Data management plan (DMP) used to document and facilitate the use and retention of data in TBI dealing with AI

1. Introduction

European Digital Innovation Hubs (EDIHs) are one-stop shops supporting companies and public sector organisations to respond to digital challenges and become more competitive. EDIHs support companies to improve business/production processes, products, or services using digital technologies by:

- providing access to technical expertise and testing, as well as the possibility to 'test before invest'
- providing innovation services, such as financing advice, training, and skills development that are central to successful Digital Transformation
- helping companies tackle environmental issues, in particular the use of digital technologies for sustainability and circularity.

One of the main purposes of the European Digital Innovation Hub is to provide Test Before Invest (TBI) services, which include different types of services aiming at supporting the whole innovation chain from ideation and proof of principle to business startup, pilot production, to full market introduction and market expansion, to address SMEs' digital and green transformation.

The EDIH4Marche project has foreseen **8 categories of TBI services**, corresponding to **8 technology areas**:
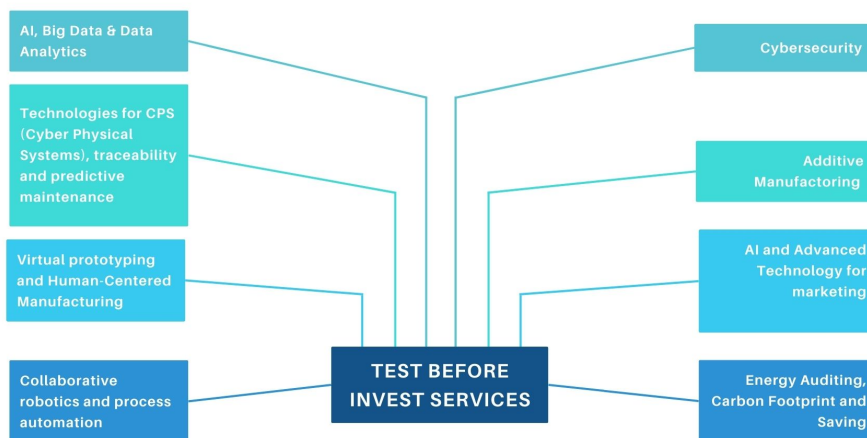
1. Collaborative robotics and process automation
2. Virtual prototyping and Human-Centered Manufacturing
3. Technologies for CPS (Cyber Physical Systems), traceability and predictive

maintenance
4. AI, Big Data & Data Analytics
5. Cybersecurity
6. Additive Manufacturing
7. AI and Advanced Technology for marketing
8. Energy Auditing, Carbon Footprint and Saving

TBI services will be delivered each in two ways, respecting to local companies' digital transformation and emerged needs from the analysis conducted by DIHs:

Light mode (5 days per service) includes:
- Strategic support to RDI: feasibility study, joint, pre-competitive R&D;
- Technical support on scale up: concept validation;
- Testing and validation: product demonstration;
- Provision of infrastructure: support in technology infrastructure usage and data platform services;

Advanced mode (18 days per services) includes:
- Contract research: specific R&D, technology concept development and proof of concept (PoC);
- Technical support on scale up: prototyping;
- Testing and validation: product qualification.

Target to be achieved by each partner	TBI	S2FI	IE&N	S&T	Total
Digital Innovation Hub Marche - Confindustria	0	133	27	345	505
Marche Innovation Hub - CNA	0	130	54	75	259
Digital Innovation Hub - Confartigianato	0	130	54	75	259
EDI.Marche - Confcommercio	0	47	36	131	214
Marche Digital Innovation - Legacoop	0	130	54	210	394
Camera di Commercio	0	0	0	0	0
UNIVPM	**85**	0	0	15	100
UNICAM	**20**	0	0	16	36
ARTES4.0	**13**	0	0	10	23
MADE	0	0	0	455	455
ILABS	**58**	0	0	16	74
EDI - Confcommercio	0	0	0	0	**0**
	176	570	225	1348	2319

2. Methodology and Structure of the Deliverable

The project aims at creating a reference point of the economic and productive sector of the Marche region for the Digital and Green Transformation offering services to selected companies. The project is led by EDIH4MARCHE made up of 11 Partners, each of which has a strong expertise and represents a key stakeholder for the improvement of Digital and Green Transformation.
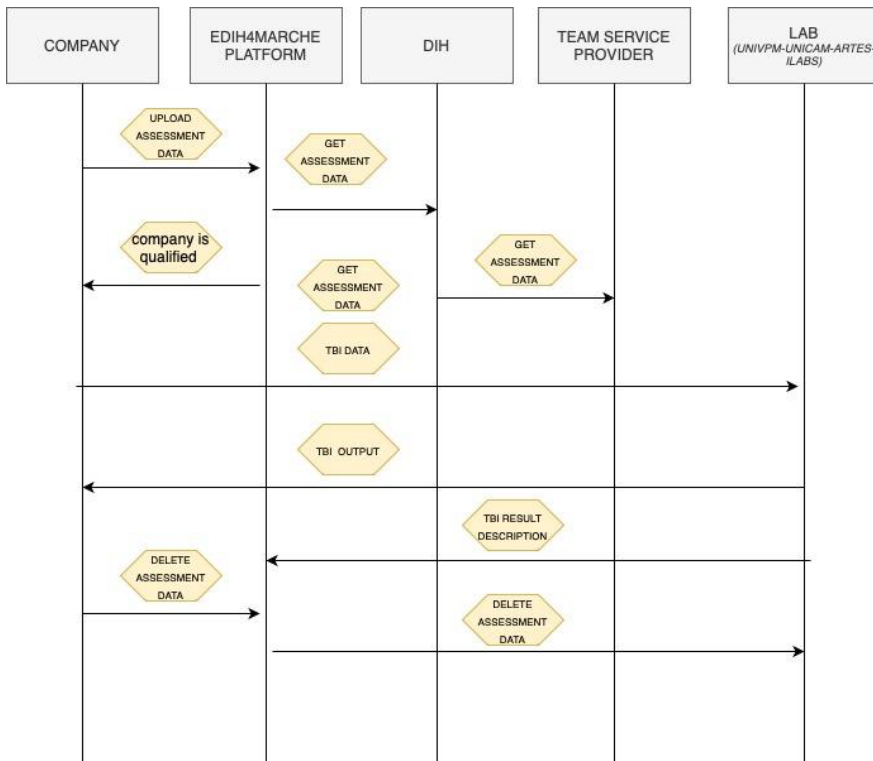
2.1. Data flow of the Project

Figure 1: Data flow diagram for a qualified company

Figure 1 shows the flow of data when a company is qualified for the provisioning of the TBI service. The **company assessment data** is used in order to evaluate whether or not the company is suitable for the TBI service provisioning. Company assessment data contains non-sensitive data that are publicly available such as the name of the company. Company assessment data can be made available on the EDIH4MARCHE platform website. **TBI data** are sensitive data that will be locally stored at each TBI laboratory. More precisely the

laboratory providing the TBI service will locally store the TBI data. Assessment data and TBI data shall be processed exclusively by the project partner for the realization of the Project in accordance with European and national data processing regulations. In the rest of the section, we denote with **TBI providers** the following project partners: I-LABS, UNIVPM, UNICAM and ARTES4.0. We denote with **assessment providers** the following partners: Digital Innovation Hub Marche IT; MARCHE INNOVATION HUB SCARL IT; DIH CONFARTIGIANATO IMPRESE MARCHE IT; Edi.Marche S.c.a.r.l IT; EDI.IT srl IT; Marche Digital Innovation Hub Soc. Coop. IT; MADE SCARL IT and CAMERA DI COMMERCIO INDUSTRIA ARTIGIANATO E IT AGRICOLTURA DELLE MARCHE.

In the following the flow of data is described in more details:

1. At the beginning the company provides its general data, giving its consent to the processing, and fill up a technical form in order to define its digital capabilities and its technological needs that are the **company assessment data (see appendix A)**. These data are **locked** (i.e., cannot be modified) until the company eligibility is performed.

2. Assessment data are recorded and stored on the EDIH4MARCHE platform of the project (**www.edih4marche.eu**) and are used by one of the **assessment providers** in order to check whether or not the company is eligible for the provisioning of the requested TBI service.

3. When the company is **not eligible** for the TBI service the assessment data will be deleted from the EDIH4MARCHE platform. Only the name of the company will be kept for internal use, that is **for** EU statistical reports.

4. When the company is **eligible** for the TBI service the assessment data will be **unlocked** and securely stored in the EDIH4MARCHE platform. At this stage the company can modify its assessment data, but this requires a new eligibility process to be performed.

5. After the eligibility, the company can provide its assessment data to a selected team that is composed of **TBI providers representative.** This team will check the company assessment data and assign the TBI request to one of the four TBI providers that are I-LABS, UNIVPM, UNICAM and ARTES4.0.

6. The selected TBI provider will receive the **TBI data**. This data can be sensitive and is related to the TBI service that needs to be provided to the company. TBI data will be locally kept at the TBI provider site without being divulged or exposed on the internet. Results of the TBI service will be communicated by the TBI provider to the company. A general description that contains non-sensitive information of the TBI results will also be added into the EDIH4MARCHE platform for the purpose of dissemination and reporting to the EU project responsible.

2.2. Data Controller and Data Protection Officer

The EDIH4MARCHE laboratory has a complex structure that is composed of various data protection officers (DPO), processor and controller (P&C). There is a **general** data protection officer and a **general** processor and controller body. These are responsible for the company *assessment data* that are used in order to check whether or not the company is eligible for the provisioning of the TBI service. Each laboratory that implements a TBI service (i.e., a **TBI provider)** has its own (DPO) and (P&C). These will be responsible for the **TBI data** that are used in order to implement and provide the TBI service. For instance, the DPO and P&C of ILABs will be only responsible for the data of the TBI they provided.
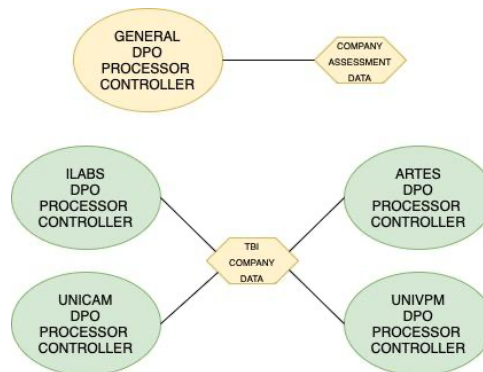

Figure 1: DPO and data protector

2.3. Purposes of data processing and storage

The processing of company data (assessment data and TBI data) is carried out for the realization of the digital and technological purposes of the Project. The Project has been drawn up according to the methodological standards of the related scientific sector and it is deposited at the project coordinator (i.e., Digital Innovation Hub Marche) , where it will be kept for five years from the planned conclusion of the research.

The data will be kept for the duration of the project. Company *assessment data* will be kept in a cloud-based service (i.e., the edih4marche platform) while TBI data will be kept locally in one of the laboratories.

2.4. Legal basis of data processing

The processing of company personal and technical data is carried out by the owner in the execution of his duties of public interest pursuant to art. 6, paragraph 1, lett. e) of the GDPR. The treatment of categories of personal data (sensitive data) is carried out for scientific research purposes pursuant to art. 9, paragraph 2, lett. j) of the GDPR.

2.5. Category and type of personal and technical data processed

The realization of the Project implies the treatment of the **company assessment data** that are listed in Appendix A. These are non-sensitive data that are needed in order to check the eligibility of the company for the provisioning of the TBI service. The project also needs TBI data that are needed to provide the TBI service. TBI data is very specific, that is different TBI services may need a completely different data management plan. This may require each TBI laboratory to provide a specific management plan for a specific TBI data and the company will be informed of this. As general rule TBI data will be always kept locally at the laboratory and not divulged on the internet and to any third parties.

2.6. Methods of data processing

The company data shall be processed exclusively by the scientific responsible and/or authorized subjects in the realization of the Project. The project coordinator, as well as by any Project partner in accordance with the instructions provided by the general DPO and the Data Controller and Data Protection Officers that are defined in Section 2.2, have been appointed to carry out certain tasks or to conduct specific stages relating to the data processing, such as by way of example the allocation, management and maintenance of the electronic databases, or other supporting, instrumental and ancillary activities, such as the transmission of information and/or documents. In this case, all processors will provide sufficient guarantees to meet the requirements set forth by the applicable law provisions governing data processing, including all security-related provisions, also at technological level (user authentication for updating and displaying data, updating the platform hosting the website, using secure protocols for the connection to the website).

2.7. Data storage and retention

The company personal data contained in the database for the purposes indicated in section "Aims and data flow of the Project" shall be stored and retained during the whole Project duration - unless the company has submitted a specific and legitimate request for erasure - and at most up to 5 years after the end of the Project.

2.8. Motivation of provisioning data

The provision of the company data for the aforementioned research purposes is essential for the development of the Project and does not derive from a regulatory and/or contractual obligation. Failure to provide such data determines the inability to participate in the Project.

2.9. Recipients of personal data and transfer of data to countries abroad

The company assessment data in the locked state will not be made visible to the public and will only be visible to the Project partners (in a non-anonymous way) for eligibility checking. This data will not be disclosed to third parties. Once accepted, only a little data (such as the name of the company, the web site, a short description of the company capabilities and general deception of the requested TBI service) will be visible to the whole web. TBI data will be never divulged, published on the web and will be only visible to project partners.

2.10. Dissemination of research results

Statistical and/or scientific results can be disseminated (for example through the publication of scientific papers and/or the creation of databases, also with open access methods, participation in conferences, etc.) only in anonymous and/or aggregated way and in any case in ways that do not make the company identifiable.

2.11. Rights of the Company

As an interested party, the company can ask the data processing controller at any time for the exercise of rights described in the art.15 of GDPR and, in particular, access to their personal data, rectification, integration, deletion, limitation of processing that concerns them or to oppose their processing. Pursuant to art. 17, paragraph 3, lett. d) the right to cancellation does not exist for data which must be elaborated for the purposes of scientific research if the objectives of the research itself cannot be obtained without them. For the exercise of the aforementioned rights, the company can contact the Data Controller and / or the Data Protection Manager at the addresses that will be specified in section "Data Controller and Data Protection Officer". The company may also propose a complaint to the Guarantor for the protection of personal data. For information related to the Project, the Scientific Responsible for the Project can be contacted at the following address: leonardo.mostarda@unicam.it .

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Annex A. Questionnaire DMA Questionnaire for SMEs
Target group: Enterprises Stage: T0 (prior to EDIH support start)

MODULE 1: Customer Data

In this module, please provide basic general information about the public sector organisation that is interested in receiving EDIH support. This data is needed in order to analyse how your organisation's level of digital maturity compares to that of similar others.

M1.1. General Data:

1. Date (automatic)
2. Name of the organisation supported by the EDIH: (free text for specification)
3. Other Identification Number (VAT or equivalent): (free text for specification)
4. Contact person: (free text for specification)
5. Role in the organisation: (free text for specification)
6. Email address: (free text for specification)
7. Telephone: (free text for specification text box)
8. Website: (if available)
9. Type of public sector organisation:
10. National authority
11. Regional authority
12. Province/municipal authority
13. Other (free text for specification)
14. Organisation's staff size
15. Full address (Street, Postal code, City, Country)
16. PIC6 number (if available)

M1.2. Sector of Activity:

In which of the following government broad areas does your organisation belong?
 Primary (one mandatory):

1. General public services
2. Defence
3. Public order and safety

4. Economic affairs
5. Environmental protection
6. Housing and community amenities
7. Health
8. Recreation, culture and religion
9. Education
10. Social protection
11. Other (free text for specification) Secondary (one optional):
12. General public services
13. Defence
14. Public order and safety
15. Economic affairs
16. Environmental protection
17. Housing and community amenities
18. Health
19. Recreation, culture and religion
20. Education
21. Social protection
22. Other (free text for specification)

MODULE 2: Digital Maturity

Questions in this module aim to measure the digital maturity of your enterprise. This information will help to characterise the departing point of the digital transformation journey of your enterprise, identifying areas where it might need EDIH support. It will also help to assess the services eventually provided by the EDIH to your enterprise as well as to fine tune the EU policies and financial instruments supporting EDIHs. The following six dimensions will be assessed (applying the scoring criteria detailed in the end page):

M2.1. Digital Business Strategy

The questions of this dimension intend to capture the overall status of a digitalisation strategy in your enterprise from a business perspective. They ask about your enterprise's investments in digitalisation per business areas (either executed or planned) as well as company's readiness to embark in a digital journey that might require organisational and economic efforts not yet foreseen.

In which of the following business areas has your enterprise already invested in

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digitalisation and in which ones does it plan to in the future? Please select all options that apply:

Already invested (1)   Plan to invest (0)

1. Product/Service design (incl. research, development and innovation)
2. [0, 1 pt]
3. Project planning and management [0, 1 pt]
4. Operations (production of physical goods/manufacturing, packaging, maintenance, services, etc.) [0, 1 pt]
5. Collaboration with other internal site locations or other companies in
6. the value chain [0, 1 pt]
7. Inbound logistics & warehousing [0, 1 pt]
8. Marketing, sales & customer services (customer management, order
9. processing, helpdesk, etc.) [0, 1 pt]
10. Delivery (outbound logistics, eInvoices, etc.) [0, 1 pt]
11. Administration and human resources [0, 1 pt]
12. Purchasing and procurement [0, 1 pt]
13. (Cyber)security and compliance with Personal Data regulations/GDPR [0, 1 pt]
14. None of the above [0 pt]

In which of the following ways is your enterprise prepared for (more) digitalisation? Please select all options that apply:
1. Digitalisation needs are identified and are aligned with business objectives [0, 1 pt]
2. Financial resources (own, loans, subsidies) are identified to secure digitalisation during at least one year [0, 1 pt]
3. IT infrastructures are ready to support digitalisation plans [0, 1 pt]
4. ICT specialists are employed/sub-contracted (or hiring/subcontracting needs have been identified) [0, 1 pt]
5. Enterprise's management is ready to lead the necessary organisational changes [0, 1 pt]
6. Concerned business departments and their staff are ready to support digitalisation plans [0, 1 pt]
7. Business architecture and operational processes can be adapted if required by digitalisation [0, 1 pt]
8. Manufactured products are already commercialised as a service (so-called Servitisation) or supplemented by services enabled by digital technologies [0, 1 pt]

9. Clients' and partners' satisfaction with online services/interactions is monitored regularly (on social media channels, e-commerce operations, emails exchanges, etc.) [0, 1 pt]
10. Risks of digitalisation (e.g. non-planned effects over other business areas) are considered [0, 1 pt]
11. None of the above [0 pt]

M2.2. Digital Readiness:

The digital readiness dimension provides an assessment of the current uptake of digital technologies (both mainstream and more advanced technologies) that is valid for both manufacturing and service companies.

Which of the following digital technologies and solutions are already used by your enterprise? Please select all options that apply:
1. Connectivity infrastructure (high speed (fibre) internet, cloud computing services, remote access to office systems) [0, 1 pt]
2. Enterprise's website [0, 1 pt]
3. Web-based forms and blogs/forums to communicate with clients [0, 1 pt]
4. Live chats, social networks and chatbots to communicate with clients [0, 1 pt]
5. E-Commerce sales (Business-to-Consumer, Business-to-Business) [0, 1 pt]
6. E-Marketing promotion (online ads, social media for business, etc.) [0, 1 pt]
7. E-Government (online interaction with public authorities, including public procurement) [0, 1 pt]
8. Remote business collaboration tools (e.g. teleworking platform, videoconferencing, virtual learning, business-specific) [0, 1 pt]
9. Internal web portal (Intranet) [0, 1 pt]
10. Information Management Systems (Enterprise Resources Planning, Product Lifecycle Management, Customer Relationship Management, Supply Chain Management, e-invoicing) [0, 1 pt]
11. None of the above [0 pt]

Which of the following advanced digital technologies are already used by your enterprise? Please grade all options that apply using a 0-5 scale (0=Not used, 1=Consider to use, 2=Prototyping, 3=Testing, 4=Implementing, 5=Operational):
1. Simulation & digital twins (i.e. real-time digital representations of physical objects/processes) [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
2. Virtual reality, augmented reality [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
3. Computer-aided design (CAD) & manufacturing (CAM) [0, 0.2, 0.4, 0.6, 0.8, 1 pt]

4. Manufacturing execution systems [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
5. Internet of Things (IoT) and Industrial Internet of Things (I-IoT) [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
6. Blockchain technology [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
7. Additive manufacturing (e.g. 3D printers) [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
8. None of the above [0 pt]

M2.3. Human-centric digitalisation:

This dimension looks at how staff are skilled, engaged and empowered with and by digital technologies, and their working conditions improved, with a view to increase their productivity and wellbeing.

What does your enterprise do to re-skill and up-skill its staff for digitalisation? Please select all options that apply:
1. Performs staff skill assessment to identify the skills gaps [0, 1 pt]
2. Designs a training plan to train and up-skill staff [0, 1 pt]
3. Organises short trainings, provides tutorials/guidelines and other e-learning resources [0, 1 pt]
4. Facilitates learning-by-doing/peer learning/experimentation opportunities [0, 1 pt]
5. Offers traineeships & job placements in key capacity areas [0, 1 pt]
6. Sponsors staff participation in trainings organised by external organisations (training providers, academia, vendors) [0, 1 pt]
7. Makes use of subsidised training and upskilling programmes [0, 1 pt]
8. None of the above [0 pt]

When adopting new digital solutions, how does your enterprise engage and empower its staff? Please select all options that apply:

1. Facilitates staff awareness about new digital technologies [0, 1 pt]
2. Communicates digitalisation plans to staff in a transparent and inclusive way [0, 1 pt]
3. Monitors staff acceptance and takes measures to mitigate the potential collateral effects (e.g. fear to change; 'always on' culture vs. work-life balance; safeguards to risks of privacy breaches etc.) [0, 1 pt]
4. Involves staff (including non-ICT staff) in the design and development of product/service/process digitalisation [0, 1 pt]
5. Gives staff more autonomy and appropriate digital tools to take and execute decisions [0, 1 pt]

6. Redesigns/Adapts jobs and workflows to support the ways that staff actually would like to work [0, 1 pt]
7. Sets up more flexible working arrangements enabled by digitalisation (e.g. telework) [0, 1 pt]
8. Puts at staff disposal a digital support team/service (internal/external) [0, 1 pt]
9. None of the above [0 pt]

M2.4. Data Management

This dimension captures how data is digitally stored, organised within the enterprise, made accessible across connected devices (computers, etc.) and exploited for business purposes, keeping an eye on ensuring sufficient data protection via cybersecurity schemes.

How is your enterprise data managed (i.e. stored, organised, accessed and exploited)? Please select all options that apply:

1. The organisation has in place a data management policy/plan/set of measures [0, 1 pt]
2. Data is not collected digitally [0 pt]
3. Relevant data is stored digitally (e.g., office applications, email folders, stand-alone applications, CRM or ERP system, etc.) [0, 1 pt]
4. Data is properly integrated (e.g. through interoperable systems, application programming interfaces) even when it is distributed amongst different systems [0, 1 pt]
5. Data is accessible in real-time from different devices and locations [0, 1 pt]
6. Collected data is systematically analysed and reported for decision-making [0, 1 pt]
7. Data analytics are enriched by combining external sources with own data [0, 1 pt]
8. Data analytics are accessible without need of expert assistance (e.g. through dashboards) [0, 1 pt]
9. None of the above [0 pt]

Is your enterprise's data sufficiently secured? Please select all options that apply:

1. An enterprise data security policy/set of measures is in place [0, 1 pt]
2. All client-related data is protected from cyberattacks [0, 1 pt]
3. Staff is regularly informed and trained on cybersecurity and data protection issues/risks [0, 1 pt]
4. Cyber-threats are regularly monitored and assessed [0, 1 pt]

5. A full backup copy of critical business data is maintained (off-site/in the cloud) [0, 1 pt]
6. A business continuity plan is in place in case of catastrophic failures (e.g. all data locked by a ransomware attack or physical damage to the IT infrastructure) [0, 1 pt]
7. None of the above [0 pt]

M2.5. Automation and Artificial Intelligence

This dimension explores the level of automation and intelligence facilitated by digital means that is embedded in business processes.

Which of the following technologies and business applications are your enterprise already using? Please grade all options that apply using a 0-5 scale (0=Not used, 1=Consider to use, 2=Prototyping, 3=Testing, 4=Implementing, 5=Operational):
1. Natural Language Processing incl. chatbots, text mining, machine translation, sentiment analysis [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
2. Computer vision / image recognition [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
3. Audio processing / speech recognition, processing and synthesis [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
4. Robotics and autonomous devices [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
5. Business intelligence, data analytics, decision support systems, recommendation systems, intelligent control systems [0, 0.2, 0.4, 0.6, 0.8, 1 pt]
6. None of the above [0 pt]

M2.6. Green digitalisation:

This dimension captures the capacity of an enterprise to undertake digitalisation with a long-term approach that takes responsibility and cares about the protection and sustainability of natural resources and the environment (eventually building a competitive advantage out of this).

How does your enterprise make use of digital technologies to contribute to environmental sustainability? Please select all options that apply:
1. Sustainable business model (e.g. circular economy model, product-as-a-service) [0, 1 pt]
2. Sustainable service provision (e.g. usage tracking for further reuse by other users) [0, 1 pt]
3. Sustainable products (e.g. eco-design, end-to-end product lifecycle planning,

end-of-life & extension of useful life) [0, 1 pt]
4. Sustainable production and manufacturing methods, materials and components (incl. end- of-life management) [0, 1 pt]
5. Emissions, pollution and/or waste management [0, 1 pt]
6. Sustainable energy generation in own facility [0, 1 pt]
7. Optimisation of raw material consumption/cost [0, 1 pt]
8. Reduction of transport and packaging costs [0, 1 pt]
9. Digital applications to encourage responsible consumer behaviour [0, 1 pt]
10. Paperless administrative processes [0, 1 pt]
11. None of the above [0 pt]

Is your enterprise taking into account environmental impacts in its digital choices and practices? Please grade all options that apply using this scale: No, Partially, Yes:

1. Environmental concerns and standards are embedded in the enterprise's business model and strategy [0, 1, 2 pt]
2. There is an Environmental Management System/certification implemented [0, 1, 2 pt]
3. Environmental aspects are part of digital technologies/suppliers' procurement criteria [0, 1, 2 pt]
4. Energy consumption of digital technologies and data storage are monitored and optimised [0, 1, 2 pt]
5. Recycling/re-use of old technological equipment is actively practised by the enterprise [0, 1, 2 pt]
6. None of the above [0 pt]