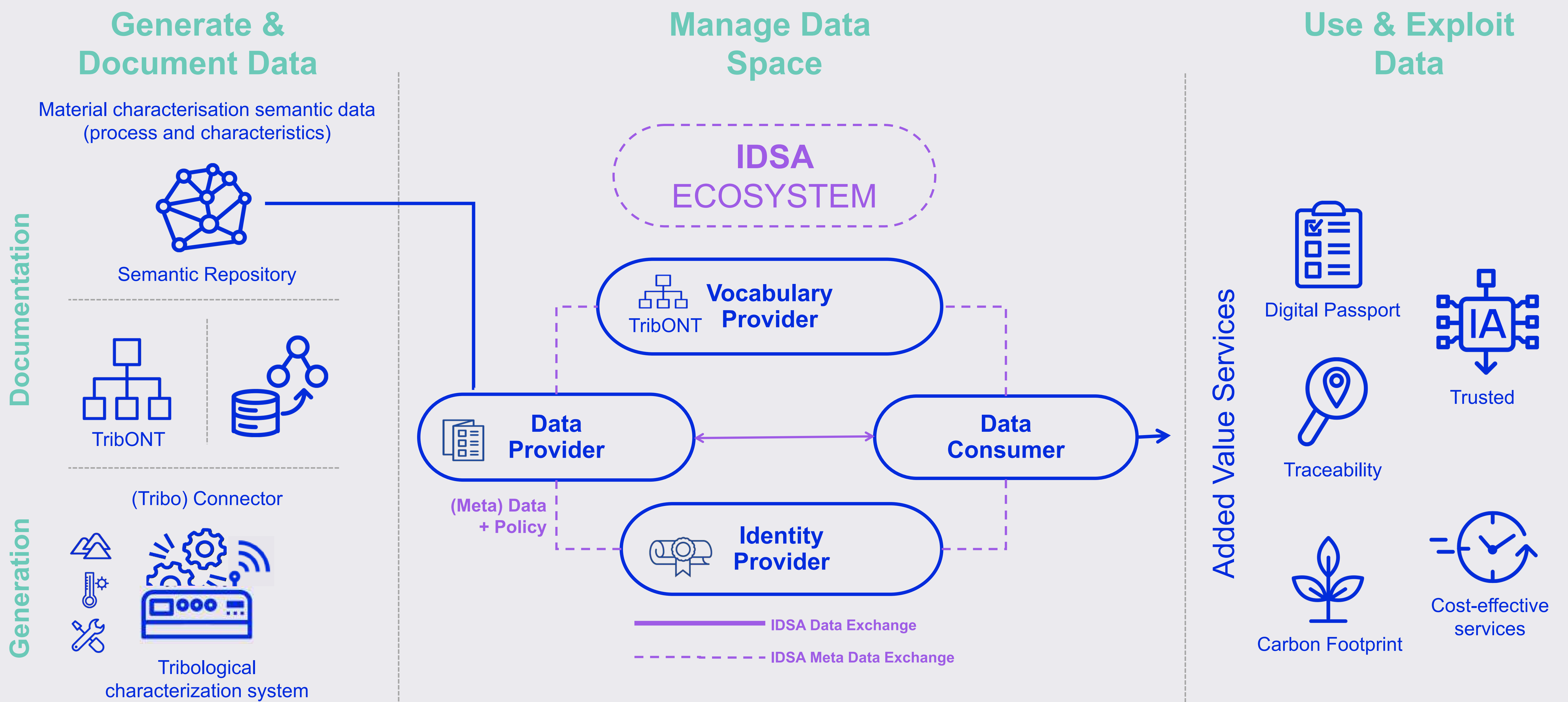
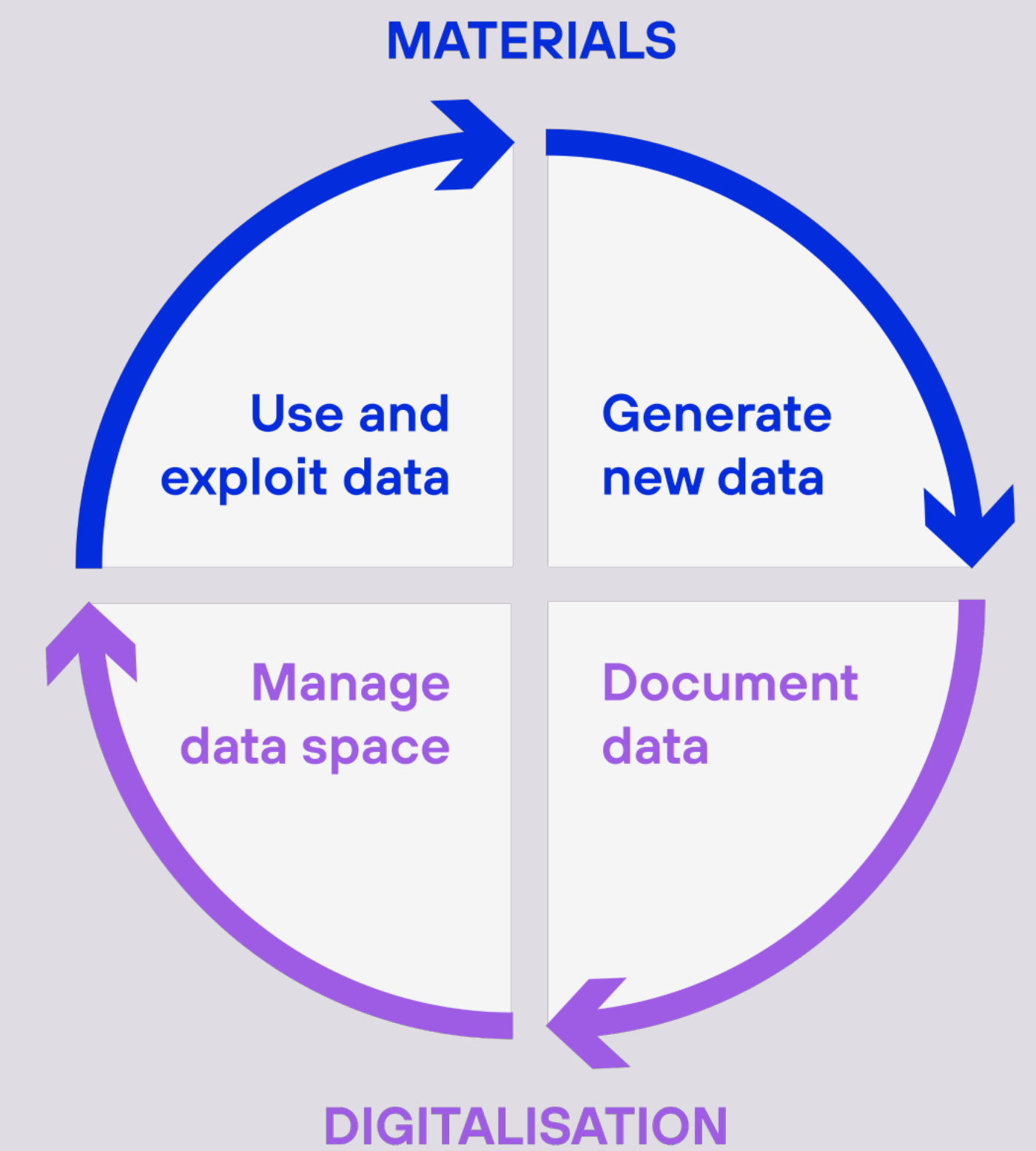


Motivation

Advances on technologies regarding acquisition, communication, storage and processing of data and information is leading to unprecedented impact regarding the potential to transform the way knowledge is produced, and the new business models that can generate. In the Materials domain, AMI2030 initiative, in the roadmap, envisions four main work areas to, among others, foster data life-cycle of advanced materials for establishing and strengthening safe and sustainable, resilient, and circular advanced materials value chains to support the Green Deal: **(1) Generate new data** with harmonized and digitalized techniques; **(2) Document data** for FAIRness and in support of materials standards; **(3) Common materials data space** with trusted management, data access and exchange and distributed data repositories; **(4) Use and exploit data** supported by semantic and AI strategies.



SOLUTION

To promote digitalized **semantically interoperable data**, Tekniker approach is supported in the following main components, focused on this work to tribology domain:

CONNECTOR: IT component, based on interfaces (automatic/manual), aims to collect relevant information of the characterization process and results, and store in a (local) data repository.

DOMAIN ONTOLOGY: common representation of tribological experiments, enriching existing data with additional background knowledge to easy data retrieval and navigation through related resources, aligning to existing TLOs and reusing other MLO/DLO, following a modular approach.

SEMANTIC REPOSITORY: aimed to store and make available semantically annotated data, created by direct ontology instantiation and/or mapping other data repositories schemas & the ontology. Enabling advanced data exploitation, i.e. reducing the number, size, and time required for tribological experiments.

To enable **trusted and sovereign data sharing** along the materials value chain, Tekniker deploys the following components from the IDSA RAM:

VOCABULARY PROVIDER: Manages and provides a certified Ontology (i.e. TribOnt) that describes the resources that can be shared by Data Providers through the data space.

IDENTITY PROVIDER: Creates, maintains, manages, monitors, and validates the capabilities of the participants and components in the data space.

DATA PROVIDER-CONSUMER (CONNECTOR): Responsible for correct data sharing through the data space. Interoperability is ensured through the IDSA Information Model (IM) and the Vocabulary Provider. Trust is provided through the Identity Provider. Data sovereignty is granted through a distributed usage control solution.

DATA USER: taking as basis the data provided by the Data Provider(s) through the Data Consumer(s), generates **new added value services**.