of capital importance to boost digitalisation processes in rural areas.

New technologies offer possibilities in terms of promotion of business development and new business models that will favour the diversification and the strengthening of the digital innovation ecosystem.


Encourage participatory approaches and co-design of digital solutions

New approaches to education and training are necessary to enable people in rural areas to catch up with technological development, and make everyone capable in the digital




Network of innovation brokers in Finland

Finnish national authorities are considering supporting the creation of a network of innovation brokers under the future Common Agricultural Policy (CAP), to help rural communities to implement innovation in their territories based on cooperation in a wide variety of fields. This will be similar to current experience with EIP-AGRI Operational Groups which focus on the agricultural sector. A network of Innovation Brokers is being considered to help villages with actions such as needs assessment, training, feasibility studies, contacts with research, piloting and testing, and small scale investments.

 [More information](#)

Lormes. The small village of the future (France)

Lormes is a village (1 300 residents) located in the Morvan area, in the county of Nièvre, Burgundy (France). It is a good example of a digital transformation pathway for small villages, and the time scale and steps that are required to become a 'player' in a wider digital ecosystem. Lormes began its digital and social journey with a groundbreaking district-level digital policy to foster the economic and social potential that ICT and the internet could bring to remote rural areas. This was followed by investments in the digital capacities of the population in 2003. With enhanced digital capacities, the creation of a 'Rural Hub' enabled Lormes to maximise the potential of local skills by providing office spaces, Fab Lab, fibre-optic connection, etc. The success of the Rural Hub triggered other complementary initiatives, such as the enhancement of the broadband network in the village, and the creation of a 'competence centre' for the business, public and community sectors to deliver training and mediation services on behalf of the county and regional government. Several ICT projects, companies and services emerged in the territory as a result of these initiatives.

 [More information](#)

Support digital governance structures and policy instruments to strengthen rural resilience

To avoid digital cleavage and resulting social and economic inequalities in rural communities and to ensure equal access to possibilities created by digitalisation, all the rural social and economic groups, in particularly more vulnerable and disadvantaged ones, need to be heard and involved.

New policies, instruments and collaborative participatory governance structures need to be introduced to advance rural digitalisation in a safe and inclusive manner.

All the aforementioned actions can be executed more

effectively with appropriate public support. Rural municipalities commonly have limited budgets, and rural digitalisation should be systematically supported also at the regional and state levels. Systemic approaches to rural development through digitalisation, networking and pooling the resources of stakeholders from different sectors, have proven to be efficient solutions, as demonstrated by many real-life examples.

The response to the COVID-19 pandemic or any other future possible shocks that impact everyday life (work, schooling, healthcare, etc.), would not be possible without digital tools and digital infrastructure. Thus, digitalisation adds to the resilience potential of our societies, including rural societies.

Examples of rural digitalisation policy instruments

Smart Villages are rural communities that build on their assets and create new development opportunities by enhancing services and networks, by means of digital technologies, innovations and the better use of knowledge. Smart Villages entail a complex set of infrastructures and services:

1. Public, open, multifunctional telecom network for high-speed broadband services to citizens (online health, social care, education, etc.) and for the management of municipal infrastructure (lighting, energy, water, waste, mobility, drinking water, etc.);
2. Public digital infrastructure (web platforms, apps, Open Data management, etc.);
3. Centre for the innovation, entrepreneurship support and knowledge transfer;
4. Centre for communication, training and citizen participation.

Strategic digitalisation programmes developed by governments at various scales set targets, required actions and investments over a longer-term time to reach digitalisation goals. The National Digital Inclusion Plan in France aims to raise digital autonomy of residents, in particular those from vulnerable groups, and it targets social workers, care providers, health workers, and education providers with training in digital service provision. Another national programme in France “New places, New links” incorporates existing and new measures to stimulate the creation of local partnerships for the creation of physical places that would improve access to public services, digital infrastructure and offer relevant assistance and social engagement.



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