DIGITAL TRANSFORMATION:
ONGOING DIGITISATION AND DIGITALISATION PROCESSES

Conceptual briefing

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- **What is the difference between digitisation and digitalisation?**
- **How is the digital transformation impacting agriculture, forestry and rural areas?**
- **Key terms: digitisation, digitalisation**

Introduction

The aim of DESIRA is "to improve the capacity of society and of political bodies to respond to the challenges that digitisation generates in rural areas, agriculture and forestry in the next ten years". The Conceptual and Analytical Framework (CAF) describes three analytical tools that together allow the DESIRA project to achieve its goals, and this Briefing summarises one of them.

The first of these tools is 'digital transformation'. An effective analysis of ongoing digital transformation processes will illustrate the extent to which technologies are integrated into a system with increasingly complex positive and negative outcomes at the socioeconomic and institutional levels. In order to understand these processes, it is necessary to unravel what is meant by digital transformation, which proceeds from digitisation to digitalisation, in agriculture, forestry and rural areas.

1. Digitisation: from analogue to digital

Digitisation can be described as **transforming physical entities into digital objects.** Autio (2017)[1] defines digitisationas the "technical conversion of analogue information into digital form".

The definition we are using in the DESIRA project is the following: "**digitisation will allow remote (or even self-) control of production, processing and logistic operations**". This concept summarises what digitisation can achieve.

Other authors also refer to digitisation as the **third industrial revolution[2].** The use of computers became commonplace during the 1960s and 1970s, and automation replaced many manual activities. In this context, digitisation often refers to a single or small number of digital technologies implemented at business-level.

In agriculture, forestry and rural areas, digitisation is often seen in the form of digital technology at the level of a single business or entity[3].

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2. Digitalisation: an ongoing process

The rise of the internet during the 1980s and 1990s, and the increased connectivity this brought, led to greater coordination and integration between activities[4].

While this process of automation and increased connectivity is still ongoing, the next wave of digital technology has already started. It is often referred to as the fourth industrial revolution[5] Industry 4.0[6], or Smart Industry[7]. And, of course, it is also affecting agriculture, forestry and rural areas[8].

Thanks to day-to-day connectivity and the use of sensors for mass data collection, many technologies have become 'smart' and can communicate autonomously. These processes make possible the Internet of Things and Artificial Intelligence[9]. However, to integrate these digital technologies into everyday life, a more profound change is needed than just technical conversion.

Digitalisation is the term often used to describe the socio-technical 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[10].

In agriculture, forestry and rural areas, digitalisation thus goes beyond the level of a single business or entity. For example, the use of digital platforms to coordinate supply and demand in value chains[11].

The result of those processes is often referred to as 'Smart farming', 'Smart Forestry', 'Smart Rural Development' and 'Smart rural areas', as well as concepts such as digital agriculture and Agriculture 4.0[12].

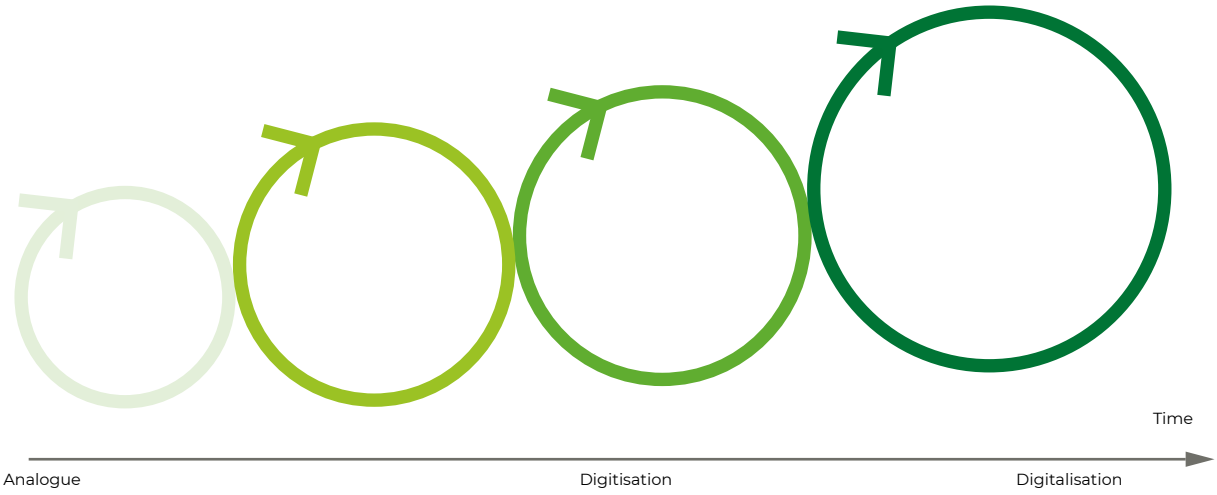
Consequently, 'precision agriculture' can be associated with an on-farm digitisation process. But 'digital agriculture' is linked to digitalisation, encompassing the entire value chain with the intent to cause a broad change in the agricultural sector.

3. Digital transformation: digital technologies and their impact are continuously growing

Both digitisation and digitalisation are considered part of **digital transformation**, which encompasses both digitisation and digitalisation processes, allowing for a spectrum of digital transformation activities. Over time, the options for using digital technology are continually increasing (see Figure 1), and so are the associated complexities and their negative and positive impacts on society.

Digitisation in Figure 1 can be seen as a crucial part of digitalisation, or as an essential step in the direction of digitalisation. **The use of digital technologies often induces social, economic and institutional changes and, *vice versa***, social, economic and institutional changes in society result in a demand for the development of digital technologies, which results in an ongoing and interactive process[13].

Figure 1. Digital Transformation process



Source: DESIRA, 2020

Example of Digital Transformation:

The digital transformation of Lormes- the petite "village du future"

The case of Lormes, a small market town in the Morvan area of Nièvre County, Burgundy, France, is a good example to illustrate the steps required for a town to compete in a wider digital ecosystem. Lormes, with a population of around 1300 inhabitants, began its transition to become a smart 'village of the future' in the early 2000s. This journey culminated in the launch of the "Village du futur" project in 2015.

Over more than two decades, the digital transformation of Lormes evolved in the followed way:

1. Excluded: the first step was to avoid digital exclusion, thanks to an innovative digital policy that promotes the economic and social potential that ICT and the internet can bring to remote rural areas;

2. Connected: In 2003, Lormes/Pays Nivernais Morvan created the first "Digital Mission" partnership, to provide digital inclusion and education support services in the community. It also started the programme "Digital Passport for All";

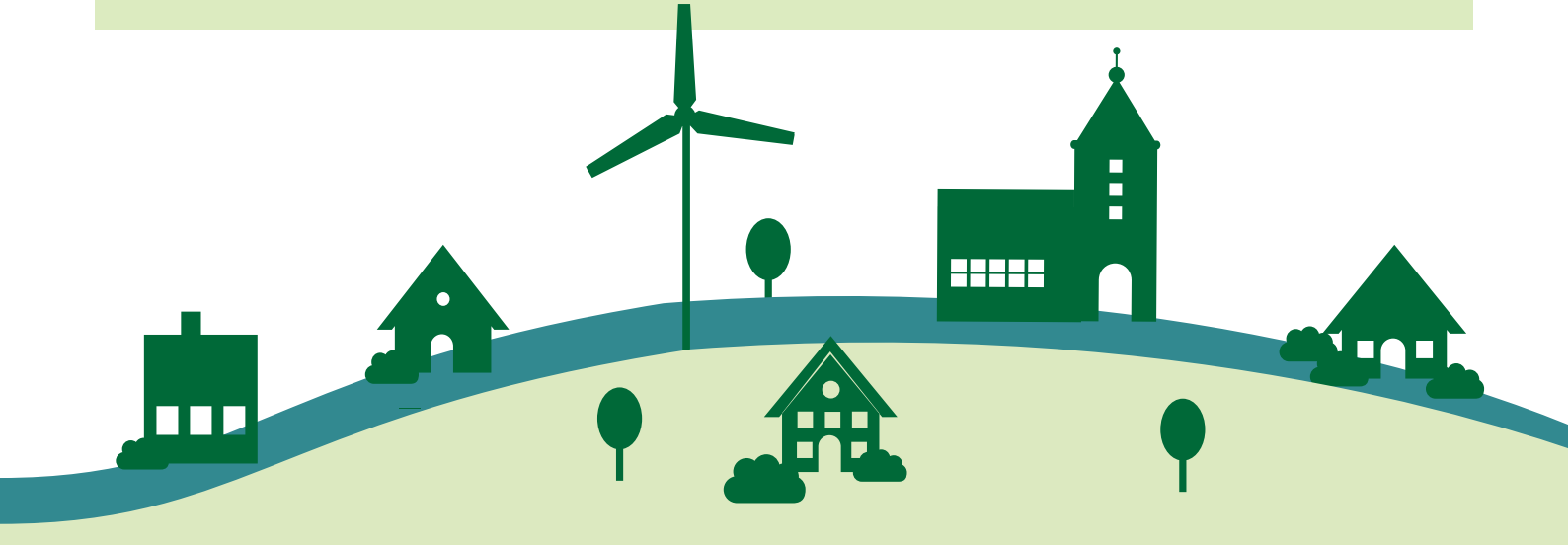
3. Engaged: The "Portes du Morvan" Rural Hub was created in 2007-2008. It aimed to provide access to high-speed broadband connection. It also offered technical support, meeting rooms, videoconferencing facilities, loan of equipment, VoIP phones, a network server and the expansion of e-inclusion and mediation services;

4. Experienced: The first rural FTTH (fibre-to-the-home) broadband pilot was carried out in Burgundy between 2014 and 2016. It was accompanied by a community consultation to prioritise new digital services to accompany FTTH deployment, the expansion of the Rural Centre and the launch of the 'Villages of the Future' process, focusing on wider community-led social and economic regeneration;

5. Player: The French rural contracts were signed in March 2017 and these offered financial support to the 'Villages of the Future' process. The Rural Hub or 'Mission' began to provide training and mediation services for the business, public and community sectors, acting as a competence centre for the three areas.

The smart solutions implemented by Lormes show that a true digital transformation of rural areas requires more than bridging the gap in terms of infrastructure and skills. It requires a continuous partnership with and between inhabitants to co-design digital services that meet local needs and a realistic "smart" assessment of the role that the village can play in a broader territorial development.

Source: Smart Villages and rural digital transformation, Briefing, European Network for Rural Development (ENRD), 2020



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