

Digitalisation and wood-energy traceability in Italy

This brief presents the work of our Living Lab (LL) carried out in order to answer the question “*How will digitalisation transform traceability in the Italian forestry and wood-energy sectors by 2031?*”

Within this frame, our LL identified two main scenario narratives based on two so-called “intermediate scenarios”, meaning a “better but not best” scenario named **“Digitalised and transparent forestry-wood-energy supply chains: a path towards a sustainable forest bioeconomy”** and a “worse but not worst” scenario named **“Digitalisation for traceability in the forestry-wood-energy sector: a postponed chance”**.

Four specific policy options have been fine-tuned, and are described in this document: promoting and funding initiatives for collaboration and cooperation between forest owners and forest companies; supporting the request and consumption of national wood; fostering digital innovation for mountain areas; enhancing attractiveness mountain and forestry areas.

CONTEXT

Illegal logging significantly damages both the legal market and public treasury, encouraging tax evasion and creating opportunities for money laundering.

Every year in Italy (which is the first importer of firewood worldwide), tons of timber without a clear traceability are imported. In order to foster production of wood from legal sources, the EU has enacted the European Timber Regulation (EUTR – Reg. n. 995/2010), minimising the risk of illegal timber being placed on the European market. The EUTR imposes European economic operators to exercise “due diligence”. This latter implies the provision of specific and reliable information on timber supply. Such a mechanism strongly relies on data flows allowing both assessment of risk and introduction of measures for risk mitigation. This procedure is currently mainly based on a so-called “paper-based approach”, since traceability verification strongly (if not only) relies on documents (desk audit) while the application of digital solutions still lags behind. Against this background, the main existing needs identified by our Living Lab (LL) can be summarised as follows:

1. Increasing transparency in the forestry sector;
2. Pushing the demand for legal and sustainable forestry products;
3. Enhancing the access to easy-to-use and affordable technologies for timber traceability;
4. Fostering participatory forest planning and supply chain organisation;
5. Boosting digital education and lifelong training for companies’ managers and employers.



RESEARCH APPROACH

The objective was to explore possible evolutions in the next decade of the sector under investigation, with particular attention to the digital transformation, providing ideas and stimulus for stakeholders and policy-makers.

The LL carried out the following main activities during two remote scenario workshops held in September and October 2021: i) Definition of a scenario question; ii) elaboration of scenario narratives; iii) definition of drivers of change; and iv) identification of plausible future pathways.

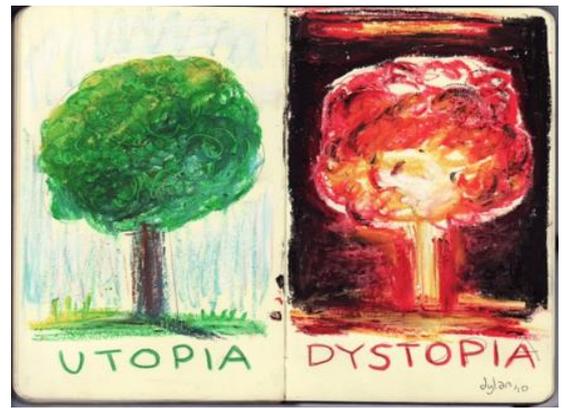


THE LIVING LAB DEVELOPED SCENARIOS BY QUESTIONING HOW DIGITALISATION WILL TRANSFORM TRACEABILITY IN THE FORESTRY SECTOR IN 10 YEARS.

First, our LL participants agreed upon the following finalised version of the scenario question: **how will digitalisation transform traceability in the Italian forestry and wood-energy sectors by 2031?** Accordingly, an open and participatory forecasting exercise was carried out in order to answer this question. LL participants were able to identify two main (intermediate) scenarios characterised by different and plausible evolutions of socio-economic, environmental, political and technological drivers. Then, two extreme scenarios (evoking “utopian” and “dystopian” situations) were also depicted.

SCENARIOS DEVELOPED

LL’s participants were asked to elaborate scenario narratives based on two intermediate scenarios, a “better not best” (BnB) scenario (named “**Digitalised and transparent forestry-wood-energy supply chains: a path towards a sustainable forest bioeconomy**”) and a “worse not worst” (WnW) scenario (named “**Digitalisation for traceability in the forestry-wood-energy sector: a postponed chance**”).



In the BnB scenario, winners will certainly be companies able to take advantage of clean energy sources (such as forests) in mountain areas. Young generations also will act as proponents of a transformation towards a sustainable forest bioeconomy. In the BnB scenario, the use of tracked forest resources for energy purposes will generate greater **added value along local energy supply chain** and it will positively contribute to a better image of internal areas and to promote tourism. Furthermore, digital transition will contribute also to increasing the **attractiveness of rural areas for workers and families from urban areas**. In the WnW scenario, winners will be those companies operating illegally and big organisations able to overcome small companies in the forest sector. In this scenario a key uncertainty will relate to **pressures and requests coming from civil society** (mainly people living in urban areas, not always with in-depth technical knowledge and free from prejudices on the use of wood for energy purposes) that might end to indirectly support fossil fuels and nuclear energy and discourage production of biomass for energy purposes as well as import and consumption for quality-air issues. Moreover, in this scenario there is **no structured supply chain** at all. This is due to a de-industrialization of the sector which leads to less availability of residues which are valorised in the energy supply chain. In this regard, a key uncertainty relates to the real ability of forestry companies to reorganize themselves and better coordinate their activities and decisions by networking and cooperating.

POLICY RELATED DISCUSSION

During the LL activities, participants were encouraged to identify policies and programs on the basis of the following questions: "if we want to benefit from plausible future opportunities, or alternatively, to mitigate risks that the future may hold, what actions must be taken?"

At a later stage, LL participants considered whether the policies and ideas from the BnB scenario would be effective within the WnW scenario and vice versa.

As a result of this debate, we selected policy options potentially effective for both scenarios.

First of all, we selected policies able to **promote and fund initiatives for collaboration and cooperation between forest owners and forest companies, since they** would be able to boost opportunities in the BnB and to mitigate risks in the WnW scenario.

In fact, LL participants suggested to support the creation of business networks, logistic platforms and platforms for wood exchanges. In both positive and negative scenarios, this kind of policy could contribute to reinforcing the coordination among actors along the supply chain of forestry products.

Other key policies are linked to the capacity of **supporting the request and consumption of local wood**. In this regard, lowering the VAT on all forest products, may contribute to the increasing possibilities for business and work opportunities in mountain areas. Moreover, supporting the creation of an "Italian wood" trademark to better communicate and promote the role of local and certified wood and creating a system of Green procurement may be a good strategy on both scenarios.

Furthermore, **increasing attractiveness mountain and forestry areas** is seen as a policy able both to boost positive aspects in a BnB scenario and to mitigate negative aspects in a WnW scenario. In general, such a policy is seen as an opportunity to

attract people (young in particular) in internal and marginal areas.

In this regard, one of the main challenges in both scenarios is to stop the brain drain from inland and mountain areas to the urban areas, offering work and training opportunities and those who decide to live in inland areas.



CO-DESIGN ACTIONS TO IMPROVE DIGITAL SKILLS IN THE ITALIAN FORESTRY SECTOR IS A KEY POLICY PRIORITY.

Last but not least, **increasing digital innovation and competencies in mountain areas** may positively contribute in the development of both scenarios. With this regard, it has to be recognised the crucial role of digital skills and the need of co-designing with local stakeholders' related services and actions.

In a BnB scenario, digital education and long-life training of operators represent fundamental challenges milestone also in order to protect users' privacy. Indeed, there is no chance for digital security without digital literacy, because "the person is the first means to protect privacy".

In a WnW scenario, the introduction of innovations already consolidated and widely used in other contexts could bring some advantages. In this regard, it is strategic to enhance the ability to transfer those technologies and solutions already available and consolidated in other sectors and to adapt them to the forestry sector.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 818194.

POLICY OPTIONS

Promoting and funding initiatives for collaboration and cooperation between forest owners and forest companies

- Supporting the creation of business networks, logistic platforms for wood exchanges that could contribute to fill the coordination gap among actors along the supply chain of forestry products, fostering the use of cascading wood and traceability.

Supporting the demand and consumption of local wood

- Lowering the VAT on all forest products, since they store CO₂ and are already an "antidote" to the climate crisis. Furthermore, it should be recognised that the storage of CO₂ in these products is also beneficial for the territories from which the wood was taken and used.
- Supporting the creation of an "Italian wood" trademark to better communicate and promote the role of local and certified wood.
- Supporting the application of digital systems for wood-for-energy traceability.
- Creating a system of Green procurement to boost local wood production.

Increasing mountain and forestry areas attractiveness

- Investing on public welfare, acting on school, transport, social welfare and heavy services in inner and mountain areas.
- Supporting the start-up and growth of "community cooperatives", such as "energy communities".
- Introducing subsidised mortgage and tax reduction for inner and mountain areas inhabitants.

Increasing digital innovation and competences in mountain areas

- Improving digital skills and competences of local stakeholders and co-design of new services and actions.
- Facilitating access to intermediaries, digitalisation brokers, boosting opportunities to support digitalisation.

This policy brief is published in the frame of the EU-funded DESIRA project and aims to provide recommendations for policy makers on how to support digitalisation in the context of wood energy traceability in Italy.

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