Sintetic
SINGLE ITEM IDENTIFICATION FOR FOREST PRODUCTION, PROTECTION AND MANAGEMENT

D6.10

Policy Brief: Privacy Issues with Digital Data in the Forest Value Chain

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List of abbreviations

Acronym / Abbreviation	Meaning / Full text
GDPR	EU General Data Protection Regulation
EUDR	Regulation (EU) 2023/1115 on deforestation-free products
StanForD	Standard for Forest machine Data and Communication
FSC	Forest Stewardship Council
PEFC	Program for Endorsement of Forest Certification
ERP	Enterprise Resource Planning
IoT	Internet of Things
RFID	Radio Frequency Identification
GIS	Geographic Information Systems
SUMAL 2.0	The Integrated Information System for Timber Tracking, better known as SUMAL 2.0
GSM areas	Global System for Mobile communications areas
APVs	Automated Package Verification
CNR	Consiglio Nazionale delle Ricerche
API	Application Programming Interface
OAuth 2.0	Open Authorization standard

Introduction

The increasing digitization of the forest value chain has already brought significant advancements in efficiency and traceability, with much more potential for improvement through new technologies. However, despite of these positive achievements, there are critical privacy concerns that must be addressed. The data generated — whether automatically through mechanised harvesting and transportation or manual forest work — often includes sensitive data of workers, contractors, forest owners, clients etc. Protecting this sensitive data is essential to maintaining trust and ensuring compliance with privacy standards.

The Regulation (EU) 2023/1115 on deforestation-free products (EUDR) is part of the EU's broader effort to combat deforestation and forest degradation globally. Its primary goal is to ensure that the forest products entering the EU market are sustainably sourced and deforestation-free, aligning with the EU's environmental and climate goals. The regulation mandates the reporting of geolocation of the harvested plots, harvesting dates, proof of legality, deforestation-free verification, sustainability and forest degradation data and traceability across the timber supply chain. Furthermore, the Due Diligence Assurance process requires companies to store the supplier and the buyer information at all stages of the supply chain for 5 years.

At the same time, the EU General Data Protection Regulation (GDPR) ensures the protection of personal data of individuals within the EU. It governs how personal information is collected, processed, and stored, emphasizing principles such as data minimization, purpose limitation, and consent.

Potential conflicts may arise between these two regulations. The EUDR requires companies to collect detail information about the location and ownership of land where forest was harvested, which could include personal data especially if the land is privately owned. Data collection and correlated storage can potentially bring privacy concerns for example geospatial mapping that includes private land or sensitive areas, can raise issues about landowner consent. Moreover, competitors might exploit proprietary forestry data if improperly shared. The use of digital data may also lead to ethical concerns, such as surveillance of workers.

These overlapping requirements necessitate careful consideration to balance compliance with both EUDR and GDPR.

This policy brief explores the privacy implications of digital data within the forest value chain and proposes regulatory measures to safeguard data privacy while leveraging the benefits of digital.

Privacy Implications of Digital Data in the Forest Value Chain

The privacy implications of digital data in the forest value chain involve concerns about how data is collected, used, stored, and shared at different stages. Digital tools in the forest value chain are commonly used to collect geospatial data, environmental metrics, and operational data.

Digital systems in forestry machinery and personal data collection tools have enable unprecedented levels of data collection and exchange. This includes data on tree species and trunks, timber assortments, timber volume (m^3), machine productivity, machine and personal work time, geo-positioning of machine and in the near future also the positioning of single trees and assortments, as well as machine fuel consumption and the geometry of harvesting sites. In the coming years, it will be possible to automatically generate data of ground conditions where machinery is used, the remaining forest and trees, protected areas within the working site and riparian buffer strips. The Sintetic project aims to mark each log and follow its flow guaranteeing complete traceability from the forest to the sawmill and consequently ensuring that products and by-products generated by sawmills can be traced back. This allows a more controlled wood supply chain.

Some of the data mentioned above may be classified as personal or sensitive, posing significant privacy risks for individuals and businesses operating within the forestry sector.

Forest machine data

Forest machine data can be classified into the following groups, each with specific content:

1. Data required for work implementation (sent to the forest machine):
    - work site and harvesting guidelines, including maps and location data
    - guidelines and map information for protecting sensitive species and nature conservation areas
    - timber product and wood product specifications
    - operational instructions and quality requirements

2. StanForD forest machine standard data produced by the machine's information system during work or data formed in customer's applications:
    - production data
    - working hours and productivity data

- inspection and calibration data for measuring devices and loader weighing machine
- follow-up reports on measurement precision
- location data generated by the machine during operations
- self-supervision data and reports on wood harvesting quality
- criteria for invoicing or self-billing for harvesting operations

3. Machine manufacturer-specific and non-standardised data produced by forest machine:
   - fuel consumption and emission data
   - other miscellaneous data
   - machine location and status information
   - data related to the machine' technical operation, fault diagnostics and servicing
4. Potential new data types to be produced by forest machines:
   - enhanced location data (generated by the machine's information system or additional devices)
   - wood map data, including the location and properties of trees (felled or left standing) created by local mapping techniques such as on image interpretation
   - data describing wood quality
   - other possible datasets of information materials.

This data contains sensitive data covering different kind of roles. They are described in the table below:

Table 1 Occurrence of personal data on the forest owner, machine entrepreneur and forest machine driver in present forest machine data

Data group	Forest owner	Machine entrepreneur[1)]	Driver	Clerical employee[3)]
Work site and harvesting guidelines	x			x
Timber product and wood product guidelines				x
Production data	x	X	x	x
Working hours and productivity data	x [2)]	X	x	x
Calibration and control measurement data of measurement device and loader weighing machine	x[2)]	X	x	
Follow-up report on measurement precision		X		
Location data formed by the machine in connection with work		X	x	

Data group	Forest owner	Machine entrepreneur[1)]	Driver	Clerical employee[3)]
Self-supervision data and reports on harvesting quality	x	X	x	
Data on criteria for invoicing of harvesting		x	x	
Fuel consumption data and emission data		x	x	
Other channel data		x	x	
Machine's location and status data		x	x	
Data relating to machines' technical operation, fault diagnostics and service		x	x	
New information materials		x		

[1)] Identification of entrepreneur with the aid of the machine's identifying data.
[2)] The file structure renders possible information on the forest owner but is not obligatory information.
[3)] Expert on timber harvesting or forest management jobs in the service of the customer or the undertaking producing the service.

Data in manual work

Forest workers (loggers) generate and process various types of data as part of their daily work. This includes information on the location of trees to be harvested, measurements of tags for volume estimation and calculation, the type of timber harvested and information on the health and condition of the forest. Additionally, workers record information related to their daily tasks, such as hours worked if they are paid hourly. Manual workers may collect environmental data, such as observations on soil quality, the number and health of remaining trees and biodiversity. These data points are essential for sustainable forest management practices. To ensure traceability, it is important for workers to be able to mark the wood they handle in a way that allows for tracking throughout the forest values chain.

Data in sawmills

Data protection in the sawmill industry involves safeguarding the digital information collected, processed, and stored during operations, therefore ensuring robust data protection is vital for protecting sensitive business information. Several sensitive data can be gathered at the level of the sawmill production process such as operational metrics, customer information, employee records, and suppliers information.

For the purpose of this paper, operational data – such as machine performance metrics (e.g., sawmill efficiency), customer and supplier data (order details, invoicing information, shipping addresses), employee data (personal identification e.g., names, addresses, social security numbers - payroll and health records, contract terms, etc) are disregarded. This paper focus exclusively on inventory data (e.g., timber stocks, production outputs).

For what concern production output, data on production output in industries like forestry, sawmills, or manufacturing in general, shall be considered sensitive and confidential. Sharing such data without careful consideration can lead to several risks and implications. Indeed, sawmills companies should not share their production data for multiple reasons: first and foremost, if market players – particularly in markets with not too many companies – knew the production data and other relevant statistics of single companies, anti-competitive practices could take place which could potentially lead to a breaching of European competition law. This will lead to supply chain vulnerabilities where suppliers could use production data to renegotiate contracts, increase prices, or impose less favorable terms while buyers may leverage this data to demand discounts if they perceive surplus production or overcapacity.

The EU not only establishes rules for the correct functioning of the internal market, but also fine companies which do not respect such rules. In short, production data sharing is risky, and regulating anti-competitive practices is key to maintain healthy market competition. Second, while production data sharing could lead to companies working towards conveniently manipulate the market, it could also be detrimental as it would expose them to disclosing sensitive information to competitors.

Logs flow in the sawmill industry refers to the sequential movement of logs from their arrival at the mill to their final transformation into processed wood products. This process is highly dependent on efficiency, precision, and effective resource management aiming at maximizing yield and minimize waste.

The European Union Deforestation Regulation (EUDR) establishes stringent requirements for traceability in the supply chains of commodities and products linked to deforestation and forest degradation, including wood products. Effective traceability is part of a broader due diligence framework under the EUDR and it is critical to ensure that companies avoid sourcing from deforested or degraded lands. Companies are therefore required to trace products and commodities back to their point of origin, ensuring compliance with the regulation. This includes:

- Identifying the geographical location where the commodity was produced and providing the coordinates of the plot of land where the raw material originated. This can be done using Satellite Monitoring Systems (e.g; Tools like Global Forest Watch or Copernicus for tracking deforestation), blockchain technology, thus creating tamper-proof records of supply chain transactions, and/or geospatial mapping.
- Tools to verify land use history and compliance with the December 31st 2020 cutoff.
- Demonstrating that the land was not subject to deforestation after December 31st 2020.

A common definition of the term traceability is the “ability to trace the history, application or location of a product” (GS1 2017; ISO 2015). The development of traceability systems in the European sawmill industry over the past decade evolved from basic manual record-keeping to highly sophisticated, technology-driven solutions. This development has been driven by increasing demands for sustainability, regulatory compliance, but also operational efficiency. The benefits of advanced marking and reading technology like barcode labels and RFID tags are most widely applicable for the highly mechanized and efficiency-driven industries in the boreal and temperate zones and the plantation sector, typically as part of a private sector–owned Enterprise Resource Planning (ERP) system.

Finally, many sawmills have adopted traceability systems aligned with certification bodies like FSC and PEFC, ensuring that timber meets sustainability criteria as well.

Simplified Logs Flow in Sawmills:

- **Arrival at the Mill:**
  - Logs are transported from forests to the sawmill via trucks, rail, or waterways.
- **Quality Inspection:**
  - Logs are checked for size, species, and quality (e.g., defects, knots, and straightness).
- **Sorting and Scaling:**
  - Logs are sorted based on size, species, or intended end-product specifications.
  - Scaling measures log volume (e.g., in board feet or cubic meters) using manual or digital methods.
- **Storage:**
  - Logs are stored in dedicated yards with conditions optimized to prevent degradation, such as keeping logs wet to avoid drying and cracking.

Key Technologies in Logs Flow:

- **Log Scanners and Sensors**:
  - Used for automated scaling, defect detection, and cutting optimization.
- **Conveyors and Handling Equipment**:
  - Move logs and processed wood efficiently between stages.
- **IoT and Data Analytics**:
  - Monitor machinery and log flow in real-time to optimize performance.
- **Automation and Robotics:**
  - Reduce manual labor and enhance precision in sorting, cutting, and packaging.

Technological Innovations in Traceability Systems

1. Digital Databases and Platforms
   - Development of centralized digital systems to track logs from forest to finished product.
   - Cloud-based platforms allow real-time updates and easy sharing of information among stakeholders.

2. Geospatial and Satellite Technology

- Satellite imagery and GIS (Geographic Information Systems) to monitor logging sites and verify origin.
- The use of a system of RFID (Radio Frequency Identification) forestry tags combined with GPS systems on field tablets considerably improves the traceability and management of log stocks.
- Use of GPS for tracking log movements during transportation.

3. IoT and Sensors

- Smart sensors embedded in logging equipment and sawmill machinery to record data such as log dimensions, species, and origin.
- RFID tags or barcodes attached to logs for digital tracking throughout the supply chain.

4. Blockchain Technology

- Blockchain ensures tamper-proof records of transactions and log origins, providing enhanced transparency and trust in the supply chain.

Study case:
Traceability system in Romania: SUMAL 2.0

In June 2020, via Decision No. 497/2020[1], the Romanian government officially approved the Rules concerning the provenance, movement and marketing of timber, the rules governing the storage of timber and roundwood processing plants, and those relating to the provenance and movement of timber intended for the owner's own consumption, as well as some measures implementing Regulation (EU) No 995/2010 of the European Parliament and of the Council of October 20, 2010 laying down the obligations of operators who place timber and timber products on the market (hereafter, "the Rules")[2].

The Rules established the Integrated Information System for Timber Tracking, better known as SUMAL 2.0[3], with the aim of identifying the origin and traceability of timber and/or timber products and obtaining statistical information. While the Rules provide the basic framework for SUMAL 2.0, further operational aspects are detailed by means of a dedicated Methodology, itself adopted via Order No. 118 of 7 January 2021[4].

The main objectives of SUMAL 2.0 are:[5]

- to control the provenance of timber materials and ensure their traceability;
- to increase the efficiency of control as part of public policies to reduce forest crime;
- to obtain statistical information at national level on the volume of timber harvested and the volume of forest
- standardized practice in the management records of timber by providing professionals with a free computer application.

Timber shall be legally transported only if accompanied by specific transport documents, which show with certainty their legal provenance. The document which must accompany the consignment is the so-called "accompanying notice", it is issued through SUMAL 2.0, and it is essential for managing and monitoring activities related to the exploitation, transportation and marketing of timber. This accompanying notice accompanies the transport of the timber from the point of harvesting to the depot, to the processing point, and to the end user.[6]

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[1] Entered into force on 31 October 2020: https://legislatie.just.ro/Public/DetaliiDocument/227471
[2] https://legislatie.just.ro/Public/DetaliiDocumentAfis/254001
[3] SUMAL 2.0 is the successor of SUMAL 1.0, itself launched in October 2008: https://bz.prefectura.mai.gov.ro/wp-content/uploads/sites/31/2024/07/GFJ.pdf
[4] Entered into force on 31 January 2021: https://www.mmediu.ro/app/webroot/uploads/files/ORDIN%20nr.%20118%20din%2027%20ianuarie%202021.pdf
[5] https://www.mmediu.ro/app/webroot/uploads/files/ORDIN%20nr.%20118%20din%2027%20ianuarie%202021.pdf
[6] https://bz.prefectura.mai.gov.ro/wp-content/uploads/sites/31/2024/07/GFJ.pdf

When preparing a consignment, the economic operator requests the issuance of an accompanying notice in SUMAL 2.0 by filling in the necessary data (including the data of the sender and consignee, the origin of the timber, details of the timber transported such as species, assortment, volume and other technical specifications, the place of loading and the destination, the registration number of the means of transport, the identification data of the transporter, the validity). The SUMAL 2.0 system then generates the accompanying notice electronically with a unique identification code to allow further verification and monitoring. Notably, accompanying notices can be issued both online and offline - in the case of inaccessible GSM areas (such as remote places of harvesting). When re-entering a GSM accessible area, the notice automatically switches to the online status. [7]

The accompanying notices can be verified in real time by the authorities using the SUMAL Control mobile application or the SUMAL 2.0 database or by any citizen via the application Forest Inspector (with more restricted access). Any accompanying notice can be tracked from the point of origin to the destination.[8] In effect, SUMAL 2.0 reveals in real time the route of timber transport, including the identities of the contracting economic operators. This raises concerns for some economic operators with regard to commercial secrecy. [9]

The origin of the timber for which the accompanying notice is issued shall be attested by documents which are registered in advance in SUMAL 2.0, such as for example valuation documents (APVs). APVs come from tree markings that are carried out throughout the year using mobile devices. At the time of the marking, the GPS coordinates of the trees proposed for harvesting are also collected. These coordinate points form an area on the map that receives a number and forms an APV. This APV is subsequently sold to harvesters, which subsequently receive the harvesting authorization.[10]

Beyond the economic operators carrying out logging activities and transportation of timber, the obligation to register in SUMAL 2.0 also applies to those economic operators involved in the storing, processing, sorting, marketing and dispatching of timber (the obligation to register in SUMAL 2.0 also applies to those economic operators using timber for construction, if the volume used exceeds 20 cubic meters/year). It is prohibited for the owners of warehouses, other premises for temporary storage and/or wood processing facilities to receive, store, process, sort, dispatch or sell timber without provenance (i.e., without the accompanying notice). Moreover, these economic operators are obliged to make use of the application SUMAL 2.0 Agent - Electronic Register, which is used for the recording of entries, receptions, activities specific to warehouses or processing plants, and exits. Among others, the SUMAL 2.0 obligations of these economic operators include: [11]

- generating the goods received notes

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[7] https://bz.prefectura.mai.gov.ro/wp-content/uploads/sites/31/2024/07/GFJ.pdf
[8] https://bz.prefectura.mai.gov.ro/wp-content/uploads/sites/31/2024/07/GFJ.pdf
[9] https://asfor.ro/2021/02/22/sumal-2-o-tema-fierbinte/
[10] https://bz.prefectura.mai.gov.ro/wp-content/uploads/sites/31/2024/07/GFJ.pdf ; https://trans.info/ro/aplicatia-sumal-2-0-transportatori-2-226913
[11] https://www.mmediu.ro/app/webroot/uploads/files/ORDIN%20nr.%20118%20din%2027%20ianuarie%202021.pdf ; https://legislatie.just.ro/Public/DetaliiDocumentAfis/254001

- recording the volumes of the sorted wood material and of the resulting volumes and sorts
- recording the volumes of wood material undergoing the cutting process and the resulting volumes and sorts
- recording the volumes of wood material undergoing chipping
- recording the volumes of wood material which have undergone processing
- recording the volumes of wood material subject to internal consumption
- recording the volumes of timber material subject to retail trade
- recording the outflow of wood material leaving the storage
- generating production reports

The rationale behind these obligations appears to rest in the possibility of tracking wood material stocks in real time throughout the production stages. Some economic operators are, however, raising concerns regarding what is perceived as an unnecessary administrative and financial burden. [12]

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[12] https://www.youtube.com/watch?v=W_gFiTGXyYo&t=1s

Data by Sintetic

The Sintetic project manages a wide range of data along the "forest value chain," which includes various categories of information essential for effective forest management and operations:

- Geospatial Data: This includes precise locations and defined boundaries of forest properties, compartments, and individual trees, enabling comprehensive mapping and management of forest resources.
- Data on Forestry Operations: Detailed records related to forestry practices are collected, which encompass cutting activities, inventory assessments, and processing reports. This information is essential for tracking the operational efficiency and sustainability of forestry efforts.
- Biometric and Physical Data: We gather important measurements such as the diameter, height, volume, and biomass of trees. This information is vital for assessing forest health and understanding the potential yield from timber and other forest products.
- Product-Related Data: This category includes log reports, precise cutting instructions, and characteristics of products derived from trees. Such data helps in ensuring that the quality and pecifications of the products meet industry standards.
- Metadata: Supplementary information that contextualizes raw, structured, and semi-structured data is collected. This metadata is crucial for ensuring that users understand the significance and lineage of the data they are working with.

Given that some of this data may be categorized as personal or sensitive, there are substantial privacy concerns for individuals and businesses engaged in the forestry sector. To address these challenges, the Sintetic Geodatabase employs stringent measures to protect sensitive information while promoting transparency throughout the value chain.

- Protection of Personal Data: We recognize the importance of safeguarding user and organizational data, such as that of forest owners and processors. Thus, we follow the General Data Protection Regulation (GDPR) standards, implementing robust authentication methods using OAuth 2.0 and secure access tokens to ensure that personal information remains confidential.
- Geospatial Data and Privacy: The coordinates of properties and trees are treated with utmost caution. We take great care to manage this geospatial data in a way that prevents any potential privacy violations, striking a balance between utility and confidentiality.

- Data Security: Our data is housed in a highly secure virtualized environment at a carefully monitored CNR data center. This setup ensures rigorous physical and digital security measures, providing a safe haven for the data we manage.
- Controlled Access: We utilize an Application Programming Interface (API) equipped with role-based authorization schemes to regulate data accessibility. This system ensures that sensitive data is only available to authorized users, thus protecting it from unauthorized access and potential misuse.

Through these comprehensive strategies, the Sintetic project is committed to maintaining both the integrity of the data ecosystem and the privacy of individuals and organizations involved in the forestry sector.

These following principles have been applied align with Sintetic's objectives to navigate the complexities of handling sensitive and personal data in the forest sector, emphasizing compliance, transparency, and innovation:

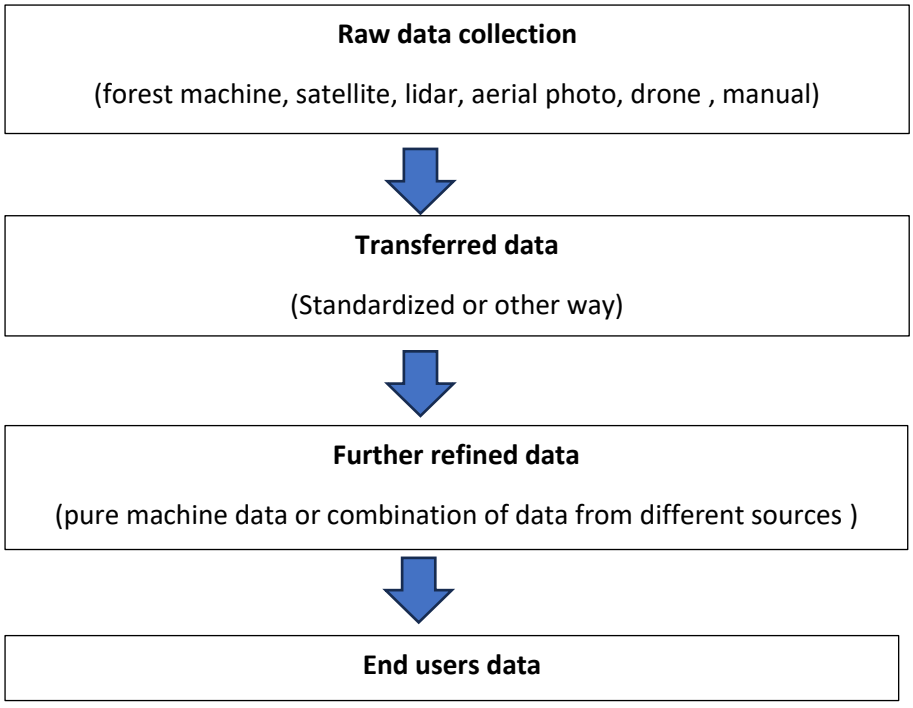
1. Balancing Privacy and Open Access:
    - Harmonizing Rights: It is essential to find a balance between the right to information and the right to privacy. Open data can significantly enhance transparency and foster innovation, while also addressing concerns related to the exposure of sensitive personal and environmental information.
    - Managing Sensitive Data: Spatial data linked to forest owners or private properties can be responsibly managed by adhering to privacy regulations, such as the GDPR. This approach can promote trust while allowing for the effective use of important data.
2. Governance and Data Regulation:
    - Establishing Institutional Frameworks: Developing structured governance frameworks for forest information can facilitate data access while safeguarding individual rights. This balanced approach can benefit all stakeholders involved.
    - Implementing Role-Based Access: By creating clear protocols for access to sensitive data, we can ensure that the right individuals access information under appropriate conditions, thereby enhancing responsible data management.
3. Technological Solutions:
    - Developing Secure Systems: Integrating robust security measures into digital platforms for managing forest data will help prevent unauthorized access and misuse. This will ensure that sensitive information remains protected.
    - Enhancing Metadata and Accuracy: Prioritizing high-quality metadata is vital for ensuring accurate interpretation of data. This practice can lead to more responsible usage and better outcomes for all parties involved.
4. Stakeholder Collaboration:

- Promoting Inclusivity in Policy Development: Actively engaging a diverse range of stakeholders—including government agencies, forest owners, and NGOs—will enrich the development of data governance rules. This collaborative approach can lead to more effective and widely accepted policies.
- Fostering Trust and Transparency: Building and maintaining trust among stakeholders is crucial for promoting collective action and ensuring compliance with data-sharing protocols. By working together transparently, we can achieve meaningful outcomes that benefit everyone involved.

Benefits

To fully realize the benefits of data, it is often necessary to collect various types of data through different methods. The process involves several key stages: data collection, transfer, refinement, integration with other data sources, and finally, utilization by the end user. Only after this complete process can the data deliver value and benefits to the intended stakeholders.

This process can be summarized as follows:



A significant amount of the data mentioned in this document can be collected simultaneously with harvesting or other forest operations. However, data collection requires appropriate technology, software development, specialised skills and expertise which can often be time consuming. To enable comprehensive data collection, substantial investments in research and development, investments, building capacity and infrastructure has been

necessary. All these efforts generate costs for the producers of raw data. Initially, the data collected by a single worker or machine holds limited value. Its' worth increases significantly when refined and integrated with other data sources. Despite this, the availability of raw data is fundamental to unlocking the potential benefits. Producers of raw data invest time and effort to ensure its quality, which is essential for downstream processes. For a sustainable and equitable data collection and refinement process, it is crucial to ensure that the benefits are shared fairly across the value chain—from the top to the roots.

Privacy issues

The collection and sharing of digital data in the forest value chain present several privacy issues:

1. **Data Protection**: Safeguarding personal and sensitive data from unauthorized access, breaches, and misuse.
2. **Data Storage and Security:** Ensuring secure storage solutions to protect against data loss, theft, or unauthorized modifications.
3. **Data Ownership**: Clearly defining ownership rights and usage permissions for data collected by forestry machinery or by manual workers.
4. **Data Usability and Valuation**: Balancing the usability and value of data for all stakeholders while maintaining privacy standard.
5. **Data sharing:** Facilitating data sharing across the value chain and among stakeholders while ensuring fair benefit distribution and adherence to privacy principles.

Recommendations

To address these privacy concerns in the forest value chain, the following measures are proposed for specific technologies and standards:

1. **Stakeholder Collaboration**: Promoting collaboration between stakeholders to address privacy concerns and develop best practices for data management in the forest value chain.
2. **Data Protection Regulations**: Implementing robust data protection measures, including encryption and access controls, to safeguard personal and sensitive data.

3. **Data Ownership and Rights**: Develop clear guidelines on data ownership and usage rights, ensuring ethical and transparent use of data collected by forestry machinery or manual workers. Establish “rules of the game” to ensure fair distribution of benefits across the value chain.
4. **Standardization of Data Sharing**: Create standardized protocols for data sharing among stakeholders to enable fair, transparent, and efficient data exchange.
5. **Compliance with Data Privacy Laws**: Ensure all data collection, processing, and sharing activities align with relevant data privacy laws and regulations to maintain trust and legal compliance.

Conclusions

The digitization of the forest value chain offers numerous benefits, but it also presents significant privacy challenges. By implementing the proposed actions, we can protect sensitive data while leveraging the advantages of digital technologies. It is essential to address privacy issues proactively to build trust and ensure the sustainable development of the forestry sector.