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SCIRT.

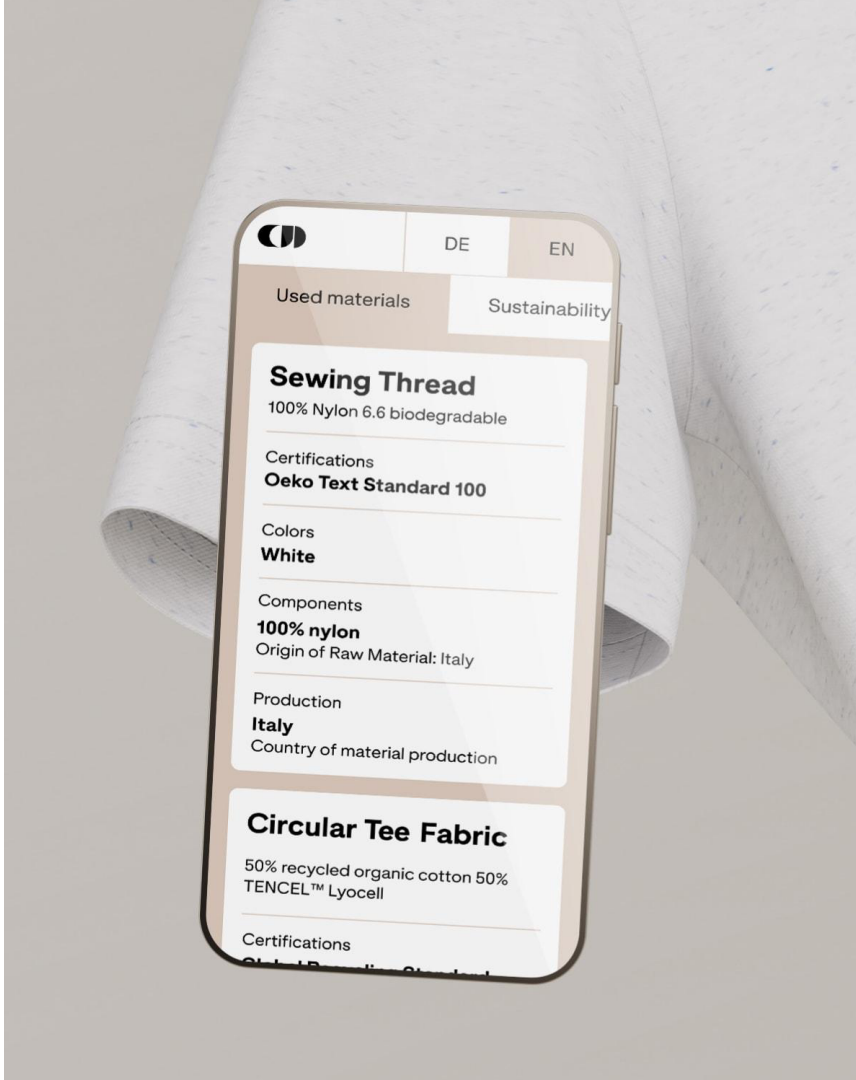
Guideline for Fashion Brands

how to make the crucial product data available to enable intelligent steering and evaluation of products in the circular economy

Developed as part of the SCIRT Horizon 2020 project. This project has received funding from the Horizon 2020 Programme under grant agreement n°101003906.

Contents

The guideline is designed to provide both, **background information** on regulations, information requirements and technical aspects, and a **step-by-step guideline** how to make product data available for a decentralised data storage system.



Disclaimer

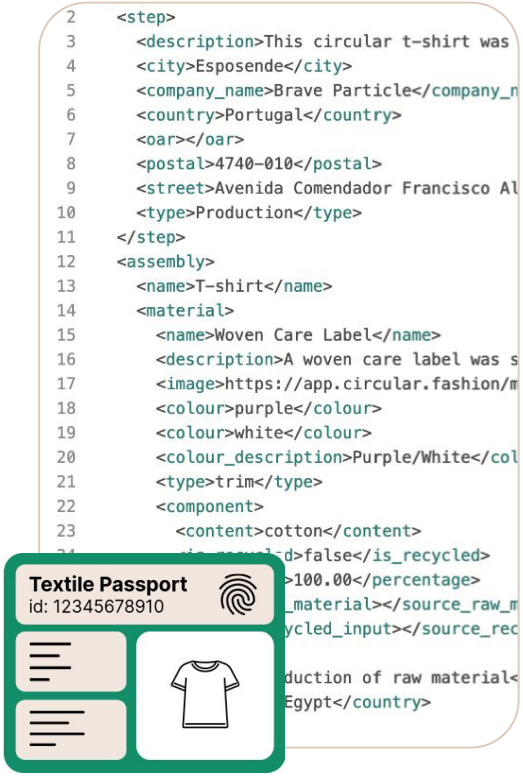
Within the dynamic regulatory landscape and evolving standards around a European Digital Product Passport (DPP), this guide has been written aiming at adaptability to future changes. It takes into account the latest official regulatory documents available at the time of its creation. It should however be applied with care, as it is being developed concurrently with ongoing negotiations concerning the DPP system.

Legislation and Purpose

Digital Product Passport | Definition from CIRPASS* Project

“A Digital Product Passport (DPP) is a structured collection of product related data with predefined scope and agreed data ownership and access right conveyed through a unique identifier and that is accessible via electronic means though a data carrier. The intended scope of the DPP is information related to sustainability, circularity, value retention for reuse, remanufacturing, and recycling.

The DPP is an information system for the circular economy.”



*CIRPASS - Digital Product Passport is a EU-funded project that centers around preparing the ground for the gradual piloting and deployment of the DPP. (more info under https://cirpassproject.eu/)

Regulatory Background

Comprehensive package of policy initiatives launched in 2019 to

- make EU climate-neutral by 2050
- establish a circular economy
- eliminate pollution
- boost competitiveness
- ensure a just transition

One of the main building blocks of the European Green Deal is the **Circular Economy Action Plan (CEAP)** which introduces legislative and non-legislative measures to make sustainable products the norm in the EU and ensure less waste.

Proposal for a framework to set ecodesign requirements for products placed on the European market

- performance & information requirements
  - circularity
  - energy performance
  - other sustainability aspects
- introduction of the digital product passport (DPP)
- ban destruction of unsold goods
- incentives for sustainable products
- [...]

Delegated acts will be introduced to set minimum ecodesign requirements for different groups of products including textiles.

- durability,
- reliability,
- reusability,
- reparability,
- possibility of remanufacturing and recycling,
- resource use or resource efficiency,
- recycled content,
- presence of hazardous chemicals,
- environmental impacts
- expected generation of waste materials;
- [...]

Legislation for DPP

Eco-Design and Sustainable Product Regulation (ESPR):

“The regulation also includes the creation of a digital product passport to electronically register, process and share product-related information amongst supply chain businesses, authorities and consumers”

CHAPTER III - DIGITAL PRODUCT PASSPORT Art 8-13

- Article 8: what the DPP should define
- Article 9: technical requirements e.g. data carrier / identifier
- Article 10: technical design and operation - decentralized
- Article 11: unique operator and facility identifier
- Article 11a: Update of standards
- Article 12: DPP registry for storing information
- Article 12a: Web portal to search information
- Article 13: customs controls relating to the product passport

Regulatory Background | Timeline

- **final plenary vote** accepted the ESPR proposal
- Regulation **enters into force** July 2024
- **Establishment of Ecodesign Forum** and call for membership applications from Q3 2024

Publication of ESPR

2024
Labelling Strategy

Labelling strategy revision should be adopted Q4/2024

- Adoption of **ESPR working plan** expected Q1-Q2 2025
- Working plans for **textiles** to be adopted in Q3-Q4 2025

2025
Adoption of Working Plans

Standardisation

- **Standardisation Request** is being finalised and will be addressed to CEN/CENELEC
- Review/develop a set of harmonised standards to make the **DPP system** operable

Deadline to deliver requested standards: 31/12/2025

2026
Time for piloting

2027
Entry into Force

- **DPP for Batteries** will entry into force February 2027
- Entry into force of **first Delegated Act** (including textiles) expected mid 2027

Potential of a DPP System

Recycling

Suitable feedstock for improved recycling
Buy back material feedstock

Waste/Incineration

Reduced amount of waste

Recommerce & Repair

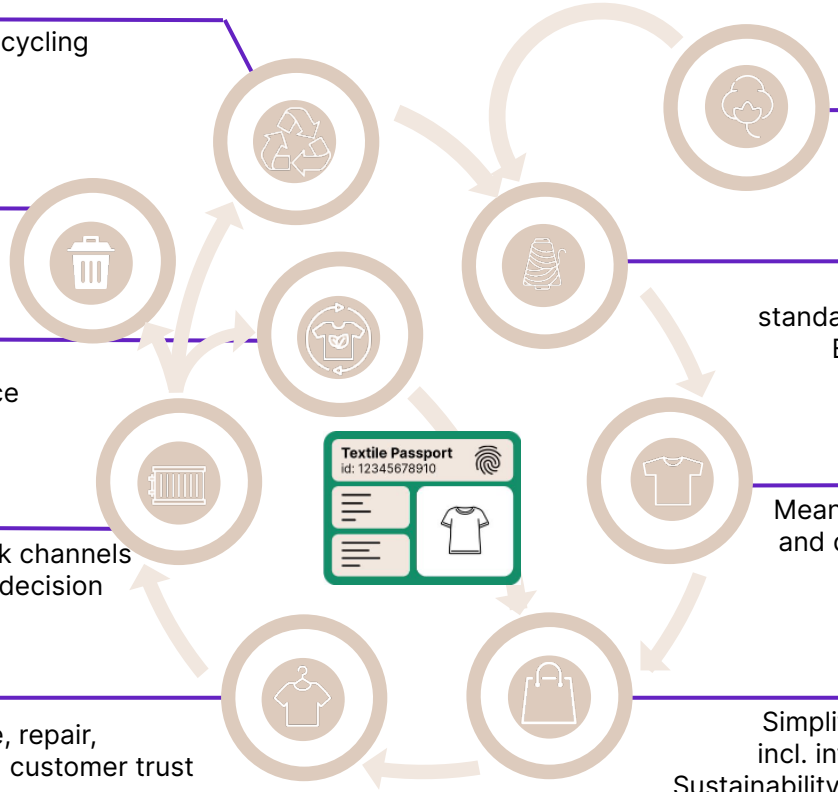
Buy back pre-owned products
Have data available for recommerce
Spare parts, repair service

Collection and Sorting

Information for prepared take-back channels
Optimized process efficiency and decision taking for a circular economy

Use Phase

Single point of information for care, repair, warranty information for increased customer trust and retention



Benefits for Circular Business Models

New business opportunities
Trust that information will be available
Chance to automate processes
Optimized viability

Raw Material Extraction

Standardized entry point for providing material data

Yarn & Fabric Production

Access to material information and standardized entry point for product data
Better visibility of sustainability and social aspects

Design & Manufacturing

Means to observe customer satisfaction and quality assessment as feedback for the design department

Distribution & Retail

Simplified access to product information, incl. information about pre-owned goods;
Sustainability and social aspects as selling point

Responsibility for Product Data ...

... lies with ...

... the organisation that brings the product to the European market

... **brands or manufacturers** that sell products under their own name

... **importers** if the products are imported from a third country

... includes ...

... **storing** relevant product data

... making sure that data is **accurate, complete and up to date**

... making data **available and accessible** from the physical product as well as for retailers and online marketplaces
(including a backup copy being stored by a service provider for the case of an insolvency)

... ends ...

... when an item is **remanufactured** and becomes a new product (a new product passport is needed)

... when an item changes status to "**waste**"

The Best Time To Start Is Now!

While things are still developing, it is recommendable for brands to start coming to terms with the DPP.
There's a range of things that can already be done and prepared now! It's a chance to uncover and prevent risks, overcome barriers and concerns, and profit from the advantages.
The following lists show the risks, barriers and concerns as well as advantages that workshop participants in the development of this guideline collated. The guideline is designed to address ways to deal with them.

Risks

- legislation is not final yet, small changes can still be expected
- a couple of unknowns around the technical setup of the system
- risk of investing too early

Barriers & Concerns

- information availability to brands
- entry barriers
  - usability and workload
  - intransparency
  - inefficiency
- net sustainability of additional technologies used versus circularity benefits
- cost of data verification
- interoperability with existing systems

Advantages

- get an understanding & learn on small scale
- anticipate challenges early
- share learnings with legislators
- join the pre-competitive space
- profit from first-mover advantage
- have more time to adapt processes and train personnel
- discover new business opportunities

How To Use This Guideline

This guideline is designed to be usable as a step-by-step guide to establishing a technical infrastructure and processes to make product data available. It can be used as a roadmap to initiate and manage pilot projects around the Digital Product Passport.

1. **Choose your pilot product(s)**
   Select a product or a group of products that are suitable for a pilot project. Look for items that are ready for circularity, such as those designed for longevity or recyclability. You can use the CDC (Circular Design Criteria) tool to verify this.
2. **Assign a dedicated team**
   Appoint a person or a team to oversee the pilot project. Their responsibilities should include documenting any uncertainties or issues encountered, as well as capturing key learnings. This documentation will be valuable for training others in the future.

At the end of each aspect described, you will find a list of actionable steps that you can take - as well as a list of future developments concerning your work that can be expected.

Next Steps

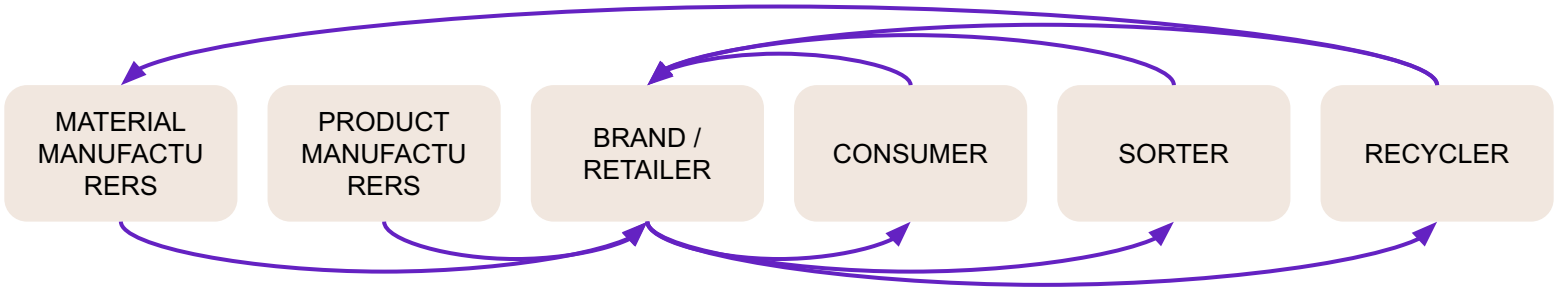
This box will provide the first steps to take in order to master this aspect of providing product information. You do not need to follow through the provided steps exactly, but they can guide you.

Future Developments

As this guideline is written concurrently with ongoing discussions concerning the European DPP system, some aspects are not finally decided on. This box provides information on expected future decisions and how they may affect your work.

Information Flow

INFORMATION FLOW ALONG SUPPLY CHAIN



In order to enable and support the information flow between the different stakeholders along the circular supply chain and meet their information requirements, a technical system needs to be set up based on the following technical pillars.

TECHNICAL PILLARS OF A DPP SYSTEM

Data Storage
decentralised storage of product dataset, supported by central components

Data Exchange
interoperable interfaces between the decentralised components of the system

Access Management & IP Protection
solutions to ensure each stakeholder can access the relevant data - and no more

Identifiers and Data Carriers
need to meet the needs of the use cases (e.g. consumer information, textile sorting)

Data Verification, Validation & Integrity
reliable data quality supported through different measures

Information Requirements

Product Data to Store

The final dataset that will be needed for textiles in the DPP will be defined in the corresponding ESPR Delegated Act. It will include a set of mandatory product and material data as well as a mandatory sustainability dataset. The system will also support to make further data available - either publicly or with specific stakeholders. Doing this can accelerate the circular economy and unlock new business models. Depending on the data storage service provider you choose, it may also be possible to share data on a bilateral basis.
There's a number of standards that can be used to store data in an interoperable way.
More about datasets and corresponding standards in the following slides.

base dataset

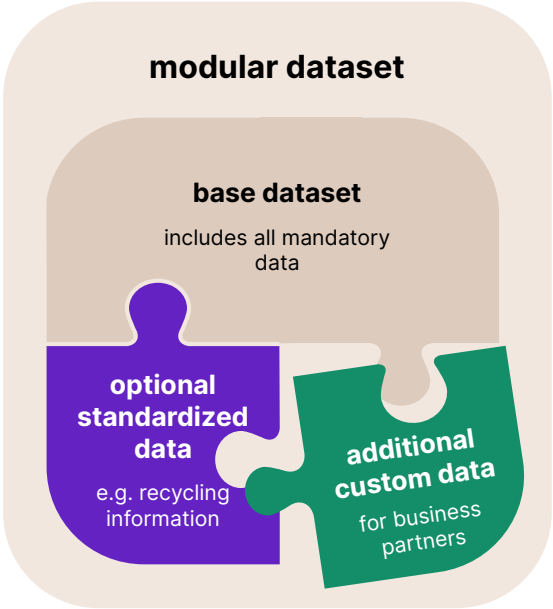
basic information necessary to support a circular economy, including product and organisation identification and information essential for sorting, recycling, repair etc. (like material composition).

sustainability dataset

to be defined in the Delegated Act, will include information/scores on different sustainability and circularity aspects.

e.g. commercial data

to create product websites, communicate advertising campaigns etc.



recommerce dataset

to enable sorting for recommerce and making products available to the online 2nd hand market

recycling dataset

to enable sorting for recycling and material recovery through fibre-to-fibre-recycling

transparency dataset

to inform consumers and enable them to make sustainable purchasing decisions

other datasets

...

Standardisation Needs

The **ESPR Delecated Act** for Textiles will define the **dataset** needed.

Apart from the defined dataset, **standards** are expected to be developed and published concerning

- consistent naming
- consistent units of measure and scoring systems
- a common information model, data models and formats
- data exchange protocols

In the CIRPASS project, a list of relevant standards has been published under this link: https://cirpassproject.eu/dpp-related-standards-dataset/.

Knowledge graphs are discussed as a basis for the data model. A knowledge graph is like a web of connected information about different ideas, things, connections, and happenings. It links data together with meanings and relationships. Using a knowledge graph simplifies the efficient combination, analysis and exchange of information stored in different sources. Knowledge graphs, like any other data format, need standardisation as a basis in order to be interoperable.
There are tools that can translate a relational database to a knowledge graph (e.g. R2RML) or to provide a virtual knowledge graph on top of a relational database (e.g. Ontop)

Base Dataset

The base dataset will include basic identification and product data necessary to enable the reverse supply chain as well as a dataset on sustainability and circularity. Both will be mandatory. The concrete data needed as well as the measurement metrics will be defined in the delegated act. Here's a selection of data that can be expected.

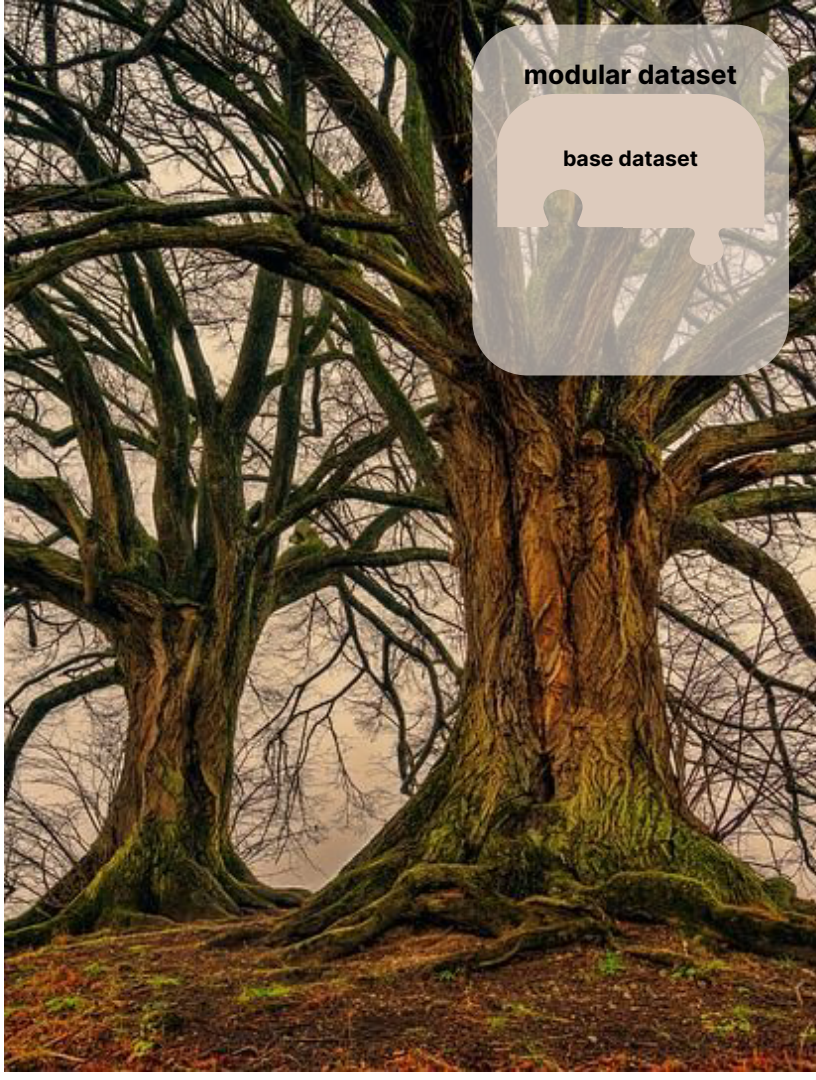
Base data

- standard version
- company identification (system used and value)
- facility identification (system used and value)
- product identification (system used and value)
- assigned colour category
- fabric construction
- material composition
- compliance documentation (e.g. declaration of conformity)

Sustainability data

- durability
- reliability
- reusability
- reparability
- possibility of recycling
- resource use or resource efficiency
- recycled content
- presence of hazardous chemicals
- environmental impacts
- expected generation of waste materials

*Within the SCIRT project, a so-called **True Cost Model** (SCIRT website) is developed to quantify product's sustainability - this could help to identify relevant data. Furthermore the **Circular Design Criteria** assess product's circularity based on defined data points.*



Reverse Supply Chain Data

The reverse supply chain datasets are rooted in information required by textile sorting, reuse, recommerce and recycling in addition to the base dataset. Depending on the product type and the relevant reverse supply chain use cases, you can include certain parts of the datasets. There are two industry standards that explicitly include information relevant to reverse supply chain.

circularity.ID Open Data Standard

The circularity.ID Open Data Standard V5 has been designed taking into account the specific information needs by sorters, recyclers and secondhand sellers. It features modules for the different use cases:

- sorting for reuse data
- sorting for recycling data
- recommerce data
- circular design

Circular Product Data Protocol

The Circular Product Data Protocol was designed to enable resellers and recyclers to digitally identify products and access essential material information. It entails reasoning about why the different attributes are needed.

There are certainly other standards for information relevant here, such as the GS1 Global Data Model, UN/CEFACT Reference Data Models and the Global Textile Scheme (GTS).

Supply Chain Transparency

Supply chain transparency data are first and foremost used for consumer information about the production conditions of a product. They cover social sustainability related information. Though not immediately mandatory in the DPP, it's a welcome addition for conscious consumers. For consumer-only data, standardisation is not as relevant, as for machine-facing data - but it may still be helpful for consumers to easily understand and compare the information.

EPCIS event data
The EPCIS event data standard is specifically designed to store the different steps in logistics and the supply chain.

Company/Facility identification
Open Supply Hub is a free platform where companies and facilities can be registered to gain a unique identification. In order to share the production country, the ISO Country Codes (ISO 3166-1) are advisable.

Traceability tools
Traceability tools can be used to source and present information about the supply chain.

True Cost Model
The True Cost Model for value chain transparency developed in the SCIRT project is currently targeted towards brands and retailers, but also has the potential to be used for customer information in the future.

Circular Design Criteria

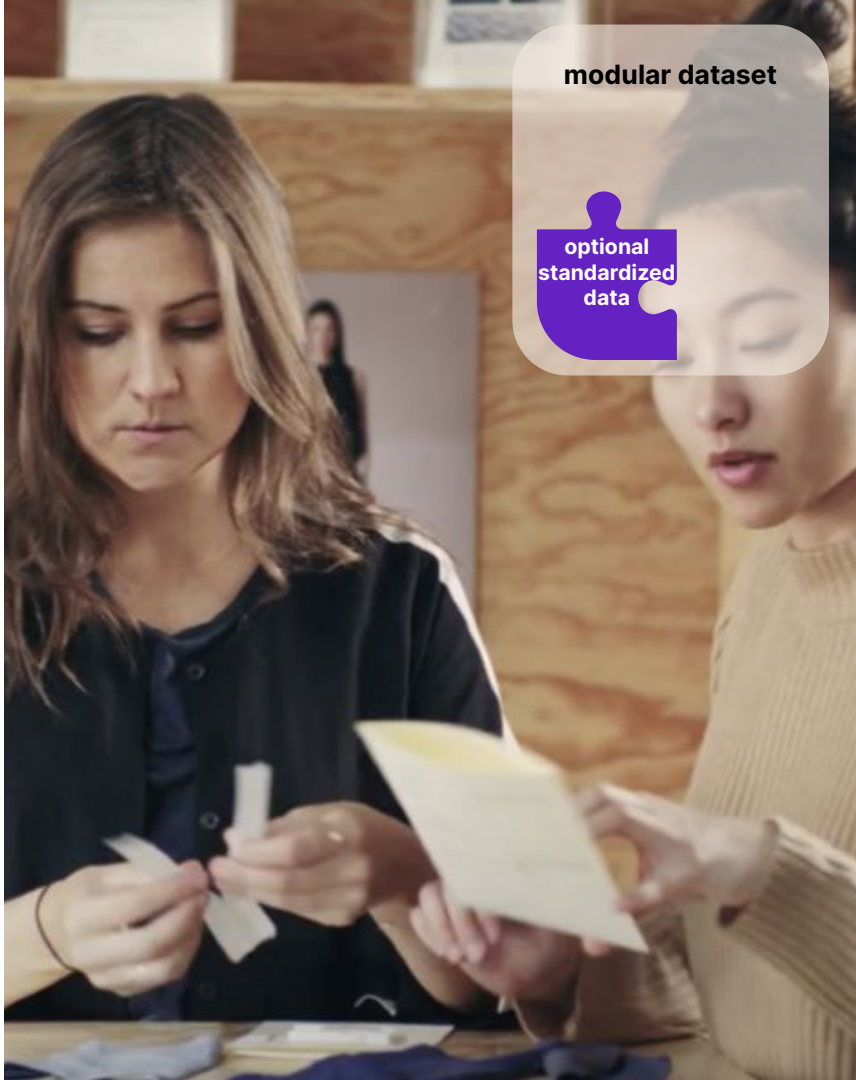
circular.fashion has expanded their Circular Design Criteria within the SCIRT project to enrich criteria for Enabling Circulation. The following data points are relevant to assess the compliance of a product and its circular system with the Circular Design Criteria Software.

Circular Inputs
- Certification on fiber and/or product level (GOTS, OCS, GRS etc.)
- RSL compliance
- Share of certified recycled and/or organic content
- Information about filling materials (certified recycled filling etc.)

Design for Recycling
- Fibre share of main fibre, blended fibres (% of product weight)
- Information on surface decoration (prints yes/no, type and size etc.)
- Information on other components (trims, reinforcements, interfacing)
- Information on finishings (coatings etc.)

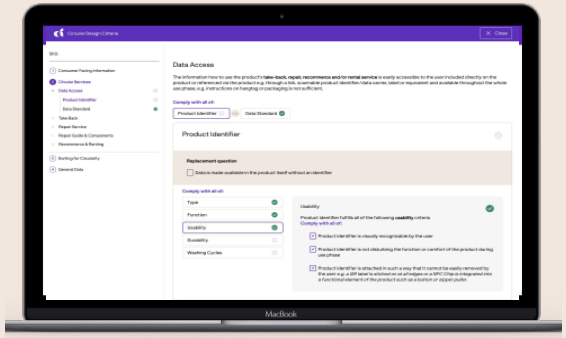
Design for Longevity
- Quality test results (colour fastness, pilling resistance, etc.)
- Design elements enabling repair, transformability and/or increased use

Enabling Circulation – Accessibility and scalability of information regarding
- Value Chain Transparency, Care and/or Circular Service Guide
- Take Back, Repair, Recommerce and/or Renting Service
- Sorting for Recommerce, Sorting for Recycling
- Compliance of Data Standard as well as ID-type Function, Usability and Properties according to selected purpose



Circular Design Criteria

In a different work package of the SCIRT project, circular.fashion has expanded their Circular Design Criteria to enrich criteria for Enabling Circulation. The criteria are designed to provide a framework and a tool to make circularity measurable. They can be a part of the strategy to communicate sustainability and circularity with customers. circular.fashion provides an interactive software tool that can be used to validate the compliance with the criteria.



Strategies	Sub-strategies	
Design using **Circular Inputs**	Safe Inputs	
	Recycled Inputs	
	Renewable Inputs	
Design for **Recycling**	Design for Material Cyclability	
Design for **Longevity**	Design for Durability	
	Design for Repairability	
	Design for Transformability	
	Design for Increased Use	
SCIRT. Enable **Circulation**	User Engagement	
	Circular Service	
	Sorting for Circularity	

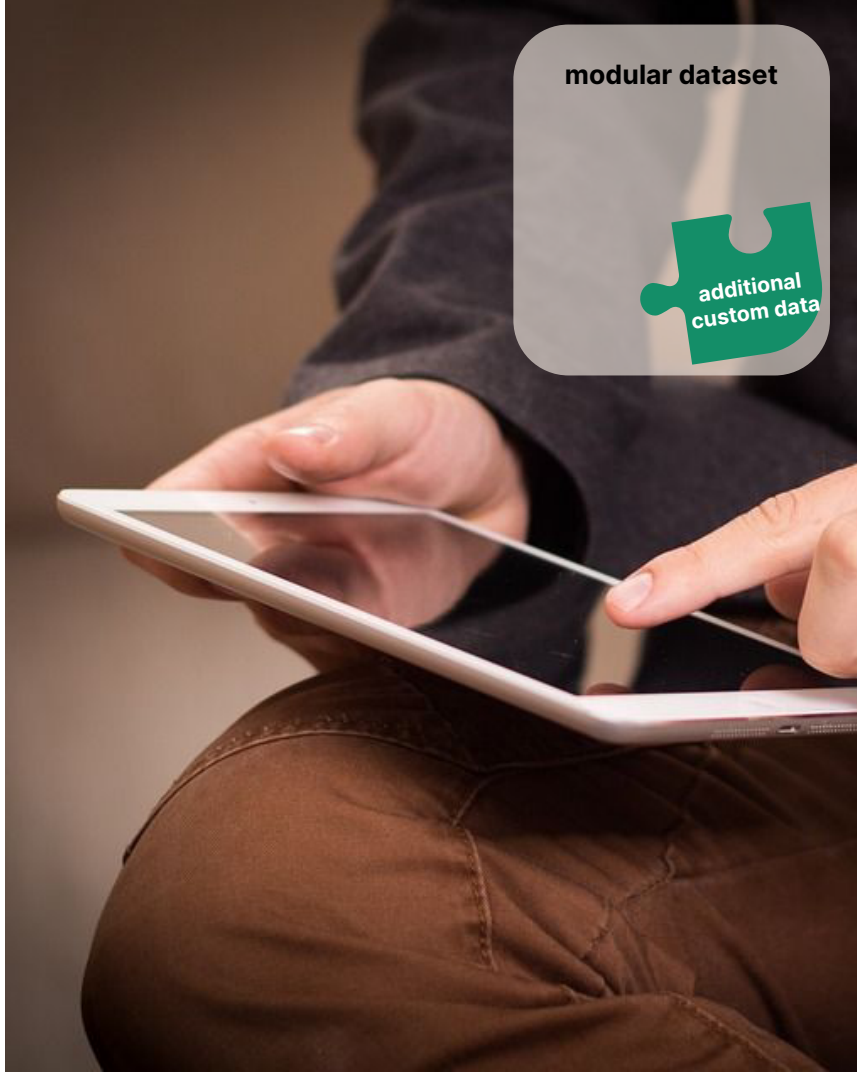
Additional Data

The proposed datasets and standards may not include all the data you would like to share with your customers and partners. Just because they are not included in the standards, it does not mean that you cannot share them.

First, define the data points you would like to add to your list and with whom they should be shared.

Then, find a suitable format, ideally closely related to the standard formats you have for your other data.

Collect the additional data along with the standardised data.



Information Requirements | Takeaways

Next Steps

1. Assemble the dataset. While the official mandatory dataset is not yet available, you can use the “basic dataset” above - you can add optional standardised datasets (e.g. to enable a reverse supply chain). For sustainability data, it may be advisable to wait until scoring systems and units of measure are defined.
2. For each datapoint, identify the organisation to ask this data from. Utilise a specific traceability application or start with known structures, e.g. collect the information via email or spreadsheet tools.
3. Choose a data standard and translate the data you collect into the standard. This way, you will be able to save them in your information system. Attention: If you are going to store your data with a data storage service provider, it may depend on the system which standards are available.

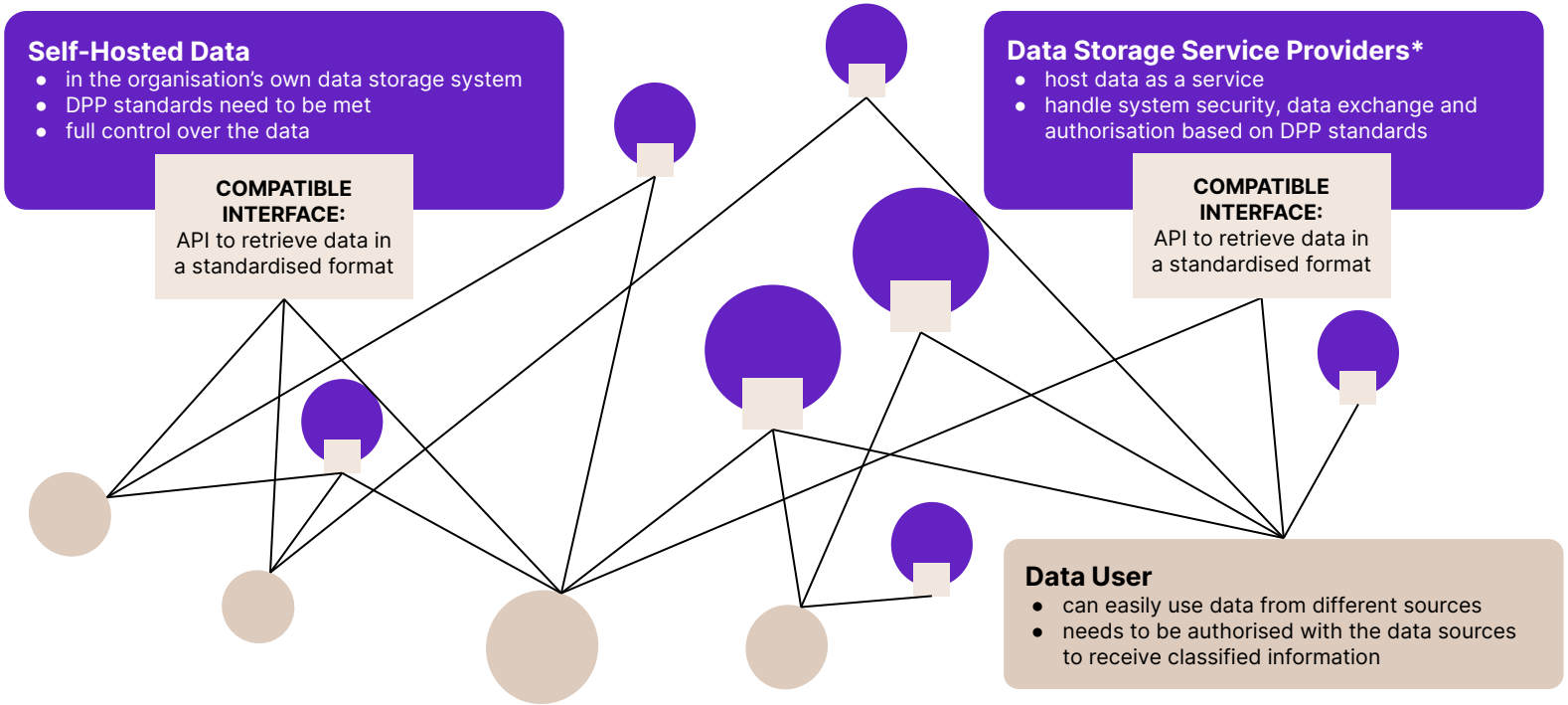
Future Developments

- The **official datasets for textiles** will be published. This may include changes to the dataset provided in this guideline. However, the similarities should prevail.
- When **scoring systems for the different circularity and sustainability aspects** are decided for, it will be time to establish processes to get your products scored.
- The data may need to be stored as a **knowledge graph**. No need to worry - there are tools to facilitate the translation of data stored in a relational database into a knowledge graph (see “Standardisation needs”).

Technical Aspects

Data Storage | What Does Decentralisation Mean?

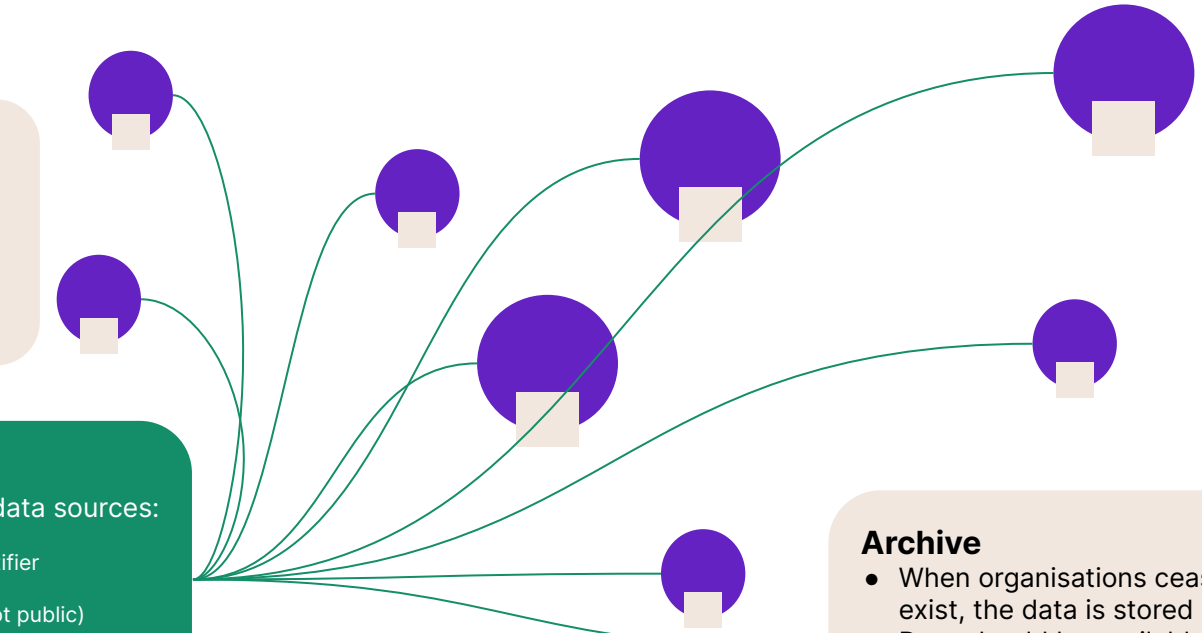
Decentralisation is defined in contrast to centralisation. In the DPP context decentralisation means that control over data storage lies with the data owners (brand or importer). They can decide to host data themselves, or outsource this task to a data storage service provider. Both options can co-exist in a decentralized system, so each stakeholder can take an independent decision.
In order to make product data accessible to users in an interoperable system, it is necessary to streamline the interfaces. Application Programming Interfaces (APIs) are a good way to provide compatible interfaces, they can be adapted to data standards and versioned, if necessary.



*Within the CIRPASS project, a list of DPP related initiatives, including many data storage service providers (product information platforms), was assembled and made available on their website: https://cirpassproject.eu/dpp-related-initiatives-dataset/

Data Storage | Central Components in a Decentralised System

While the information itself can be stored in decentralised storage system, the ESPR envisions some centralised components to make the product informations system more user friendly and support specific use cases like customs, or archiving data when a company no longer exists. These components are still in a concepting phase.



Web-Portal
- searchable and comparable information
- available to certain stakeholders, such as customs

DPP Registry
- stores identifiers and data sources:
  - product identifier
  - economic operator identifier
  - facility identifier
  - registration identifier (not public)
  - commodity code
  - back-up reference
- provides for searchability

Archive
- When organisations cease to exist, the data is stored here
- Data should be available until 95% of products are recycled → meaning the time period depends on product type

Data Storage | Takeaways

Next Steps

1. Decide if you want to store products on own premises or use a third party data storage service provider.
2. Use the previously selected data standard to create a data storage with the product data you already have available. Extend it whenever new data can be added.

Future Developments

- A **central registry** will be established that stores the identifiers of all DPPs and the corresponding URIs to receive data from. Once this is established, you need to register future DPPs.
- A **web portal** will be set up where certain stakeholders can access information on product groups for comparability. The web portal can be expected to collect the data you provide through your interfaces automatically without action needed from your side.
- Possibly, an **archive** for product data will be hosted to store product data from brands that cease to exist. You may need to register your products there.

Data Exchange | Interfaces

In order to exchange data, interfaces are needed that can be used either by human users or to exchange data between two digital systems (machine exchange interface).

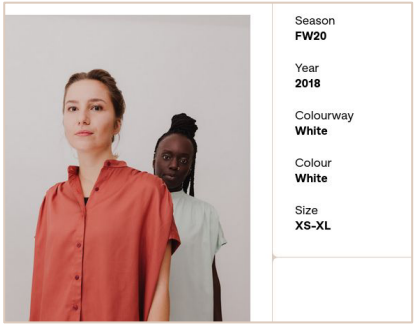
- **Human interfaces**:
  - Make product data available to your customers in a clear, understandable and appealing way.
  - Later on, provide accessible and easy to use interfaces for your suppliers to add and update data.

- **Machine exchange interfaces**:
  - interoperability with existing solutions (e.g. company information systems)
  - use standardised Application Programming Interfaces (APIs)

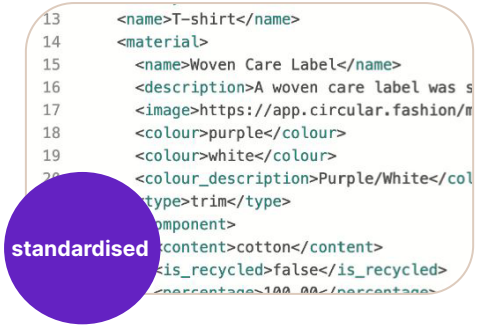
- **Solution for global interoperability between systems missing**

  possible solutions include
  - single data standard (unlikely)
  - map data between all common data standards

01 Human interface

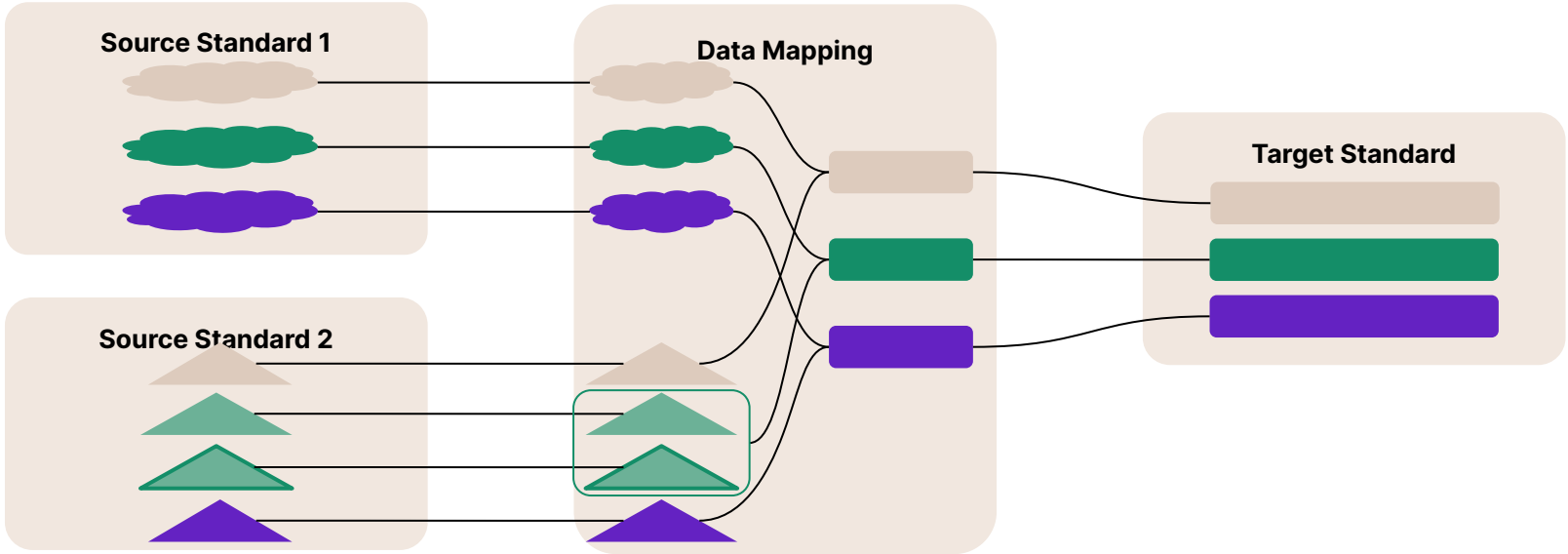


02 Machine exchange interfaces



Data Exchange | Data Mapping

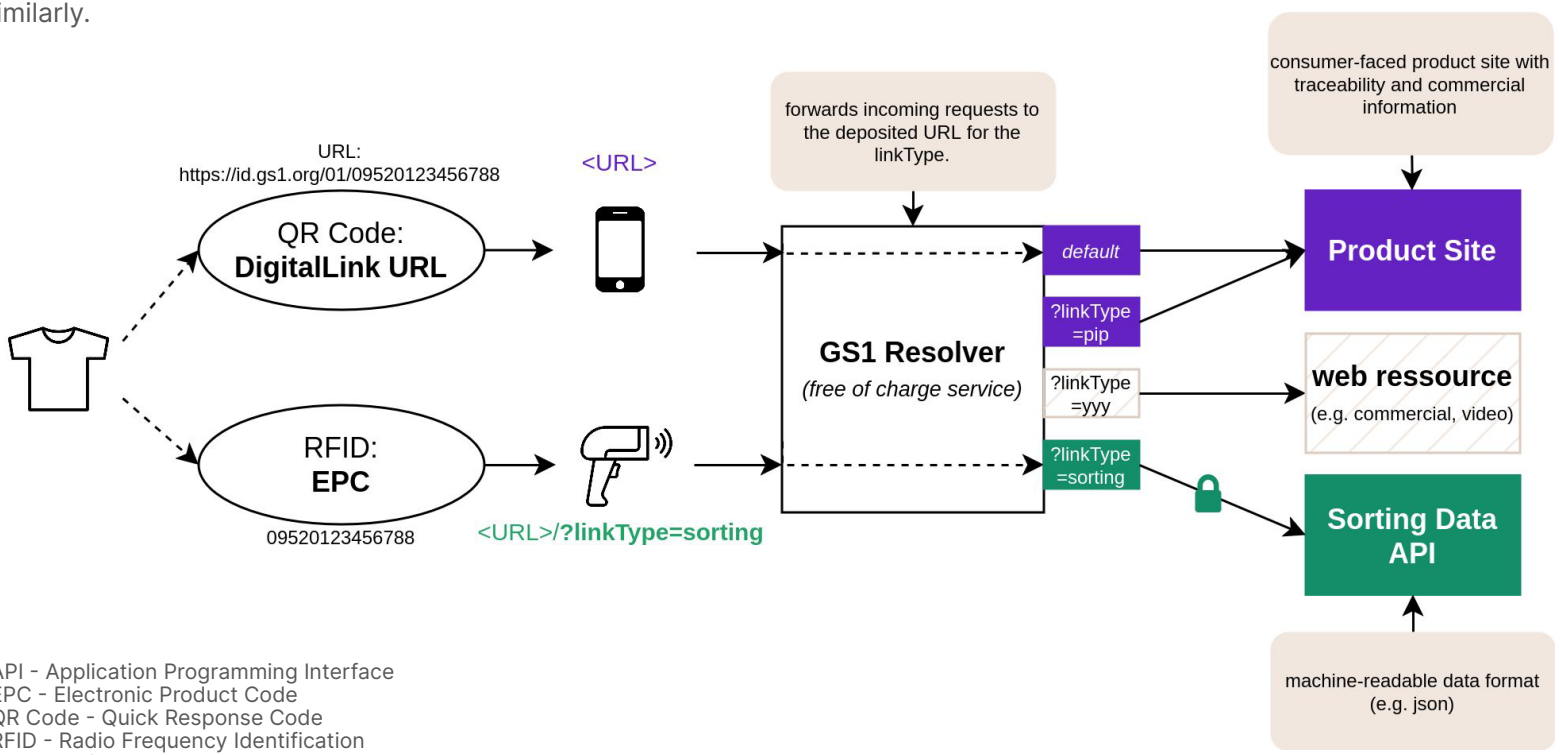
When data is exchanged that follows different standards, it is not automatically usable for all stakeholders. In order to translate between different standards, data mapping can be used. Data mapping is a tool - similar to an automated dictionary - to enable data translation by providing a mapping between the meanings of data in different standards. Sometimes, data points can be combined or split for translation. It is possible to develop tools for multi-directional data mapping, meaning that data can also be translated to multiple target standards, depending on what is needed for an efficient data exchange.



Mapping of information requires semantic interoperability - meaning it is only possible for information that is available both in the source and the target standard. The information also needs to be at least in the needed granularity. If an indication of a threshold value is required (e.g. "Product contains less than 3% elastane"), it can only be mapped if either a specific number is given (e.g. "2% elastane") or exactly the same threshold value is used in the source. A boolean specification ("contains elastane") cannot be translated into the desired statement. It is therefore advisable to save details as precisely as possible and - if they should be thresholded, filtered or aggregated for sharing - to only do this on the exporting step.

Data Exchange | Resolver Example: GS1 Digital Link

The aim of exchanging data is to provide each user with the information that they need. In order to allow different user groups to access different information sources through the same identifier attached to the product, the users need to be resolved or forwarded to different web sources. Which web source they receive can be decided depending e.g. on their user type or a parameter (in the graphic: “linkType”) they send. The software component that handles the forwarding is called a resolver. GS1 Germany is currently hosting a resolver that handles the so-called GS1 Digital Link. Resolvers on an EU level should work similarly.



API - Application Programming Interface
EPC - Electronic Product Code
QR Code - Quick Response Code
RFID - Radio Frequency Identification
URL - Uniform Resource Locator

Data Exchange | Takeaways

Next Steps

1. Create product websites for your customers to see the product data that you have assembled. This is a good way to promote your efforts towards a circular economy!
2. If you have your own data storage system, start to implement an Application Programming Interface (API) to make the data accessible. If you use a third party data storage service, ask how they provide machine-readable information.
3. Find a reverse supply chain stakeholder to test the API with.
4. Optional: Use the GS1 Digital Link Resolver to test the concept of resolvers.

Future Developments

- When a **data exchange format is mandated**, the chance is high that data mappings for common data standard will be provided. This means that if you have selected a common data standard for your information system, you - or the party that receives the data - can use the provided data mapping to match the needed format.
- A **centralized resolver** like the GS1 Digital Link Resolver could enable access to different sub-datasets via a single identifier. It could be hosted by the EU or by different service providers on an optional basis.

Access Management | Who Can Access Which Data?

The simplest approach to making data available is to make it publicly available to whoever tries to access it. If parts of the dataset that is needed for specific use cases should not be made publicly available, access management comes in. In the long term, a standardised solution for access management can be expected. For now, credentials to access data need to be given out on a bilateral basis.

	Publicly accessible	Shared with specific stakeholders
Mandatory dataset	Shared openly *Base dataset, e.g., product type, brand*	Shared through technical access management with stakeholder groups *E.g., detailed material composition shared with sorters or recyclers*
Additional optional data	Voluntarily shared openly *E.g., product description*	Voluntarily shared through technical access management with stakeholder groups or on bilateral basis on request *E.g., supplier information shared with certifiers*

Currently recommended

Access Management | Takeaways

Next Steps

1. Make sure that the website you created for customers is publicly accessible.
2. Gather additional data that you want to make available for reverse supply chain services and make it accessible (e.g. password protected) via standardised API. You can make the public information accessible without authentication.
3. Find reverse supply chain service providers (e.g. textile sorters or repairers) to run a pilot with.
4. On a bilateral basis, give your reverse supply chain stakeholders credentials to access the additional information you provide for their user group.

Future Developments

- Lists will be created of which information should be available to which stakeholders (based on the **need-to-know-principle**). This may require you to adapt your data lists and give certain stakeholders access to information.
- A **Single-Sign-On (SSO) solution** may be established in the long term, allowing stakeholders to identify as a certain type of organization. This will allow an access management system that doesn't need you to give out credentials on a bilateral basis. Instead, each stakeholder will be able to view the information addressed at them automatically.

Identifiers | Requirements and Identification Schemes

To enable a link between the physical product and the information on the web, product identifiers are needed. By attaching these identifiers to the physical product, a unique reference to the data entry is established. An identifier is initially a specific character string that can be attached to the product via a data carrier (such as a QR code).
Next to the product itself, also economic operators may get identifiers assigned to them, so they can easily be specified.

There are a number of requirements; the product identifier should be

- **unique**
  the identifier needs to be unique over space and time
- **interoperable**
  uniqueness needs to be ensured also in cases where different identification schemes are used in parallel
- **short**
  as space on the data carrier is limited, shorter identifiers are preferable
- **formatted or formattable as URL**
  there should be a standard in place on how to create a URL from the identifier
- **persistent**
  the identifier (and corresponding URL) needs to work over the whole lifecycle of the product, even if the issuing company or data owner ceases to exist
- **supporting granularity**
  ideally, the identifier is designed so it can be used for different levels of granularity, e.g. by providing a model-level base identifier that can be serialised by adding additional characters

Product Identification schemes

- GS1 identifiers: Global Textile Scheme augmentation for GTIN / EPC Code
- UUID
- IEC 61406-1 Identification Link
- ...

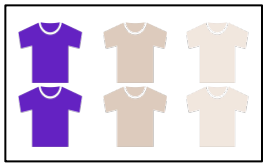
In the CIRPASS project, an alternative system architecture using Digital Identifier (DID) URLs for both products and organisations is also proposed. A description can be found here: https://cirpassproject.eu/project-results/

- unique operator identifier
- unique facility identifier

Organisation Identification schemes

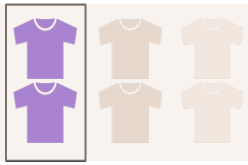
- Open Supply Hub for company and facility identification
- Global Location Number (GLN)

Product Identifier | Granularity



Model

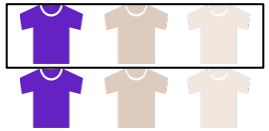
Commercial data such as brand or product description



Variation

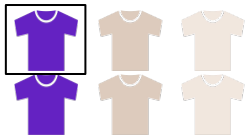
Static upstream data (e.g. colour or about material composition)

not considered for the DPP



Batch

Static upstream data (e.g. about origin)



Item

serialized

Dynamic data for recommerce, upcycling, rental etc. (e.g. condition of garment)

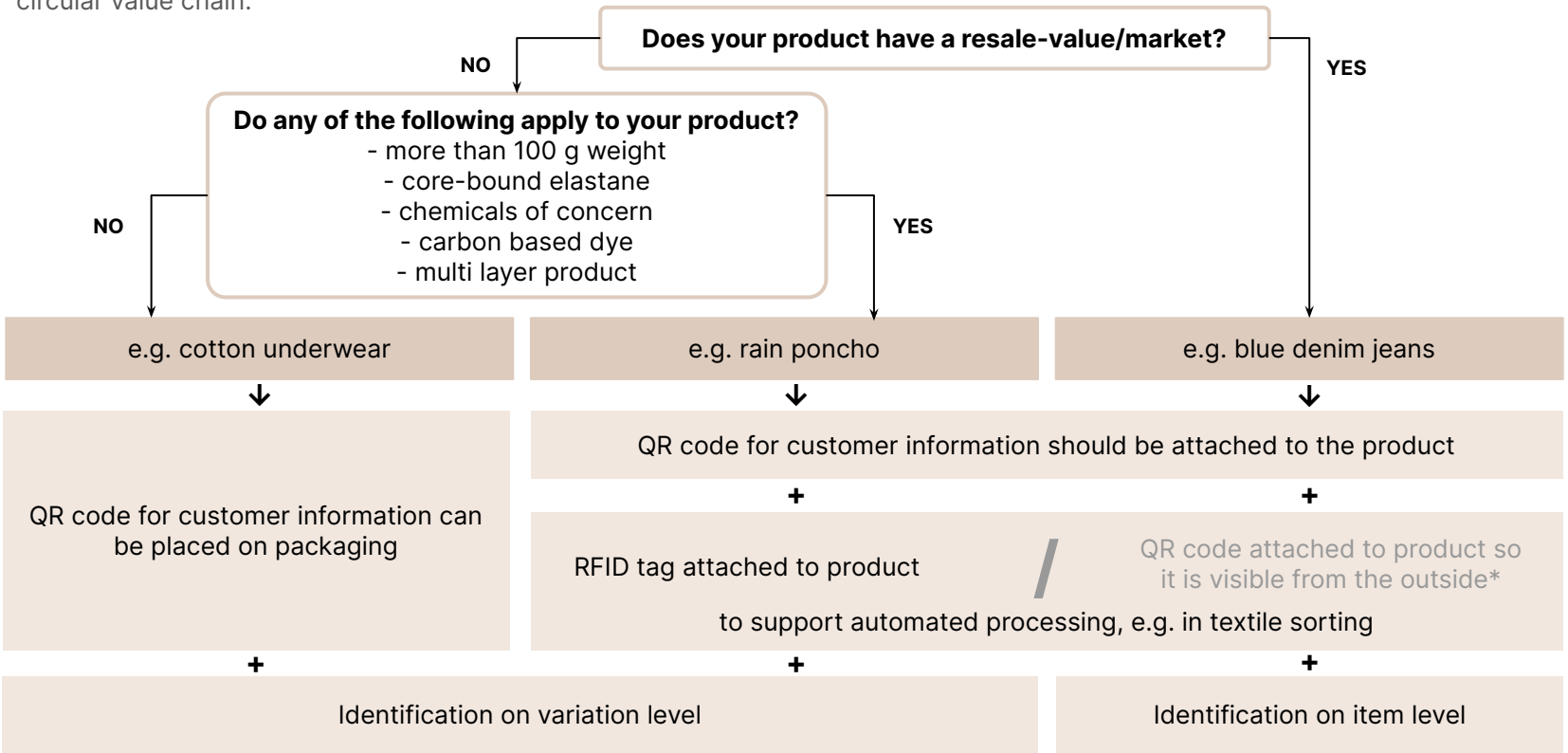
SERIALIZED IDENTIFIER ENABLE CIRCULAR BUSINESS MODELS

Incentives for users for trade-in (take-back)
Products prepare for resale online (current quality of used product and current photos)
Tracking of repair history
Rental services

PRODUCT MODEL DATA CAN STILL BE SAVED ON MODEL LEVEL

Data Carrier and Identifier | Decision Support

Depending on the product type, resale value and possibility for automated material detection, different data carrier and identification levels are advisable. In general, you should use a combination of QR and RFID to support all use cases along the circular value chain.



* It is not yet certain whether this option for automatic readout is indeed functional.

There are many potential suppliers for data carriers (contact circular.fashion to get to know suitable ones)

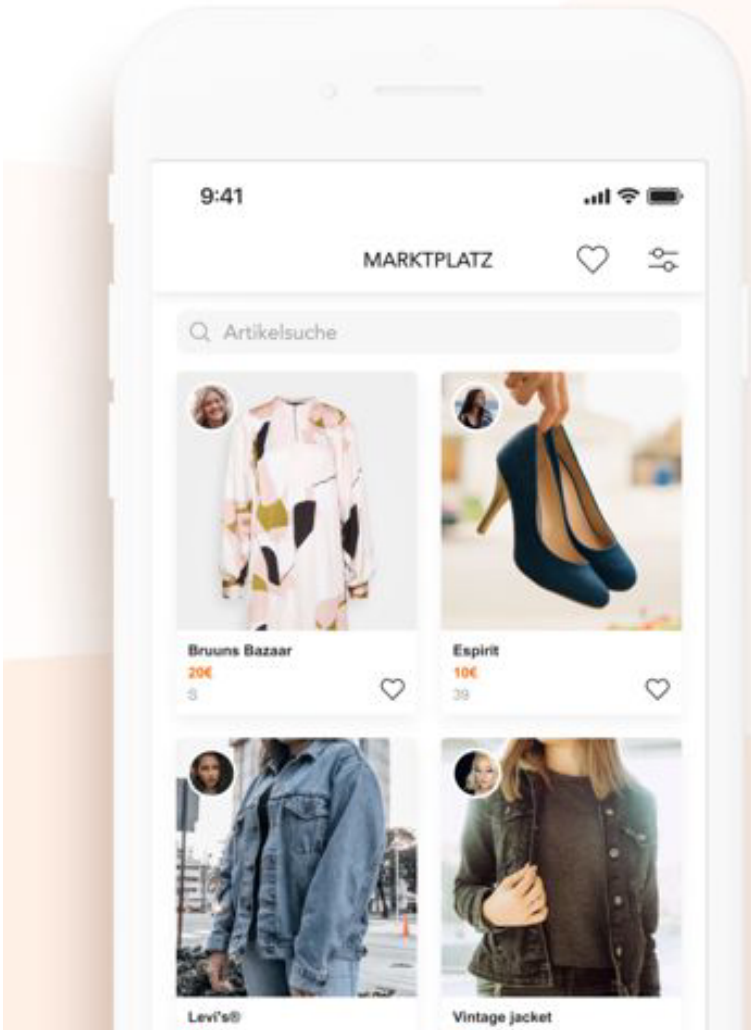
Online Retail

Next to the data carriers that are attached to the physical products, the identifiers also need to be made available **digitally**. This is especially important if your products are sold via **online retail**. The consumer needs to be able to find the product passport of your product before they make the purchasing decision.

Batch-level and serialised information will not necessarily be available at the point of putting products into the online store. However, model and variation level information can - and should - still be made available!

This can easily be achieved by **transforming a model/variation level identifier into a URL** and link it to a general product information web source for the product in question.

The EU stipulates that these URLs must be made available to online retailers, so that the DPP can be accessed from the webshop.



Data Carrier and Identifier | Takeaways

Next Steps

1. Use the decision support diagram to select the most suitable data carriers and identifier granularity.
2. Choose an identifier standard and order/create the identifier(s) for your product(s). Create URLs out of your identifiers. Make sure the URLs are linked to your product information.
3. Choose a data carrier product from a data carrier supplier. Communicate your plans with them what URLs the data carriers should carry. Send them the URLs.

Make sure that it is clear to the garment manufacturers which garment to sew the data carriers in. RFIDs and QR codes look very similar from the outside, even if they belong to completely different products.

Future Developments

- the standardization committee of CEN/CENELEC can be expected to propose suitable standards for identifiers, and the EU Commission will follow. There will probably also be specifications for product types regarding the data carriers.
- Possibly, QR codes are also suitable for automated processing of DPPs if placed so that they can be scanned from the outside of the product. In that case, it may be possible that RFID tags are not needed. This is not yet clear.

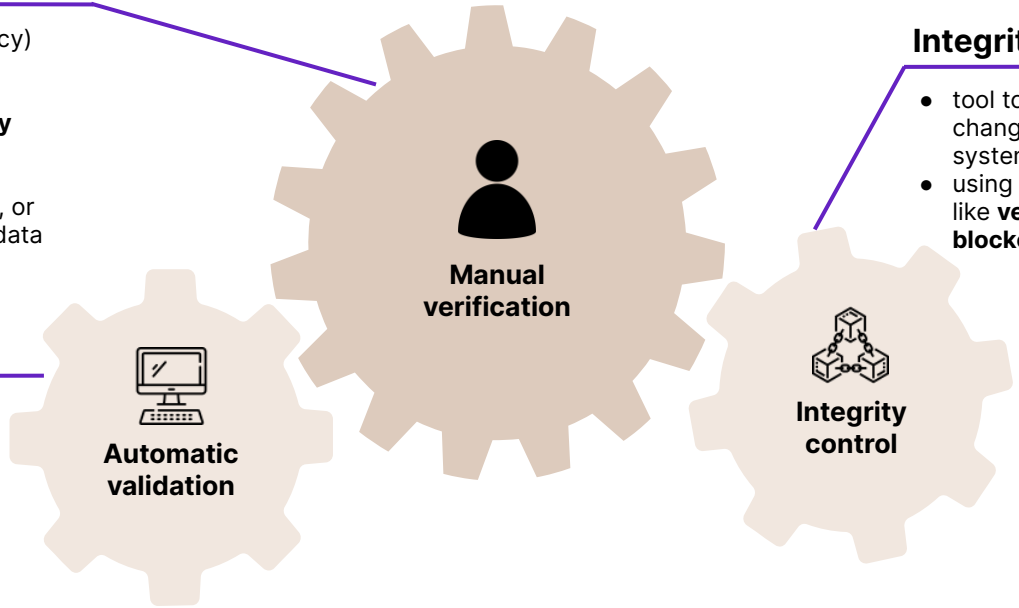
Verification, Validation and Integrity Control

Verification | manual

- tool to ensure data quality (accuracy)
- can be performed
  - **internally** by the data owner
  - externally through a **third-party auditing process**
  - through **certification**
- either data can be audited directly, or the processes used to gather the data

Validation | automated

- tool to avoid small errors and have a good basis for verification
- can check for
  - data **availability**,
  - **reasonability**,
  - **data format usability** with your software
- cannot check for accuracy



Integrity control | automated

- tool to make sure data is not changed after adding it to the system
- using unchangeable data methods like **versioned databases** or **blockchain** technology

As some of the data gathered around a product can be expected to be incorrect, it is necessary to establish structures for data **validation** and **verification**, as well as for **integrity control**. This should include a process for **verification** and **supply chain tracking**.

Verification, Validation and Integrity Control | Takeaways

Next Steps

1. In cooperation with your data storage service provider, define a concept for validating the data in the system. Keep in mind that this does not replace verification, but is a good basis.
2. Start setting up processes to also verify the data. Opt for an internal or external auditing process.
   a. If an internal process is preferred, the next step is to define rules that can be used to objectively and reproducibly check the correctness of the data.
   b. If an external process is preferred, the next step is to look for a third party to perform the validation.

Establishing these structure will take time and should not block other steps needed in the process to making product data available.

Future Developments

- Regulations on how data should be verified can be expected to be established. Data auditing service providers will probably be able to adapt to the requirements.
- It is possible that false declarations will be subject to penalties in the future.

Actionable Summary

Getting Ready for DPP | The 3×3 Path to Success

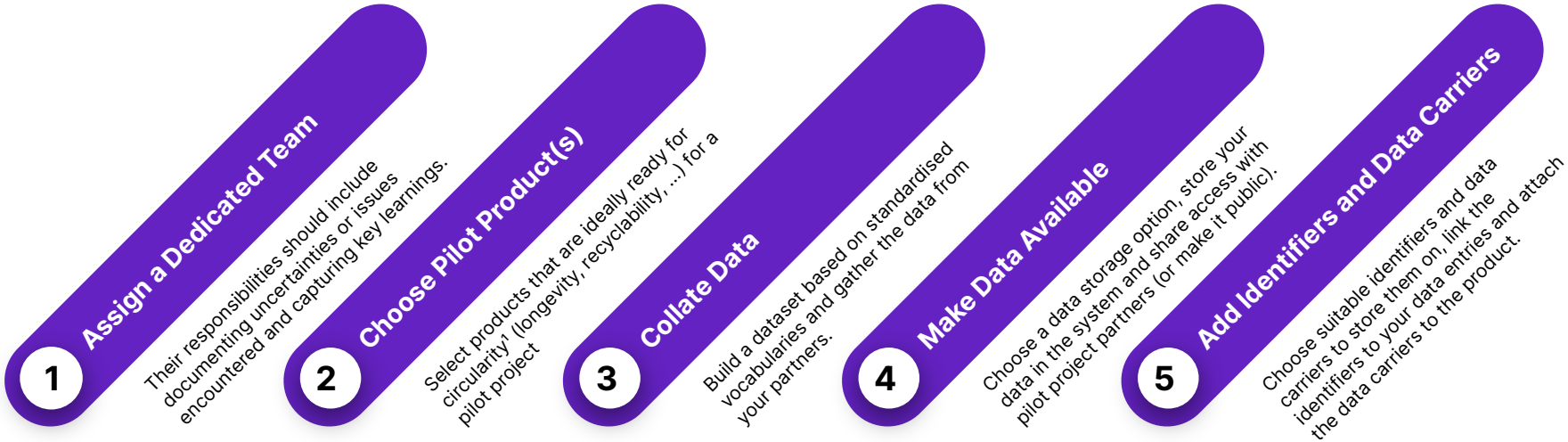
Since this guideline is developed concurrently with ongoing discussions around the Digital Product Passport on in the EU, it is recommended to keep up to date with the developments while piloting, evaluating and implementing what is already possible. This graphic summarises the different areas to pay attention to.

	01 Inform & Shape Legislation	**02 Pilot & Evaluate**	**03 Empower & Implement**
Organizational	• Check ESPR & Delegated Acts • Follow & contribute to projects and public consultations	• Define DPP responsibles • Start pilots & collaborations • Identify potential business potentials	• Set strategy & KPIs / OKRs • Implement processes & partnerships • Unlock new business opportunities

Data Layer	• Identify and contribute to
	  ○ required data points
	  ○ data standards
		• Identify & map available data
		• Fill identified gaps
		• Analyze & apply existing standards
			• Implement data collection
			• Contract data requirements
			• Include suitable standards

Tech Layer	• Identify & contribute requirements of
	  ○ tech aspects
	  ○ interoperability
		• Analyze current IT system and gaps
		• Identify potential solutions
		• Pilot solution providers
			• Define how to take action on all aspects of the DPP
			• Spec IT systems
			• Select solution providers
			• Implementation

Getting Ready for DPP | The First Five Steps to Get Started



[1]You can use the CDC (Circular Design Criteria) tool to verify this

Following these steps will help you to get started with the most essential parts of the information infrastructure first, making sure you are able to get the first DPP-ready products out and start learning in the process. In the next steps, more enhanced ways to store and exchange information and for access management can be explored. A system to verify and validate data should be established and the identification and data carriers can be improved. You can follow the steps from the 3×3 path to success and the “next steps” boxes throughout this guideline.
circular.fashion offers consulting services that can help both with designing circular products and getting ready for a reverse supply chain. Check out the circular.fashion services here: https://circular.fashion/en/services/workshops.html

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SCIRT.

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