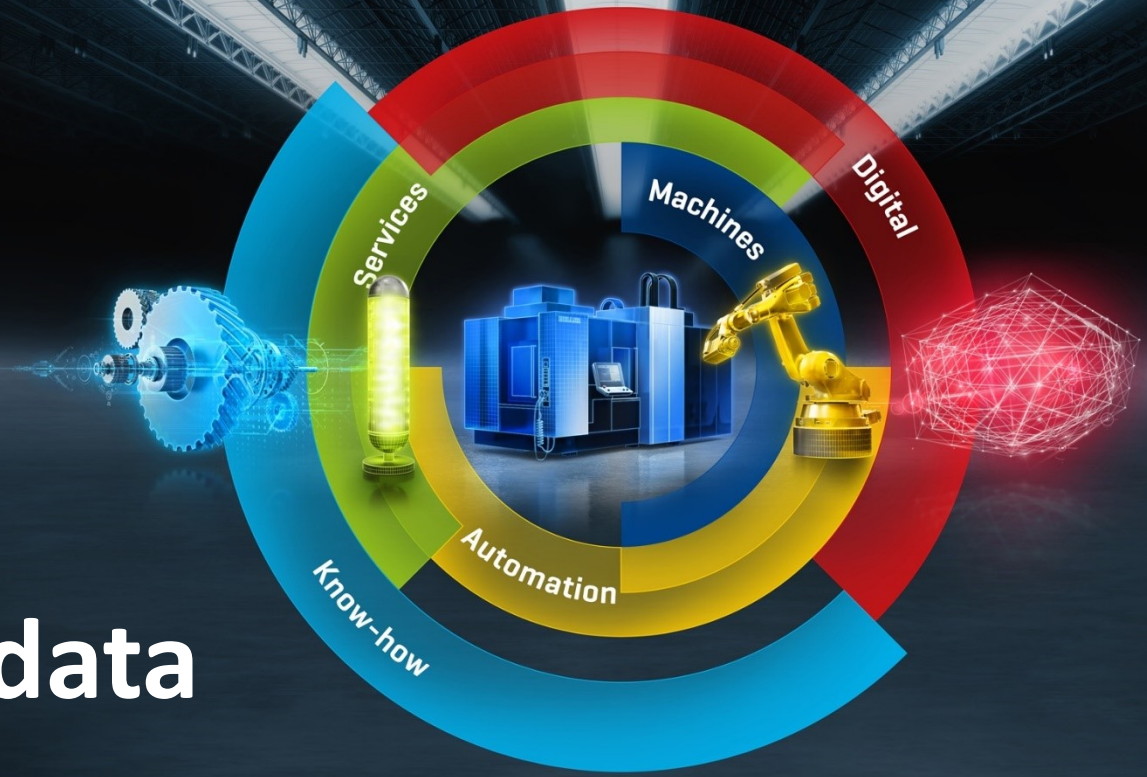
HELLER



iiRDS company-wide - Expanding metadata and data sources sensibly

Fabienne Rothenberg [plusmeta] | Niko Schad [HELLER]

Who are we?

Niko Schad
Head of Technical Documentation

Gebr. HELLER Maschinenfabrik

- Machine tool manufacturer from Nürtingen
- 2,600 employees worldwide at 5 production sites in Europe, Asia and North and South America
- Sales of individual machines through to fully automated turnkey production systems
- Customers from the automotive industry and its suppliers, general mechanical engineering, energy technology, fluid technology, aerospace and many other sectors

Fabienne Rothenberg
Team Leader Consulting

plusmeta GmbH

- **Software** company from Karlsruhe, Germany
- Use of AI for **automated metadata allocation and information process automation**
- Creation of **standard exchange formats** (iiRDS, VDI 2770, AASX, etc.)
- **Preparation** of documents for modern applications such as CDP

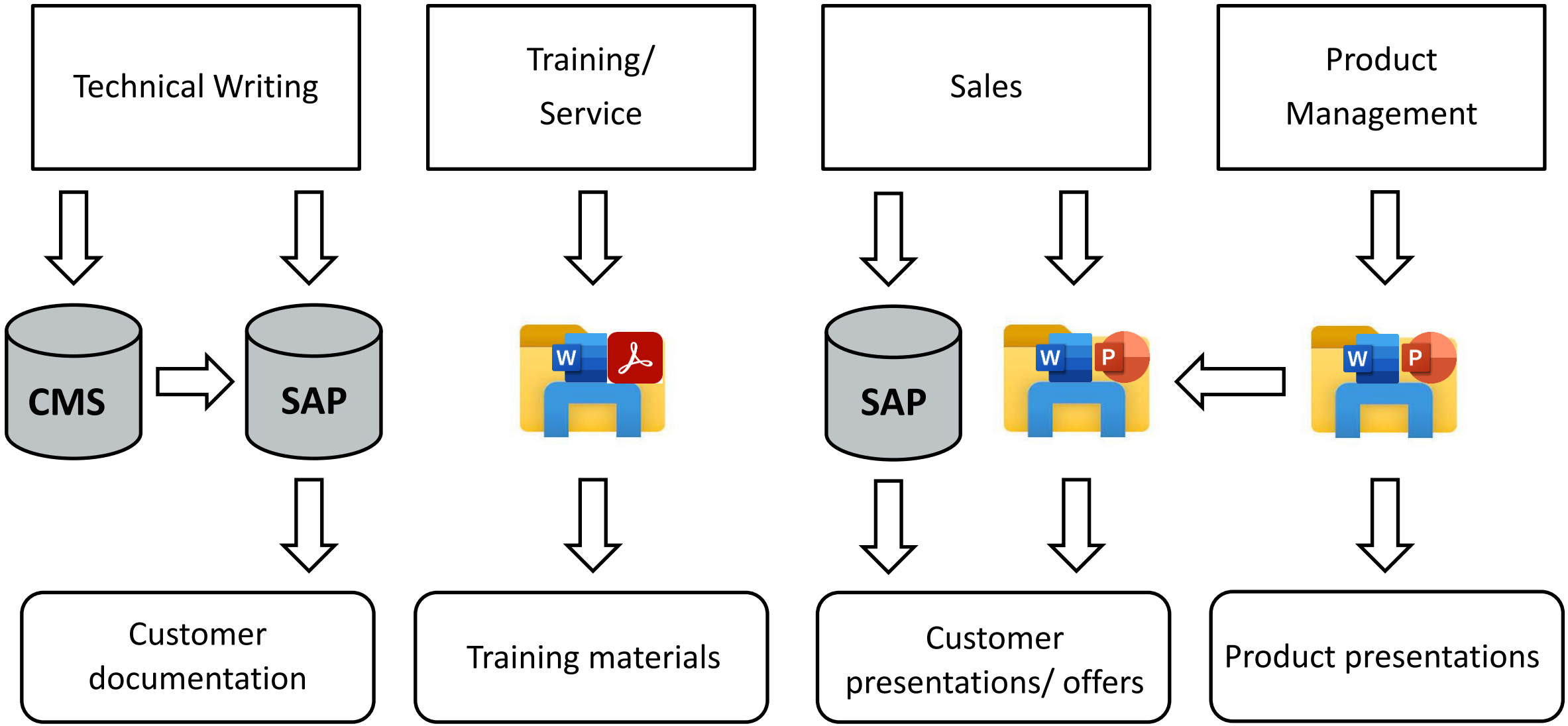
Agenda

_Initial Situation and Objectives
_iiRDS basics
_Data Silos & Information Sources
_Mapping of existing metadata concepts to iiRDS
_Extension of the iiRDS standard for internal use
_Presentation of the processing route from the data sources to the information portal
_Conclusion and Outlook

The Project

Initial Situation and Objectives

2015 Initial situation at HELLER (simplified excerpt)



2015 Focus & Goals

_ Possibility of switching to paperless documentation from 2024

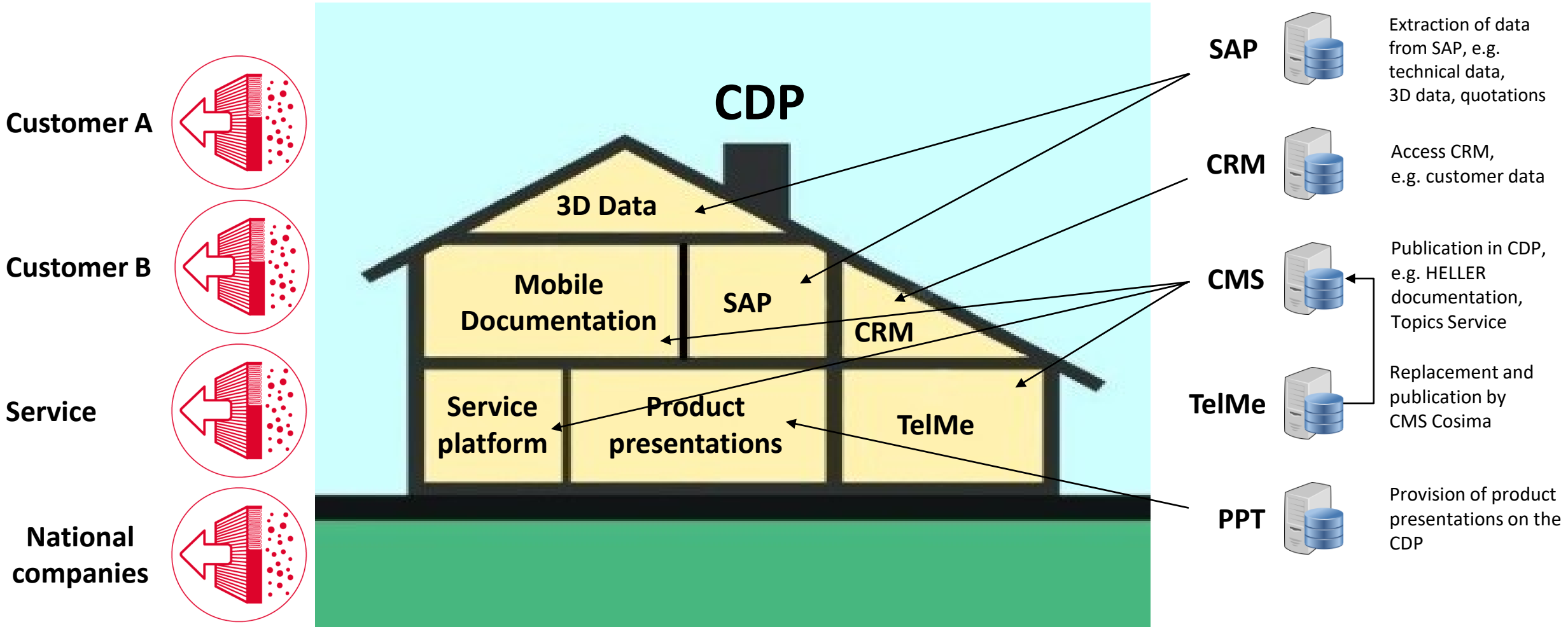
_ Customer- and target group-centered provision of (partially granular) content in all required languages for all target markets

_ Creation of a standardized format to be able to supply both our own portals and customer portals with content in the future

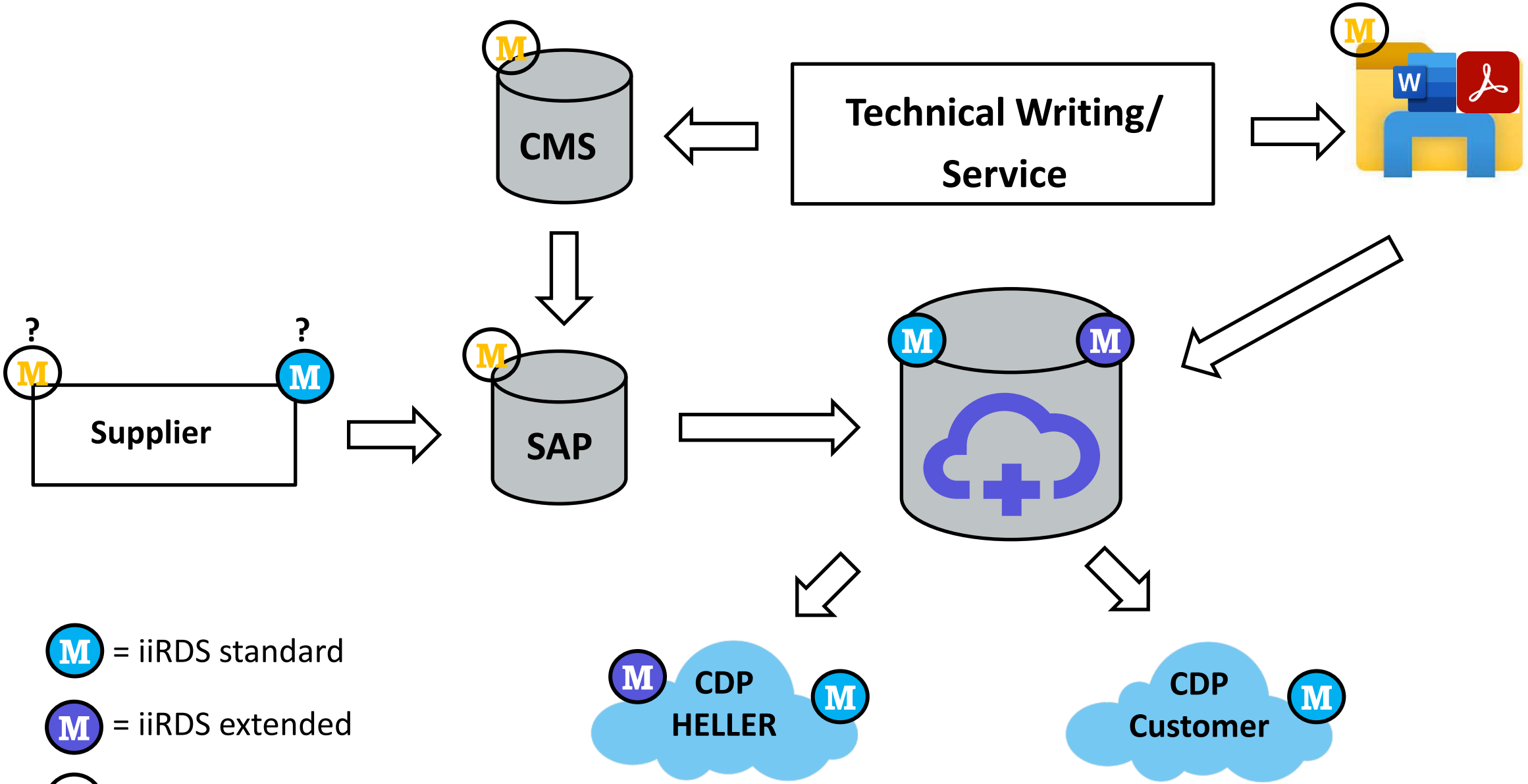
_ Supporting our service technicians, bases and national companies with multimedia content, especially how-tos and step-by-step instructions

_ Support for sales through direct access to relevant content from all involved specialist departments in order to be able to provide information without prior queries

2015 Idea for the Introduction of a Content Delivery Portal



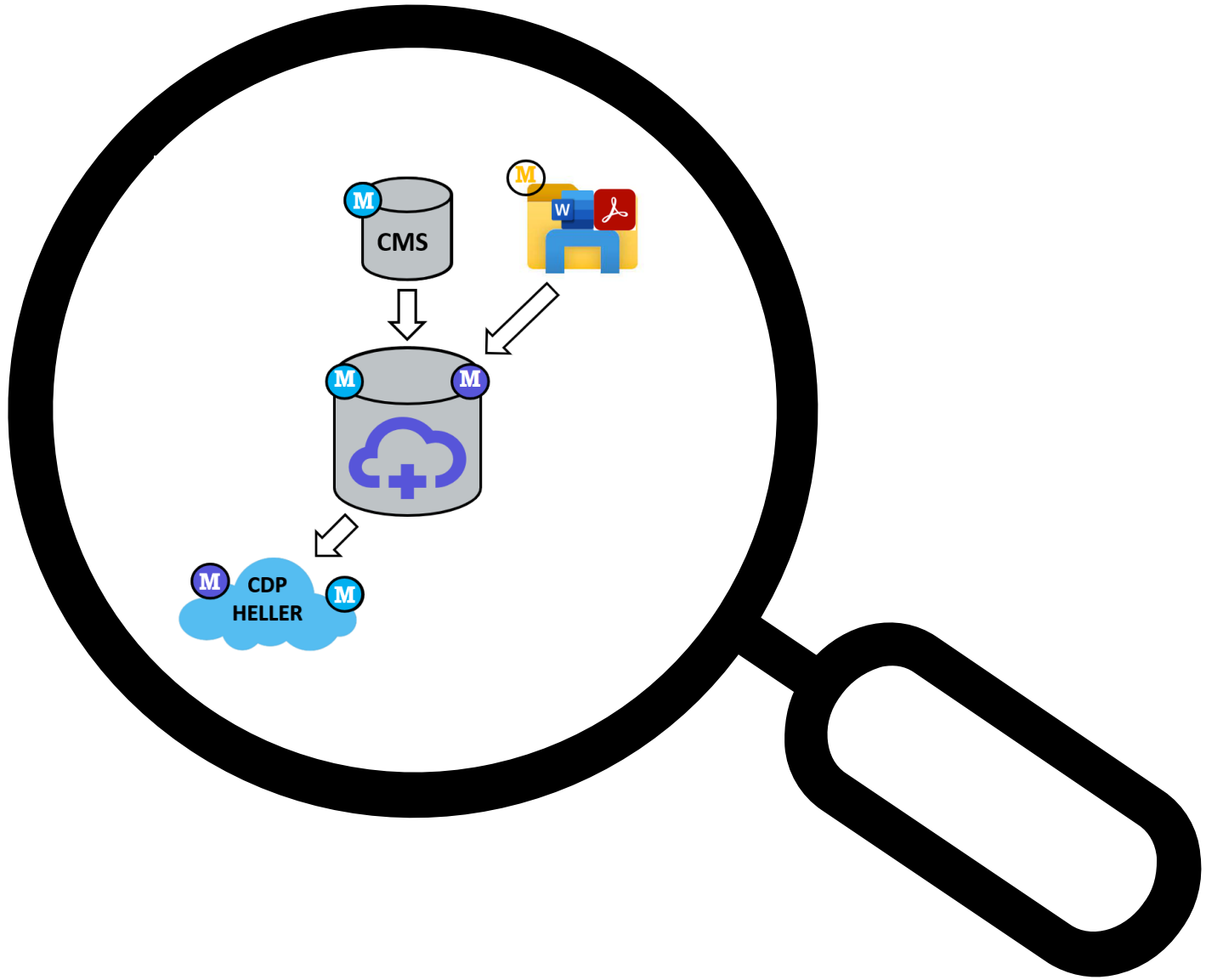
Process simplified for Technical Writing/ Service



Fokus für diesen Vortrag

Training/
Service

Training materials

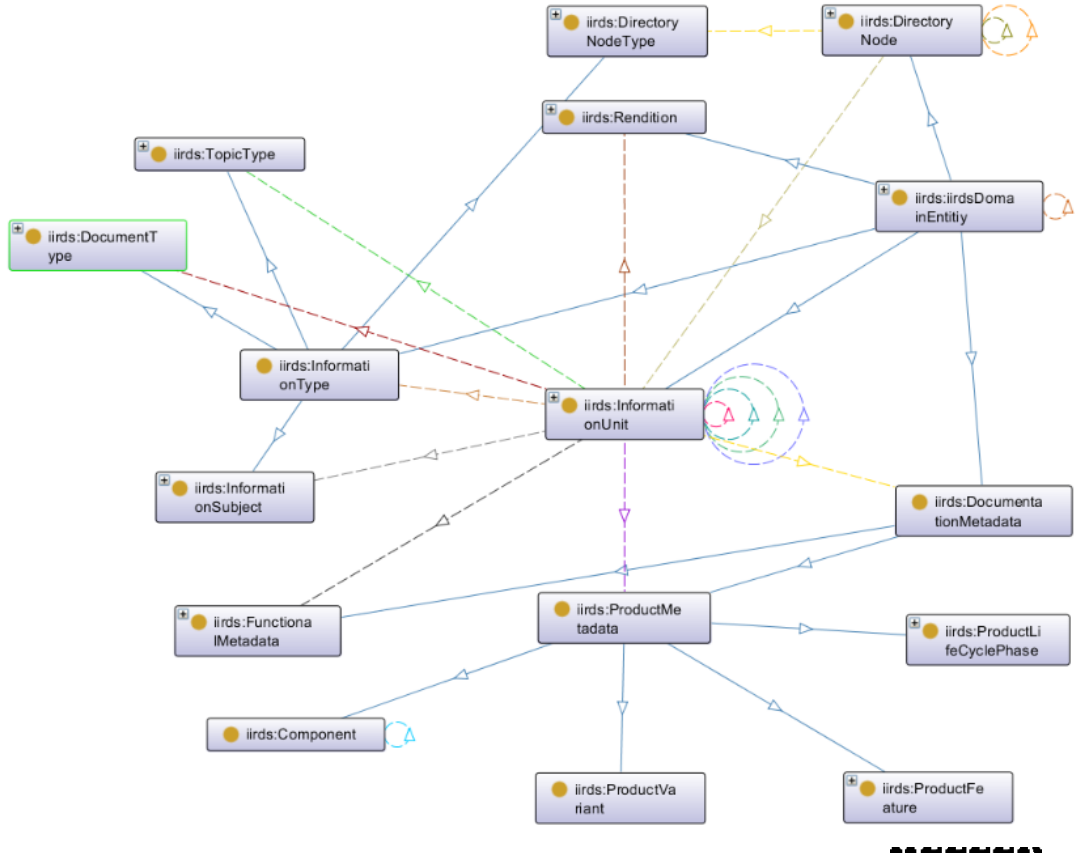


iiRDS

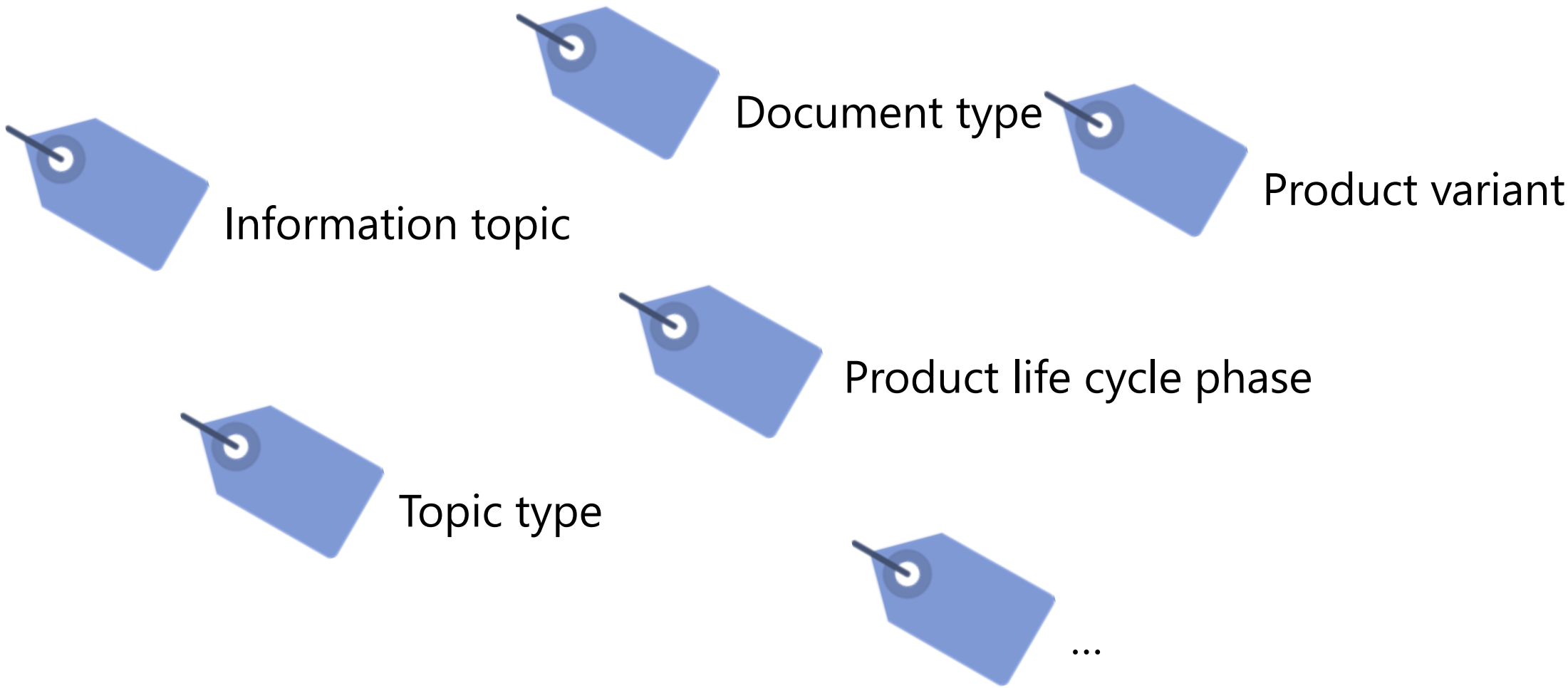
Basics

iiRDS – intelligent information Request and Delivery Standard

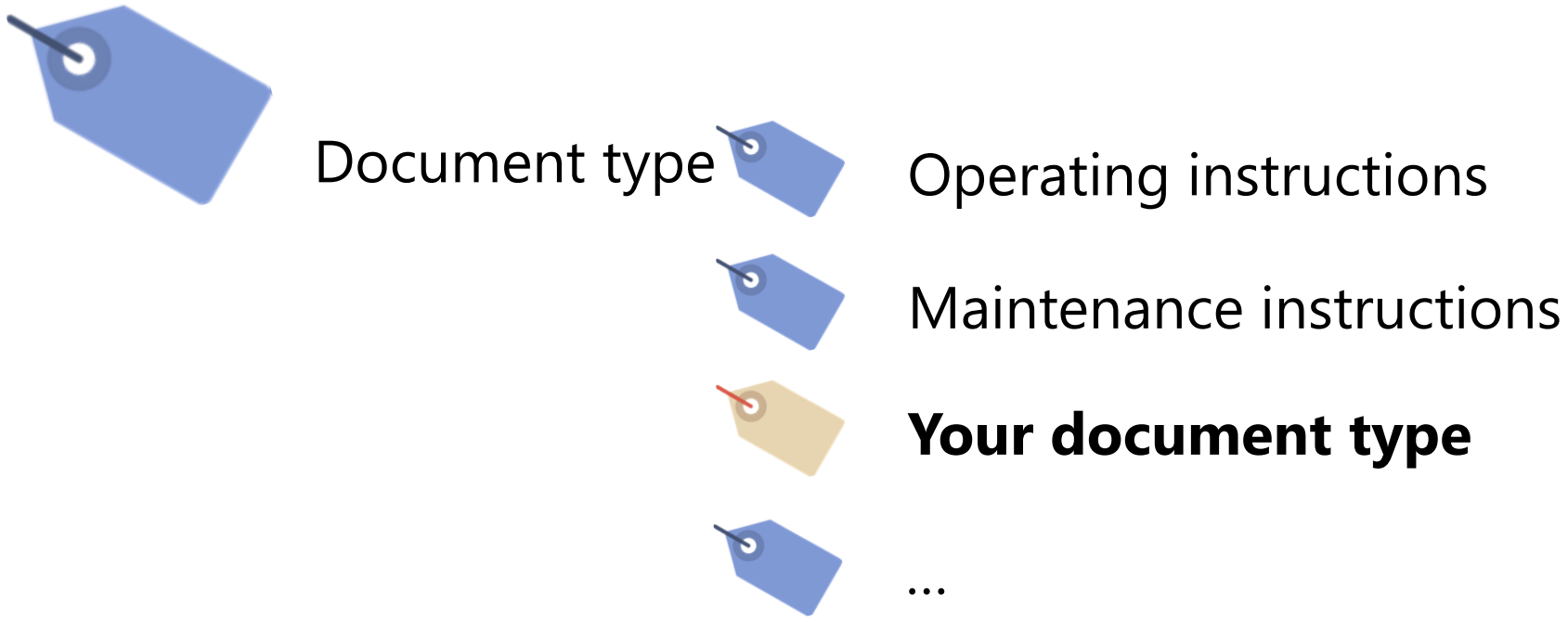
_Standard for the exchange of digital technical documentation
  _Metadata model (RDF domain ontology)
  _Container format
_Open source
  _Freely available specification
  _RDF schema as the basis for metadata
_Developed by the iiRDS consortium (iirds.org)
  _Founding members include HELLER, Empolis & plusmeta
  _tekom e.V. as organizer and "Leading Member"



iiRDS Metadata

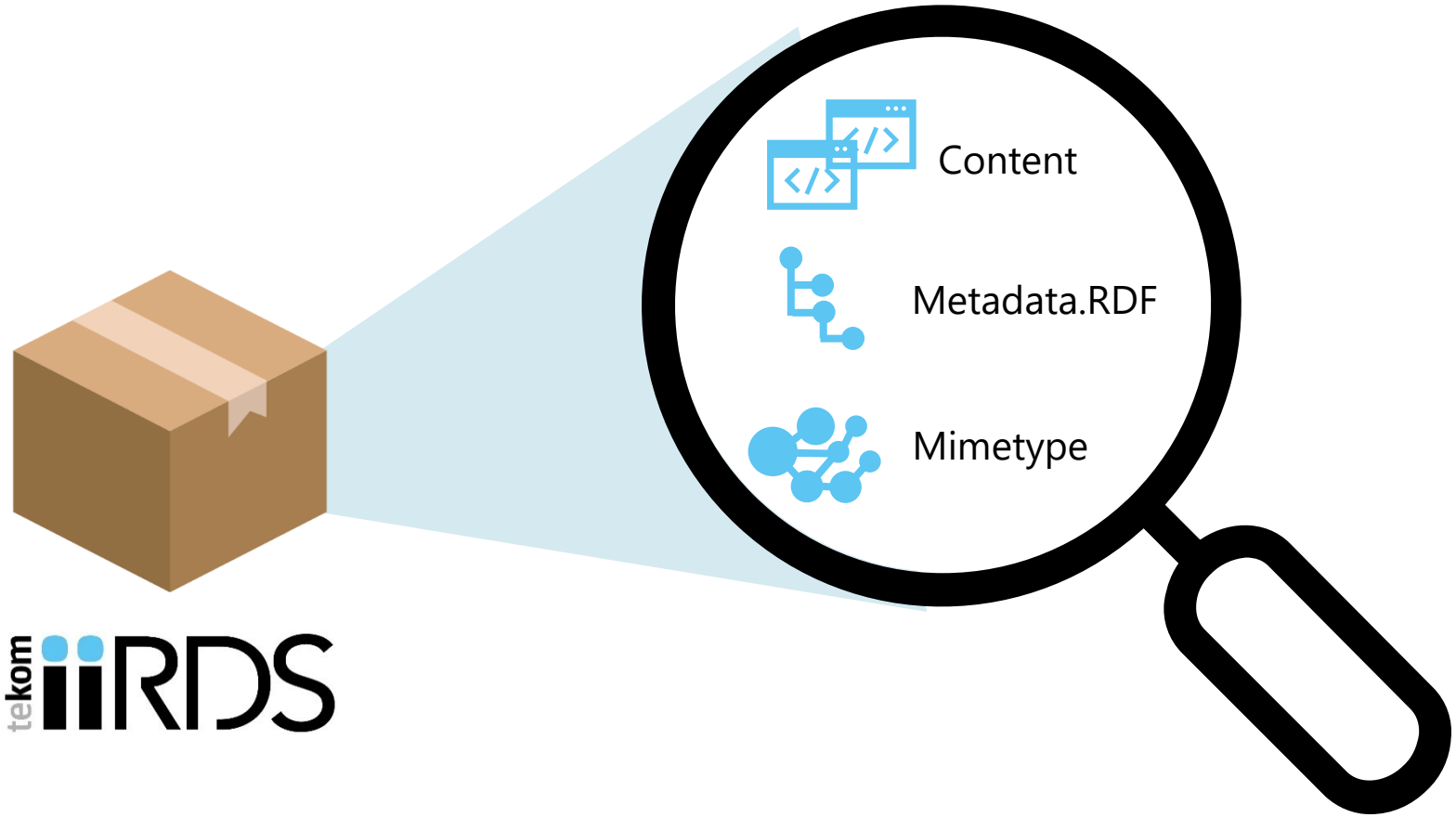


Own metadata values



Own metadata values

What is in the iiRDS package?



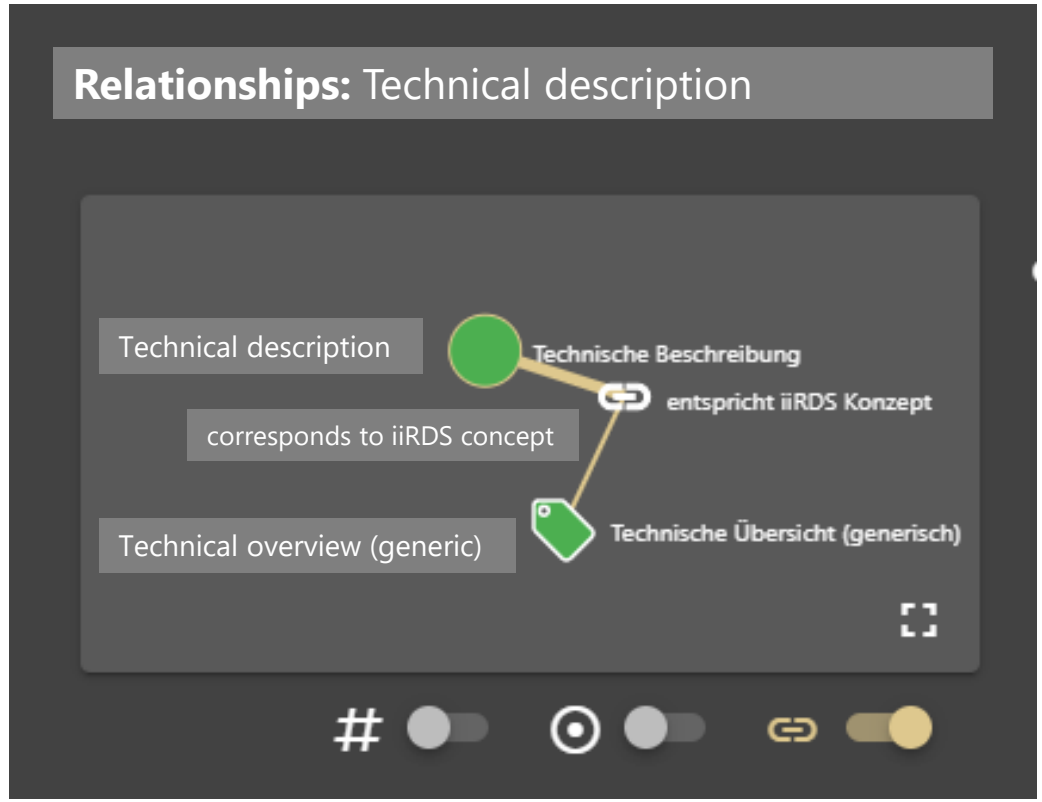
Standardized Metadata

_Reasons for standardized metadata

- _Avoid vendor lock-in, ensure interchangeability
- _Use best practices, apply industry standards
- _Use standard APIs, e.g. for content delivery
- _Harmonize data sources across the board

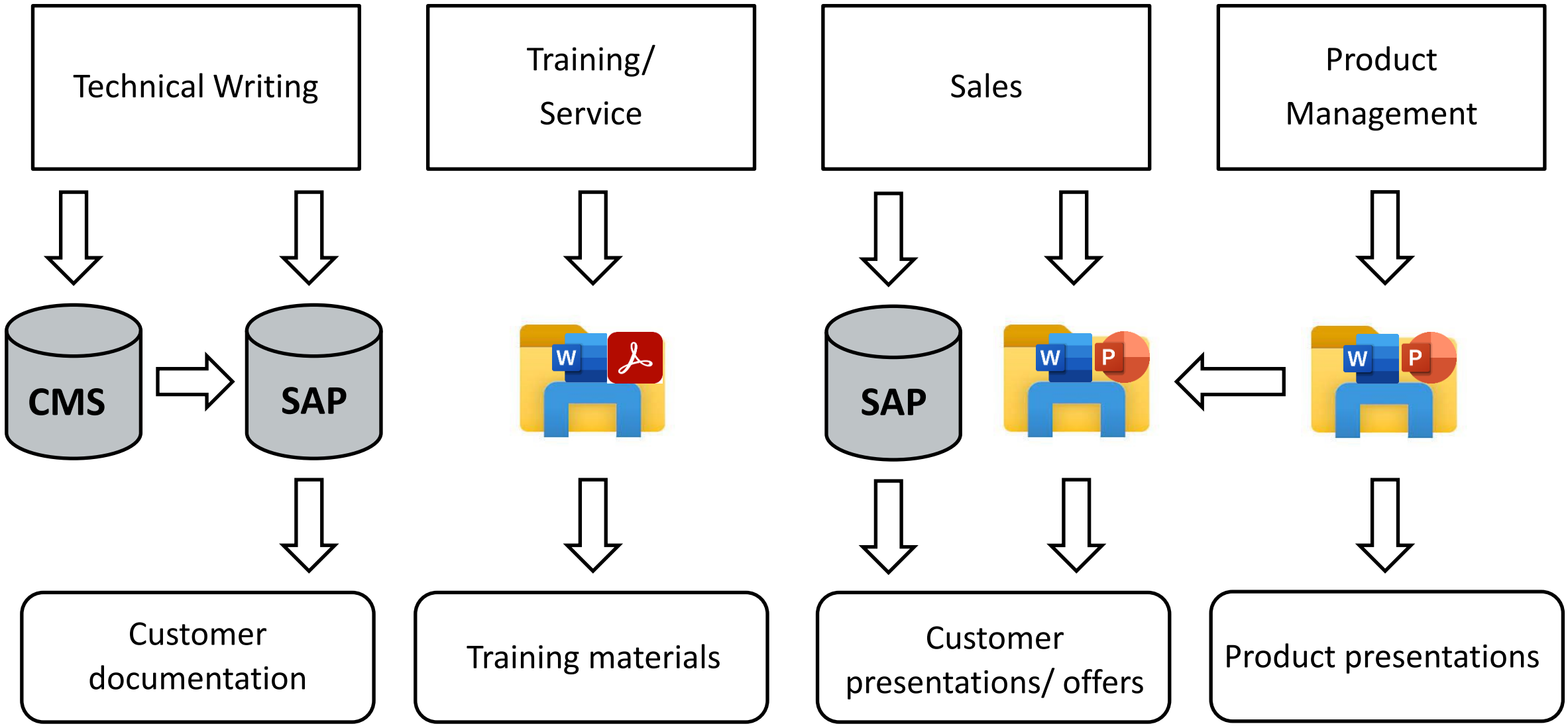
_Typical activities

- _Map your own metadata model (mapping)
- _Define extensions (modeling)

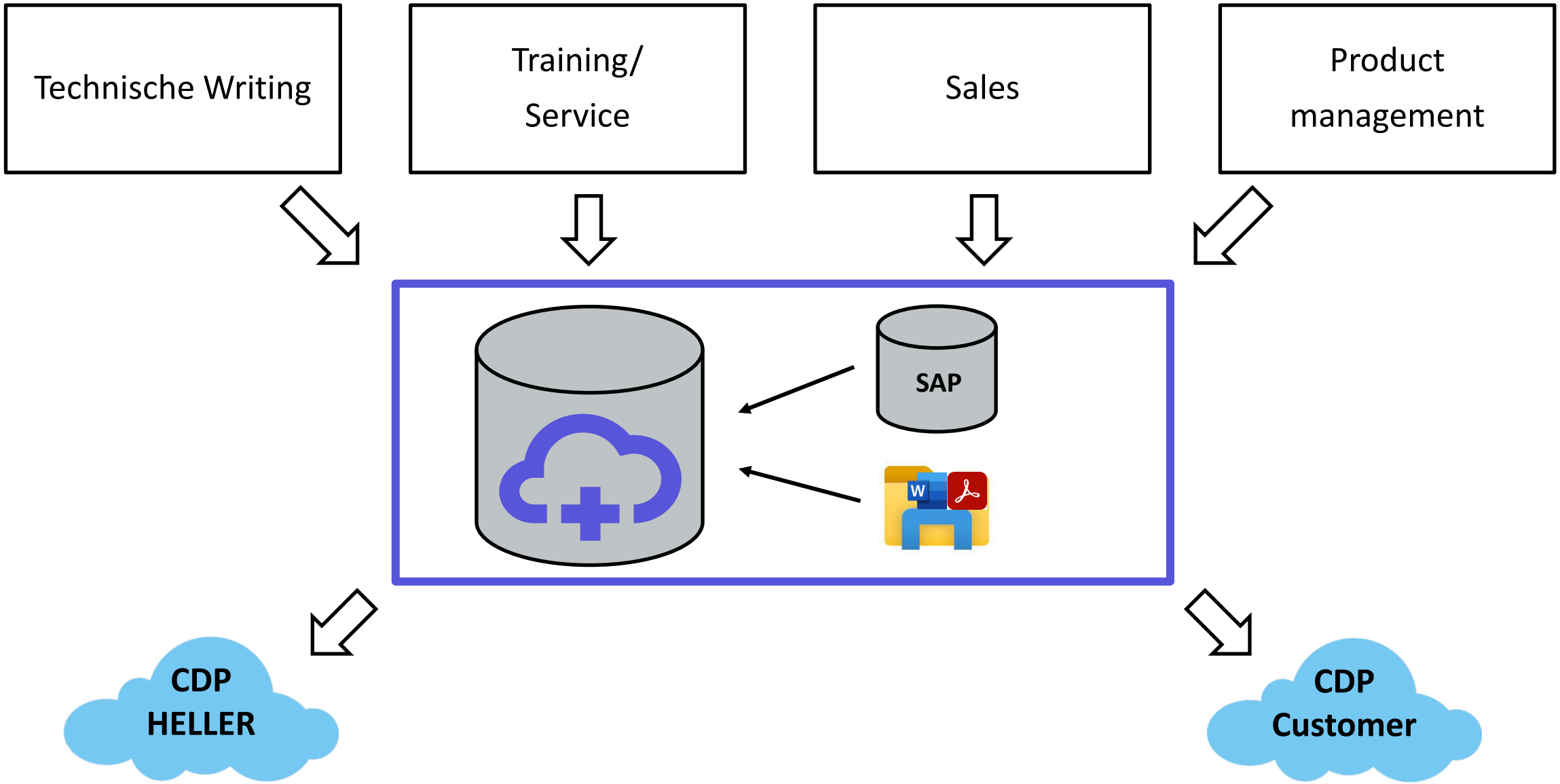


Data Silos & Information Sources

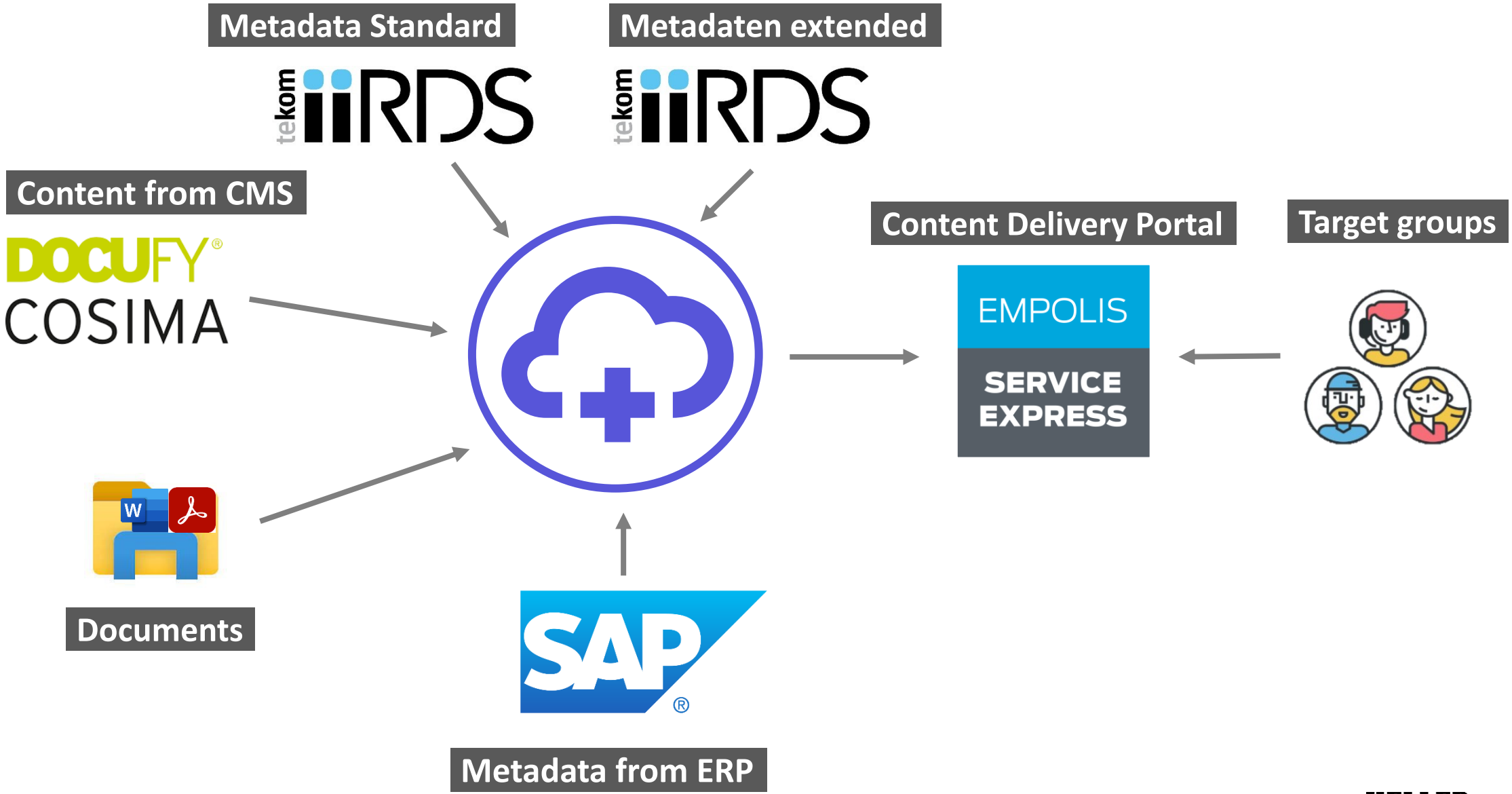
Breaking up data silos is necessary



Breaking up data silos & connecting data



Metadata platform plusmeta



Information sources at HELLER

_INTERN: Structured CMS content

_Current situation

- _XML-based content management system (Docufy COSIMA)
- _Inventory documents mainly as PDF documents (also scanned)
- _Own inventory metadata

_Vision

- _Standardized metadata for data exchange with customers
- _Automatic mapping of HELLER/iiRDS metadata
- _User-oriented metadata for content delivery (use of own terminology where possible)

_EXTERN: Digital supplier documentation

_Current situation

- _Diverse data on purchasing and file storage (mainly PDF documents + other file formats)
- _Manual assignment to product documentation (per machine number)
- _No standardized metadata

_Vision

- _Supply of documentation with already standardized metadata
- _Supplier portal with metadata functionality incl. quality control (traffic light system)
- _Standardized documentation deliveries from suppliers according to iiRDS/(VDI 2770?)

Mapping

from existing metadata concepts in iiRDS

Mapping

from existing metadata concepts in iiRDS

- Machine type
- Function group
- Document type
- Control

Cosima

- Manufacturer
- M-Number

SAP

- Assembly group
- Machine type
- Service categories
- Service activities

Service Platform

- Control

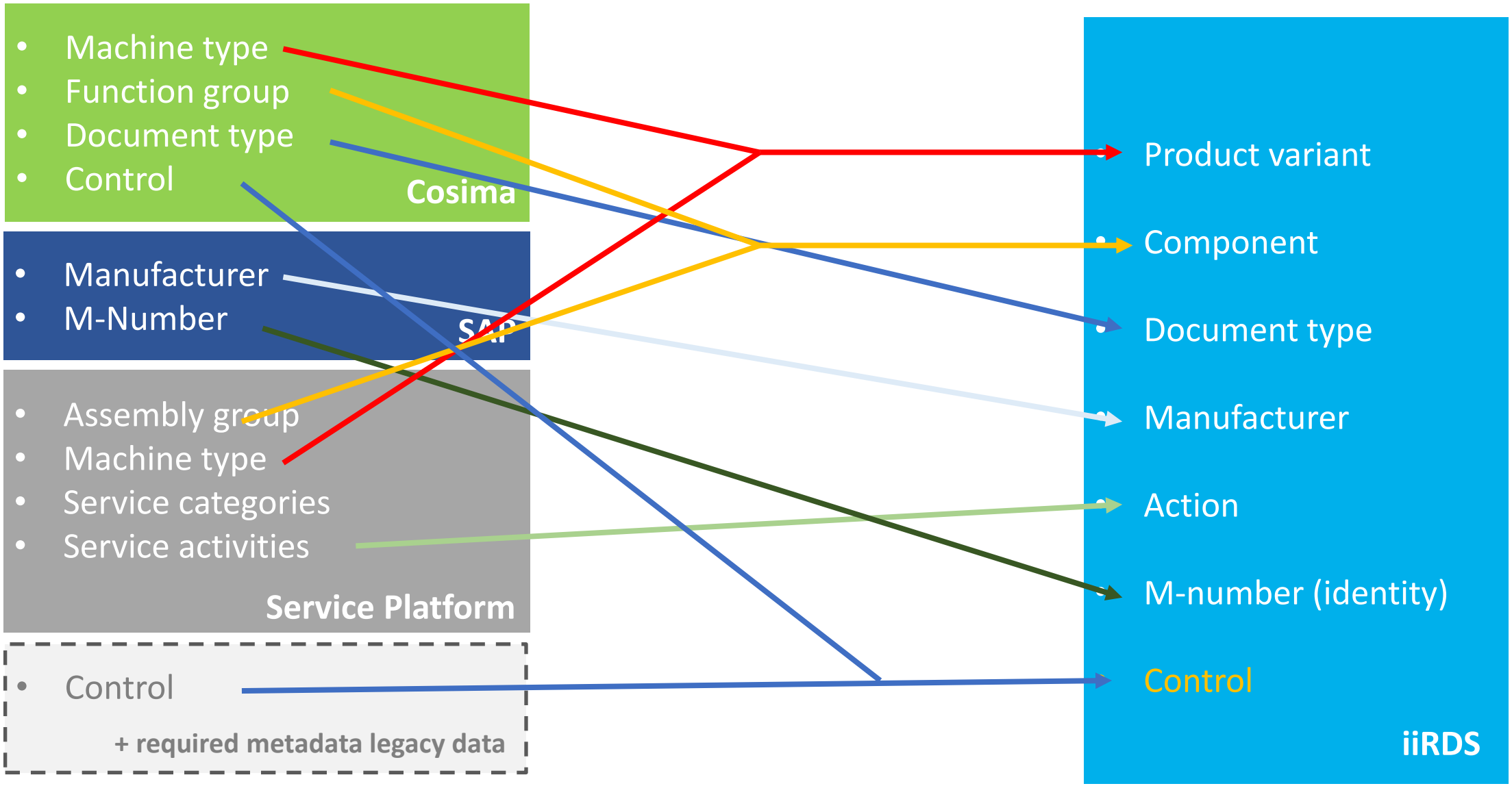
+ required metadata legacy data

- Product variant
- Component
- Document type
- Manufacturer
- Action
- M-number (identity)
- Control

iiRDS

Mapping

from existing metadata concepts in iiRDS



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Service Platform

- Control

+ required metadata legacy data

Operation
Supplier information
Electrical diagram
...

→ **Operating instructions**
→ **Plan**

- Product variant
- Component
- Document type
- Manufacturer
- Action
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iiRDS

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from existing metadata concepts in iiRDS

- Machine type
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S

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+ required metadata legacy data

Operation → Operating instructions
Supplier information → Operating instructions
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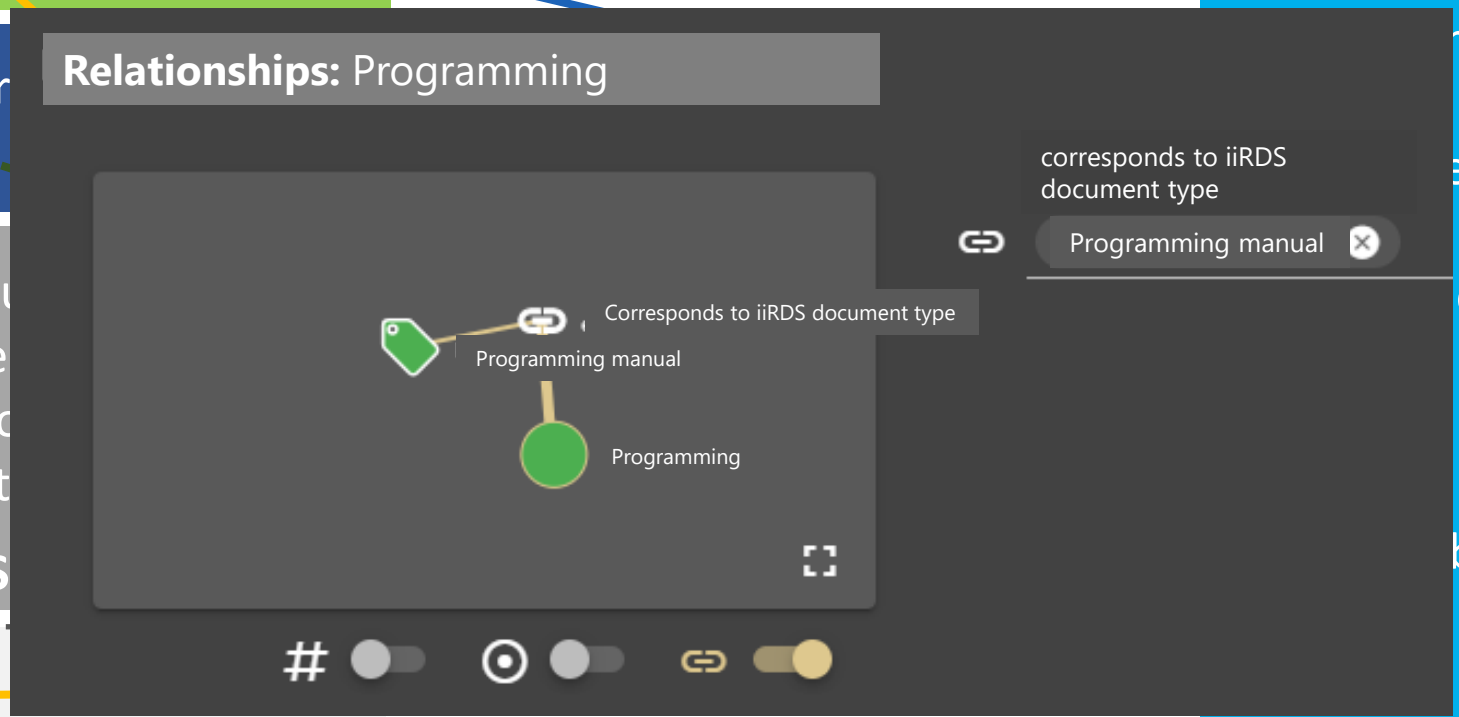


- Product variant

nent

ent type

cturer

ber (identity)

iiRDS

HELLER

Mapping

from existing metadata concepts in iiRDS

- Machine type

```
<iirds:IdentityDomain rdf:about="https://www.heller.biz/data#MachineNumber">
  <rdfs:label>M-Nummer</rdfs:label>
  <iirds:has-identity-type rdf:resource="http://iirds.tekom.de/iirds#SerialNumber"/>
```

```
<iirds:Document rdf:about="urn:uuid:d631a52d-217d-4b70-85c8-6add080cd738">
  <iirds:title>Sachnummern Dok. 1</iirds:title>
  <iirds:is-part-of-package rdf:resource="urn:uuid:cb829bad-e04c-470c-bef8-4e936dacc5aa/package"/>
  <iirds:has-identity>
    <iirds:Identity>
      <iirds:identifier>M12345</iirds:identifier>
      <iirds:has-identity-domain rdf:resource="https://www.heller.biz/data#MachineNumber"/>
    </iirds:Identity>
  </iirds:has-identity>
```

- Service activities

Service Platform

- Control

+ required metadata legacy data

- M-number (identity)
- Control

iiRDS

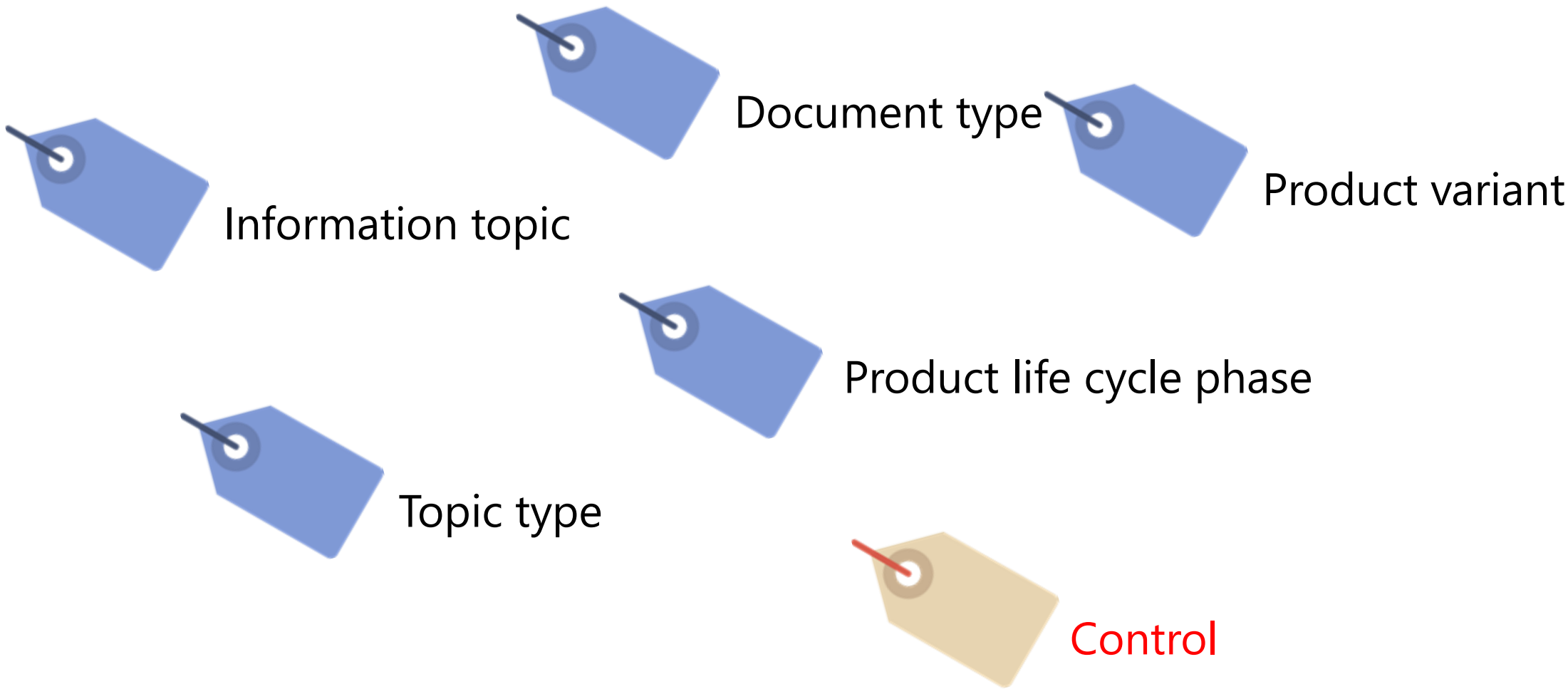
Extension

of the iiRDS standard for internal use

Questions we asked ourselves when mapping to iiRDS

1. What metadata do we already have? --> Collection of all existing metadata
2. Is there duplicate metadata and can it be standardized?
3. Which metadata do we need for use in portals?
4. Which metadata can be mapped with the iiRDS standard?
5. Which additional metadata do we absolutely need for internal use/acceptance?

Example for the extension of metadata



Example for the extension of metadata

Document type

Operating instructions

Maintenance instructions

Service platform

Service legacy data

Example for the extension of metadata values including their hierarchies

Dokument type

- Operating instructions
- Maintenance instructions
- Service notification official
  - Mechanics
  - Electrics
  - Fluidics
- Service notification unofficial
  - Mechanics
  - Electrics
  - Fluidics

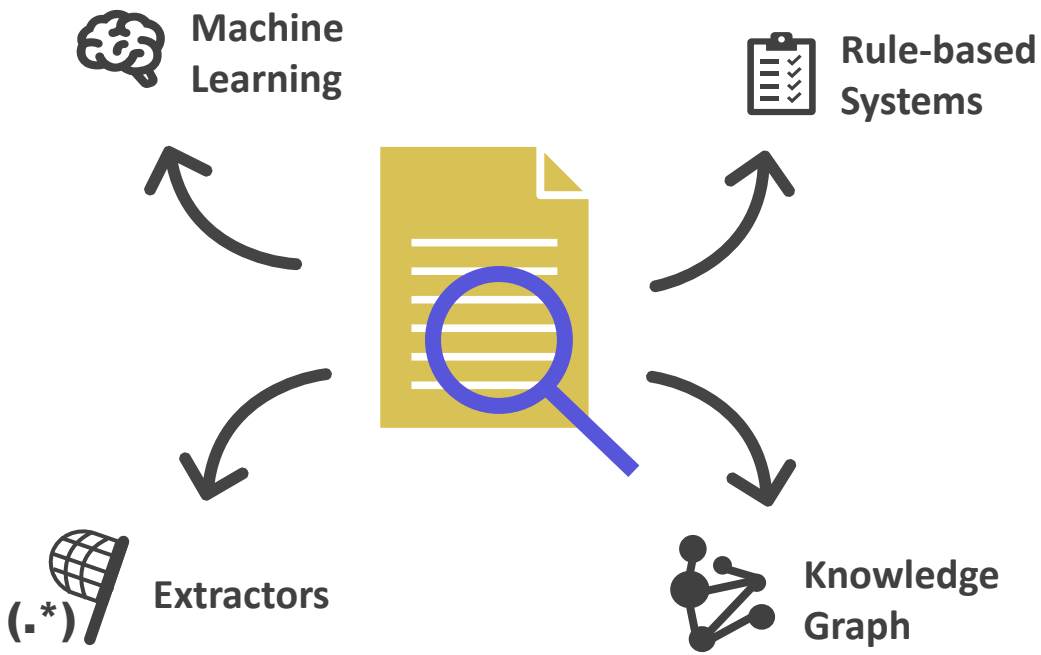
Excerpt from the mapping list using the example of the document type

iiRDS Document type standard	Mapping HELLER	Customer relevance	iiRDS extension (no assignment possible/useful)
Operating instructions	Operation	x	
Safety instructions			
Repair instructions	Repair	x	
Programming manual	Programming	x	
Sales catalog			
Identification object			
Specification	Technology cycles	x	
Installation instructions			
CE Declaration of Conformity	Certificates/protocols	x	
Quick guide			
Certificate	Certificates/protocols	x	
List of materials	Spare parts/wear parts list/parts list	x	
Technical drawing	Machine layout Foundation layout Service drawing	x	
Assembly instructions			
			Service platform
			Service legacy data
			Service notification/official/mechanics/electrics/fluidics
			Service notification/official/mechanics/electrics/fluidics
			Internal product presentation

Processing Line in Practice

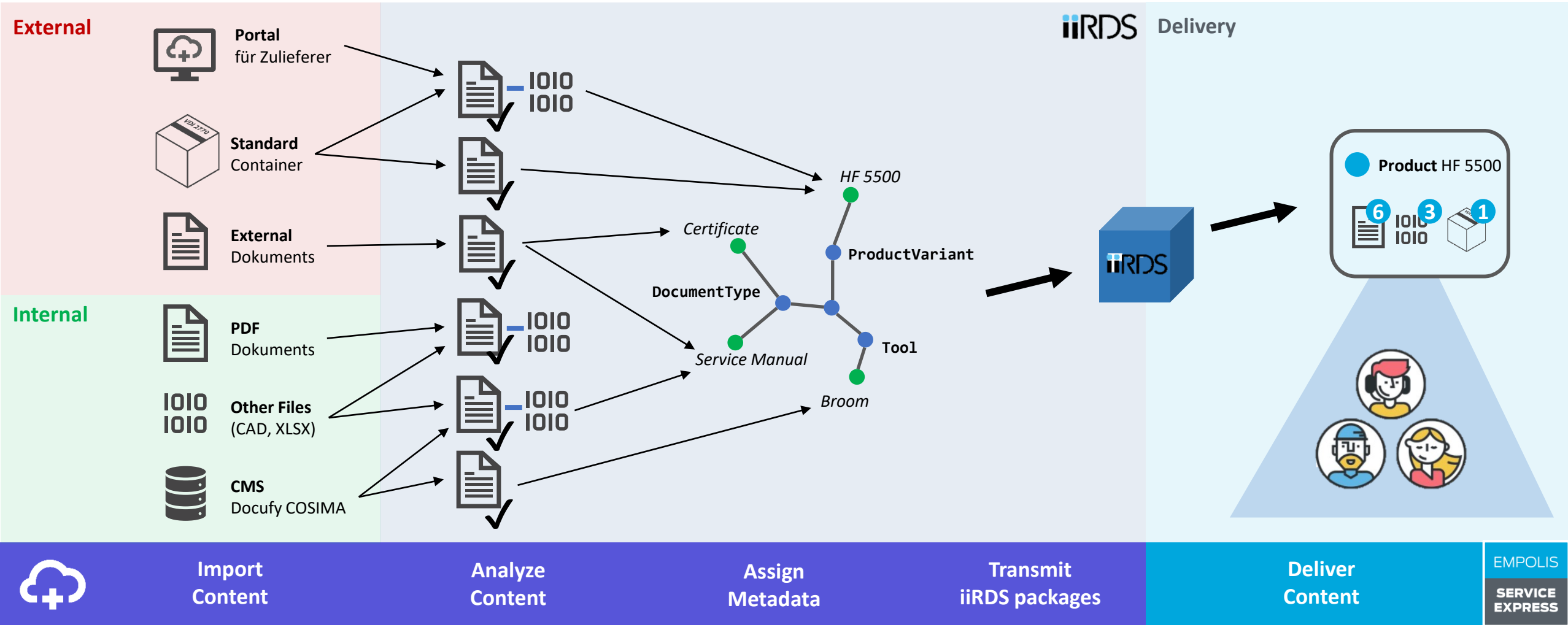
Presentation of the processing route from the data sources to the information portal

AI-based metadata with plusmeta

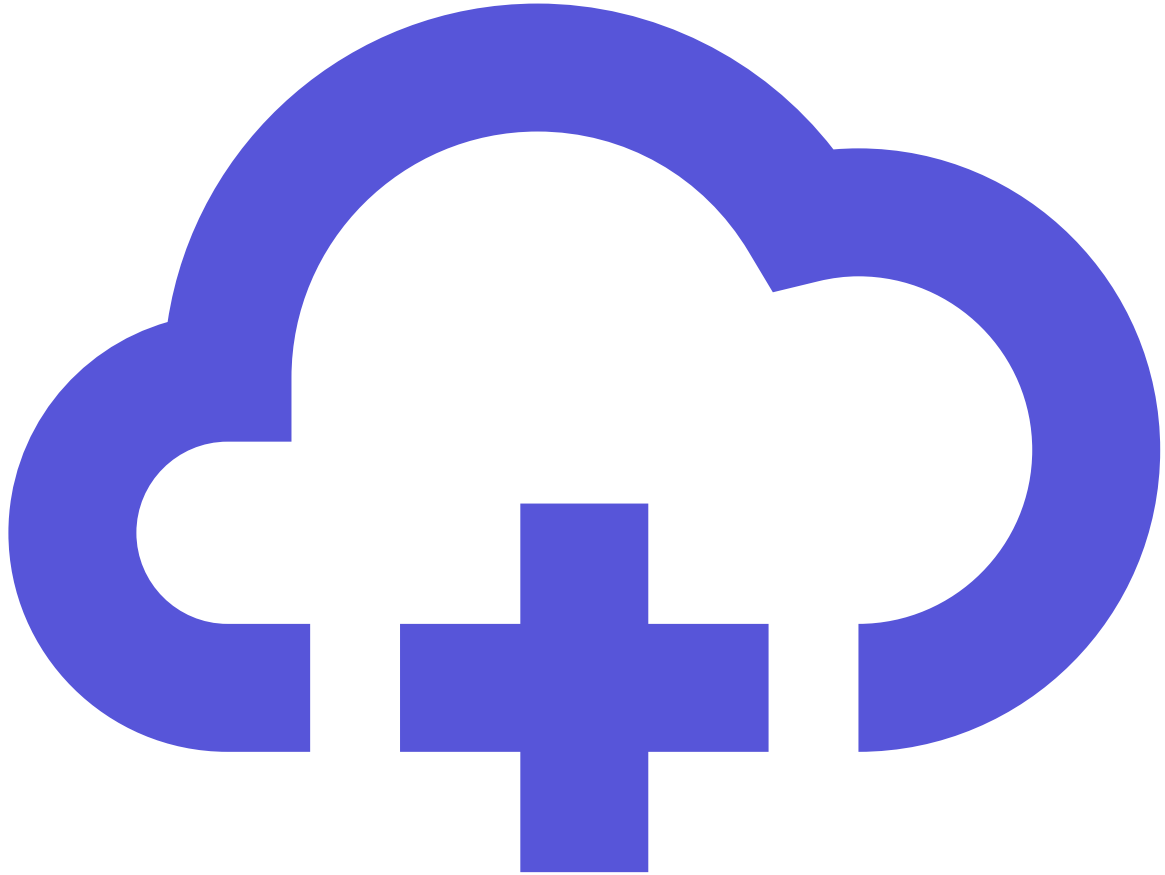


- _Enrichment with content delivery metadata
  - _Recognition of tools and consumables
  - _Additional product life cycle phases
- _Processing of supplier documentation
  - _Assignment to component and product
  - _Recognition of type, language, manufacturer and much more
  - _Perspective: completeness check and QA
- _Mapping to iiRDS via knowledge graph
  - _Modeling of a mapping of the internal HELLER metadata model to public iiRDS metadata

Information flow



Look into plusmeta



Vortrag › Inhalte automatisch aufbereiten

1 Inhalte hinzufügen — 2 Metadaten erkennen — 3 Metadaten prüfen und vergeben — 4 iiRDS-Paket generieren

Vorgaben

DOKUMENTART: Serviceplattform

SPRACHE: Deutsch

Alle Objekte

Suche

Anzeigename	Objekttyp	Metadaten	Textinhalt	Name der Quelldatei	Typ der Quelldatei	Erstellt am	Dateigröße	Aktionen
im hcf tr mgs geometrie messen j 01 1 de DE	Medienarchiv	8	0	im.hcf.tr.mgs.geometrie-messen.j.01, 1, …	ZIP-Container	05.05.23, 10:41	1,3 MB	
bd serie tr 310i team viewer 01 1 de DE	Medienarchiv	6	0	bd.serie.tr.310i.team-viewer.01, 1, de_D…	ZIP-Container	10.11.23, 19:08	2,7 MB	
ET200X 05 01d	Dokument	32	43.245	ET200X_05_01d.pdf	PDF-Dokument	26.05.23, 14:45	3,6 MB	
index	Content-Modul	42	1.517	index.html	HTML-Datei	05.05.23, 10:41	31,6 kB	
index	Content-Modul	43	2.148	index.html	HTML-Datei	10.11.23, 19:08	36,9 kB	

Zeilen pro Seite: 50 — 1-5 von 5 — 1

Filter t — Suche f — Dateien von Computer hinzufügen u — Vorhandene Objekte hinzufügen d — Objekte aus Projekt hinzufügen p — Einstellungen öffnen s

Conclusion

and Outlook

Conclusion

_ iiRDS extensions were an important basis for the acceptance of the faceted search in the HELLER CDP

_ For purely internally used data, the expansion of iiRDS was unproblematic from today's perspective

_ In retrospect, the use of a service provider saved us from one or two strategic dead ends

_ Nothing stands in the way of connecting additional data sources via a now standardized metadata model

_ In our view, selected content with already validated metadata is also an excellent basis for connecting further AI technologies

Thank you for your attention!

_Questions? Discussion!

_Contact:
Fabienne Rothenberg
fabienne@plusmeta.de