

# Rexroth Product Information Portal – The fast way from PDF to CDP

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Best Practice Example

# Overview

Bosch Rexroth, in cooperation with Ingenieurbüro Katzenmeier, developed a new product information portal that makes information available in a web-based, up-to-date, context-related and intelligent manner according to the iiRDS standard. This best-practice example reports about the experiences in the project and the basic steps to implement it in a short time.

The starting point for the project was a customer survey which revealed that technical information on products is difficult to find. Customers want to find product information easier and faster – they want an "Amazon feeling".

In a first step we developed a pilot portal at short notice to evaluate the semantic functionality and flexibility and to test the applicability in concrete usage scenarios. First of all we developed user stories with typical problem cases. The PDF documents relevant for these user stories were structured into topics, tagged with metadata and loaded into the pilot portal. Even with this simply constructed system, the basic expectations were met – information that was previously difficult to find was now quicker and easier to find.

After the successful pilot project, the portal was now going to be implemented. A new product range was to be presented to the public in just eight months. The product information for this should be available in the new information portal. In order to meet this deadline, we prioritized and narrowed down the functions and content.

The most important part of the implementation was the development of the metadata model based on iiRDS. The product-related metadata had to be classified according to variants, components and characteristics.

Going beyond the standard, we linked selected metadata using semantic relationships, so that topics which are thematically close to each other are automatically linked together. In the CDP, these topics are displayed in a coherent way, even if they are distributed across different documents.

Metadata and semantic relations are stored in a graph database system. Editors can access the metadata using CCMS dialog boxes to keyword modules. Content and metadata are imported into the CDP via iiRDS packages.

## Service

Consulting,  
Technical editing,  
Information Management

## Industrial sectors

Automation technology,  
Electrical engineering,  
Building automation, ...



## From concept to information systems

>>



Project  
management



Development of  
information architectures



Metadata modelling,  
Knowledge engineering



Process modelling,  
Proof of Concept



Training



Content  
engineering



Division: Automation and Electrification Solutions



Berthold Strucken

Engineering Project-Office and Infrastructure  
Translation and Product Documentation

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Germany

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[www.boschrexroth.com](http://www.boschrexroth.com)

- Senior Manager, responsible for the processes and strategic development of technical documentation
- many years of experience in the fields of technical documentation and translation

# WE ARE AUTOMATION



**NR. 4**

7 % IN GENERAL  
MOTION CONTROL



**20**

Industry sectors



**>3,500**  
EMPLOYEES



**MORE THAN**  
**10,000**

SATISFIED CUSTOMERS  
WORLDWIDE



**6**

**Solution  
programs**



**CNC**

We provide the most powerful CNC on the market



**Motion  
Control**

We are the pioneer in motion control



**PLC & IoT**

We lift the PLC to the Internet of Things



**Process  
Control**

We are the global market leader in welding controls



**Drives**

We are the benchmark in servo drives and motors



**Services**

We offer best-in-class support and service

# Our starting position

"Technical information on products  
is hard to find!"

# Rexroth Media directory

hierarchically arranged directory

no full text search and  
no filter criteria possible

monolithic blocks (PDF)

**Rexroth Medienverzeichnis**

**Kategorien**

- Allgemeines
- Dokumentationsübersicht
- Antriebstechnik
- Automatisierungssysteme
- Einpresssysteme
- Engineering
- Steuerungskomponenten
- Widerstandsschweißen

- IndraDrive
- IndraDrive Cs
- IndraDrive Mi
- IndraDrive ML
- Frequency Converter EFC 3610/5610
- Frequency Converter VFC 3610/5610
- Frequency Converter VFC 3210
- Frequency Converter Fe
- Frequency Converter Fv

- Allgemeines
- Sicherheitstechnik
- Projektierung
- Firmware

Suche

Erweiterte Suche

**Funktionen**

Zur Startseite

Kategorie-Inhalt anzeigen

14 Ausgaben gefunden Ergebnisse pro Seite: 30 Ergebnisliste versenden

Titel	Dokument	Ausgabe / Sprache / Datum
 <a href="#">▶ Rexroth IndraDrive Antriebsregelgeräte Leistungsteile HCS01</a>	DOK-INDRV*-HCS01*****-IT Betriebsanleitung	<input checked="" type="checkbox"/> <a href="#">▶ R911339011</a> de-DE 18.02.2013
	<a href="#">▶ Details</a>	
	<a href="#">PDF</a> 4,54 MB	
	<a href="#">versenden</a>	
 <a href="#">▶ Rexroth IndraDrive Drive Controllers Power Sections HCS01</a>	DOK-INDRV*-HCS01*****-IT Betriebsanleitung	<input checked="" type="checkbox"/> <a href="#">▶ R911339012</a> en-US 11.03.2013
	<a href="#">▶ Details</a>	
	<a href="#">PDF</a> 4,57 MB	
	<a href="#">versenden</a>	

# Customer opinions



If I don't know the name of the product, I can't find it.



here is a catalogue of 600 pages and on page 317 you find the info



You search forever to find the right information



I want an Amazon feeling



I use Google to search for new components, and the media directory only if I know exactly what I am looking for

The search via the media directory: You'll go crazy!

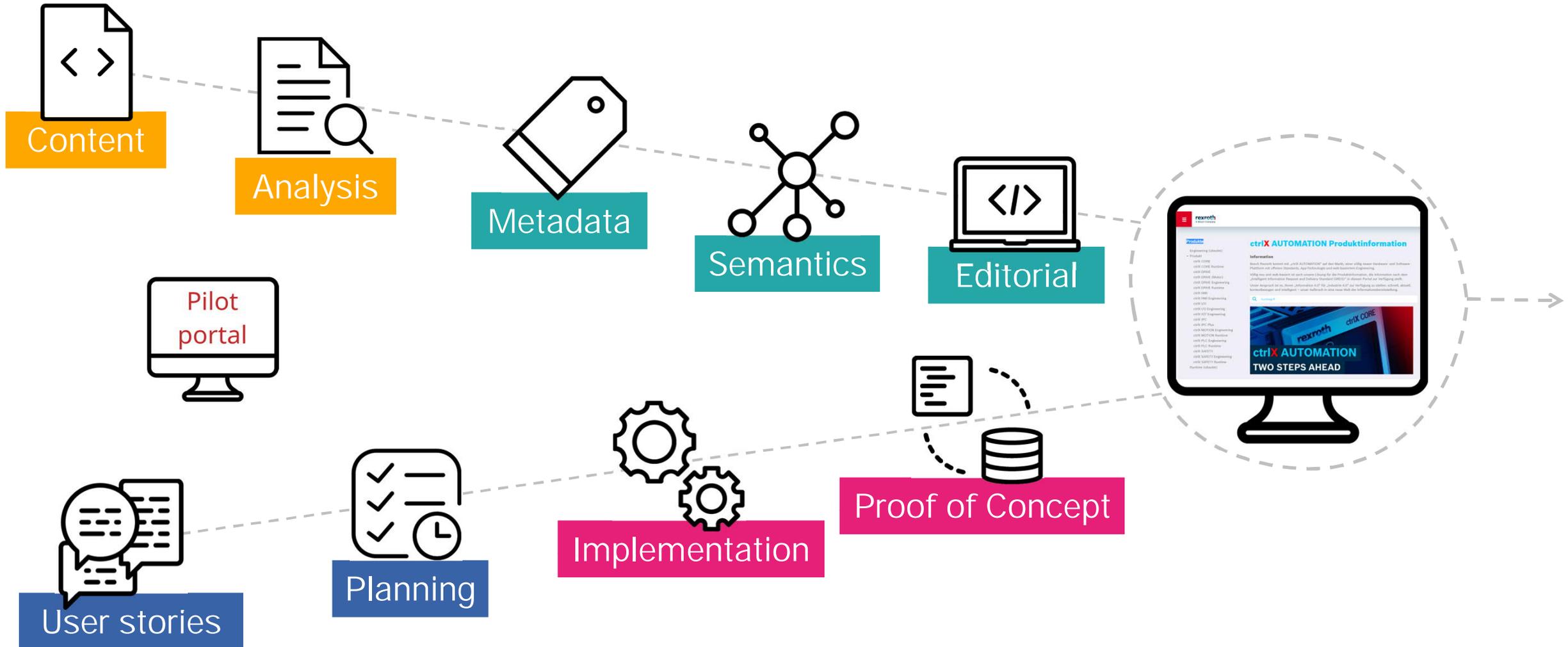
## Conclusion

- > Making information available on a web-based basis
- > Simple and intuitive navigation and filter options
- > Quick search for technical information
- > Modular information objects instead of monolithic documents
- > Structuring the information and modelling the knowledge

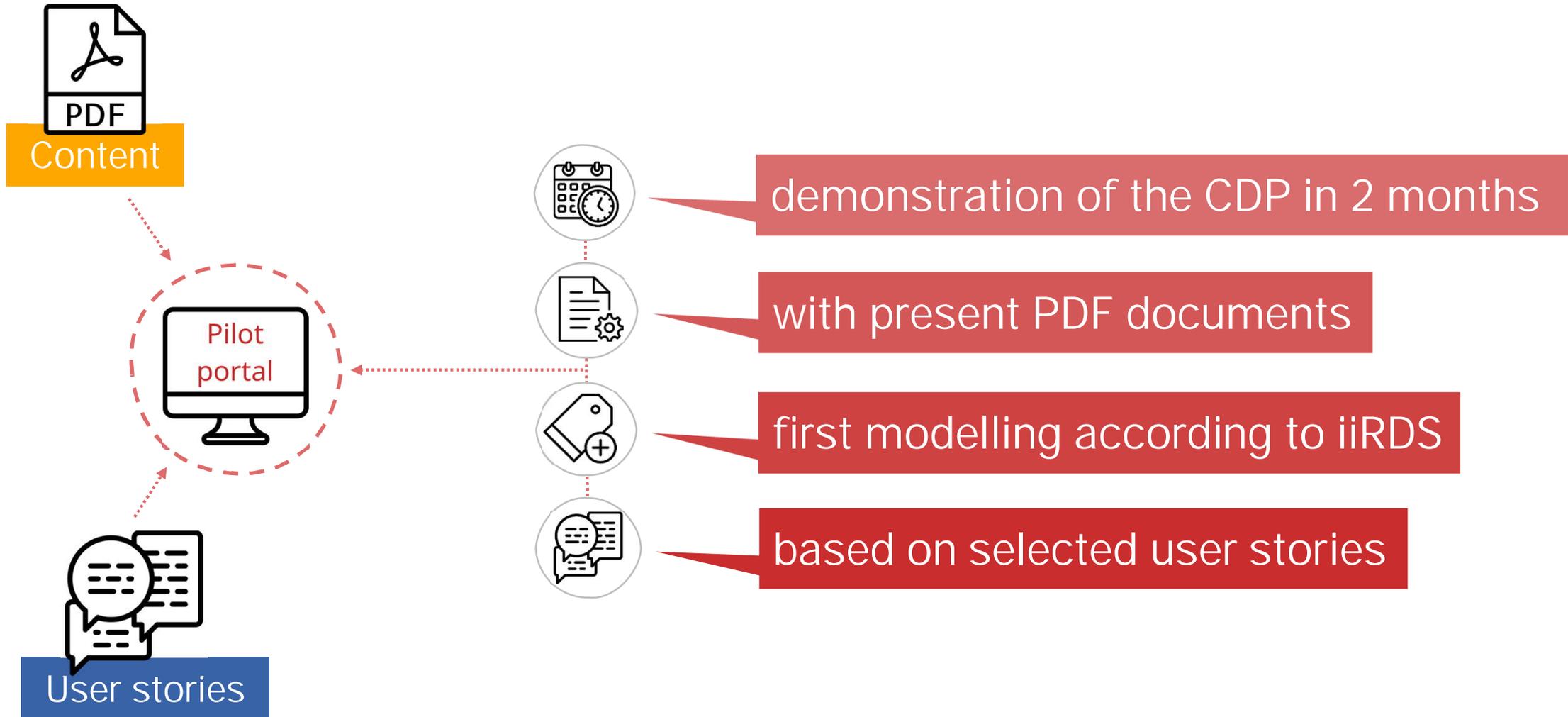
# How did we proceed?

The project "Rexroth Product Information Portal"

# Development of the product information portal



# Showcase: demo and test with a pilot portal



# Selected user stories



Content



User stories

As a maintenance technician, I would like to be able to quickly identify the problem in the event of a warning message (e.g. battery undervoltage, buffer battery must be replaced). I need instructions so that I can eliminate this problem (replace battery).

As a commissioning engineer, I want to reference a drive so that I can establish the dimensional reference for an absolute measuring system.

As a mechanic, I want to set up a security zone. For this purpose, I need an overview of the required devices, the wiring and the parameterization of the safety zone.

# Present PDF documents



PDF

Content

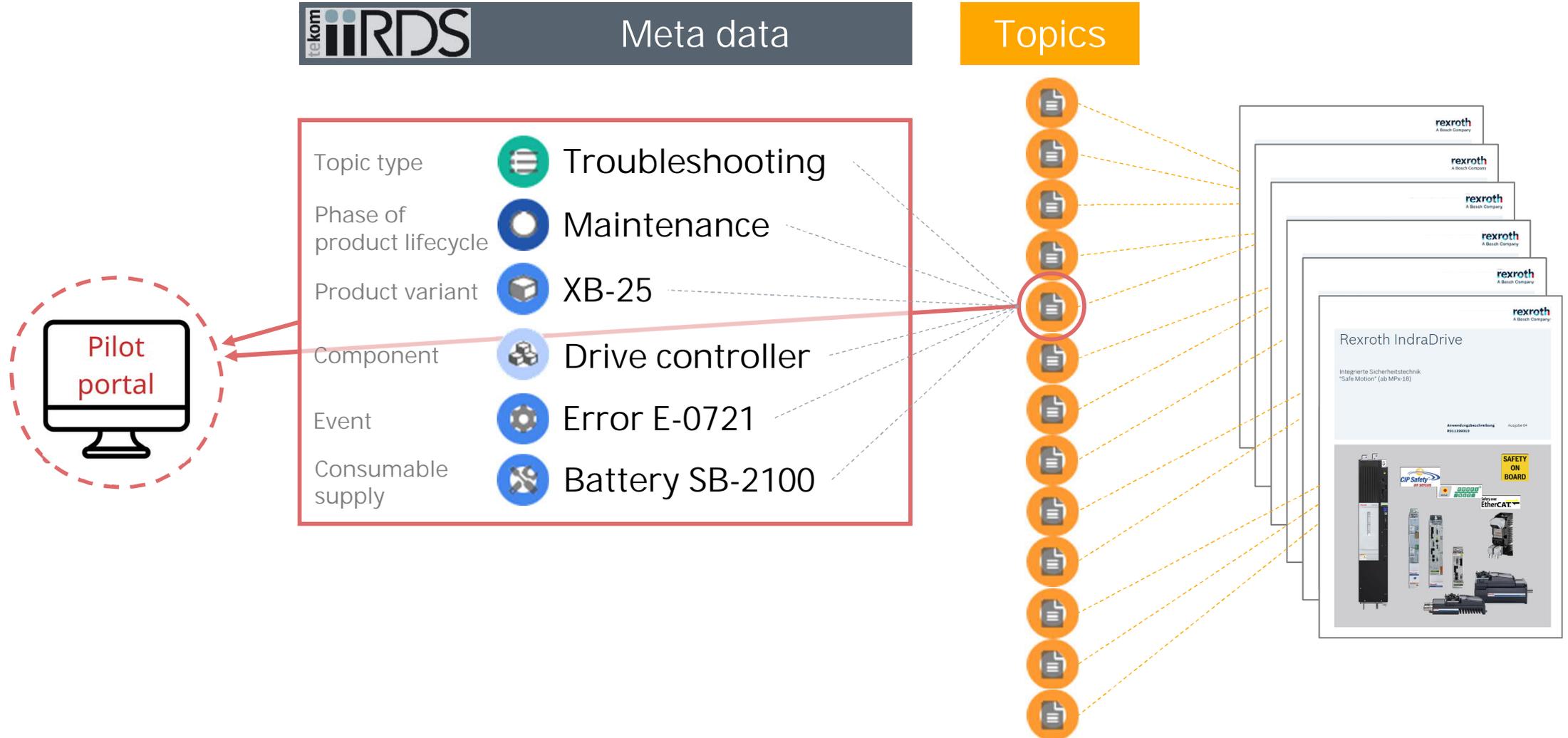
Pilot portal



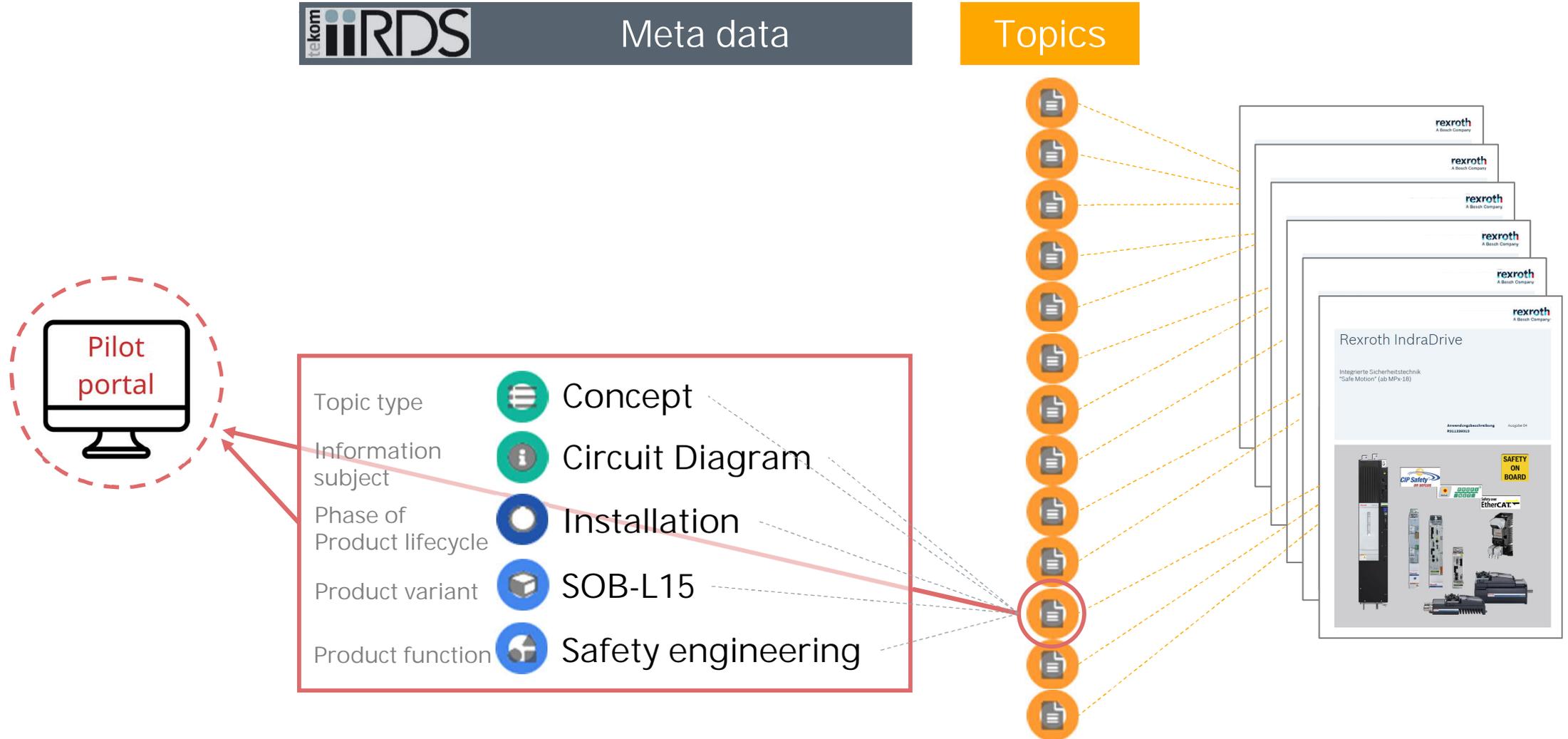
User stories



# First modelling according to iiRDS



# First modelling according to iiRDS



# Showcase: enter search term

Content Delivery Portal

replace battery

Document

- Product XB-25
- Product XB-25.01
- Component CB-97
- System SX-03

Document type

- Operating instructions
- Functional description
- Application Manual

Information subject

- Layout
- Diagnosis
- Scope of delivery
- Functionality
- Safety instruction
- List of parts
- Maintenance Plan

Product

- Product XB-25
- System SX-03

Phase of product lifecycle

- First use

**User Stories**

As a maintenance technician, I would like to be able to quickly identify the problem in the event of a warning message (e.g. battery undervoltage, buffer battery must be replaced). I need instructions so that I can eliminate this problem (replace battery).

# Showcase: narrowing down search result

Content Delivery Portal

replace battery

Document	
<input type="checkbox"/> Product XB-25	19
<input type="checkbox"/> Product XB-25.01	17

Document type	
<input type="checkbox"/> Operating instructions	36
<input type="checkbox"/> Application Manual	4

Information subject	
<input type="checkbox"/> Scope of delivery	4
<input type="checkbox"/> Safety instruction	4
<input type="checkbox"/> List of parts	1
<input type="checkbox"/> Maintenance Plan	3

Product	
<input checked="" type="checkbox"/> Product XB-25	19

Phase of product lifecycle	
<input type="checkbox"/> First use	3
<input type="checkbox"/> Maintenance	2
<input type="checkbox"/> Reuse	2
<input type="checkbox"/> Close down	1

<< 1-5 19 >>

# Showcase: further narrowing down search result

Content Delivery Portal

replace battery

Document	
<input type="checkbox"/> Product XB-25	19
<input type="checkbox"/> Product XB-25.01	17

Document type	
<input type="checkbox"/> Operating instructions	36

Information subject	
<input type="checkbox"/> Safety instruction	4
<input type="checkbox"/> Maintenance Plan	3

Product	
<input checked="" type="checkbox"/> Product XB-25	2

Phase of product lifecycle	
<input type="checkbox"/> Maintenance	2

# Showcase: view topic

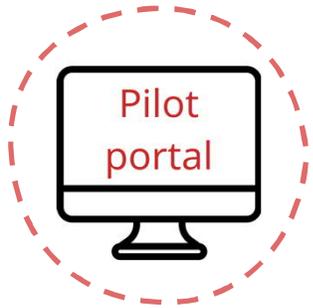
The screenshot shows a web browser window titled "Content Delivery Portal". At the top left, there is a search bar containing the text "replace battery" and a magnifying glass icon. Below the search bar, the page displays a list of search results, represented by horizontal bars of varying lengths and colors (blue and dark grey). The word "Changing" is highlighted in a red box, and a red callout box points to it with the text "Requirement for the future system: identifying synonyms in the search".

replace battery

**Changing** battery

1. Disconnect the power connection to the device.
2. Ground yourself by touching a radiator or the like. Then unscrew the unit.
3. Remove the battery from the memory board.
4. Insert the new battery.
5. Screw the device closed and establish the power connection.

Requirement for the future system:  
identifying synonyms in the search



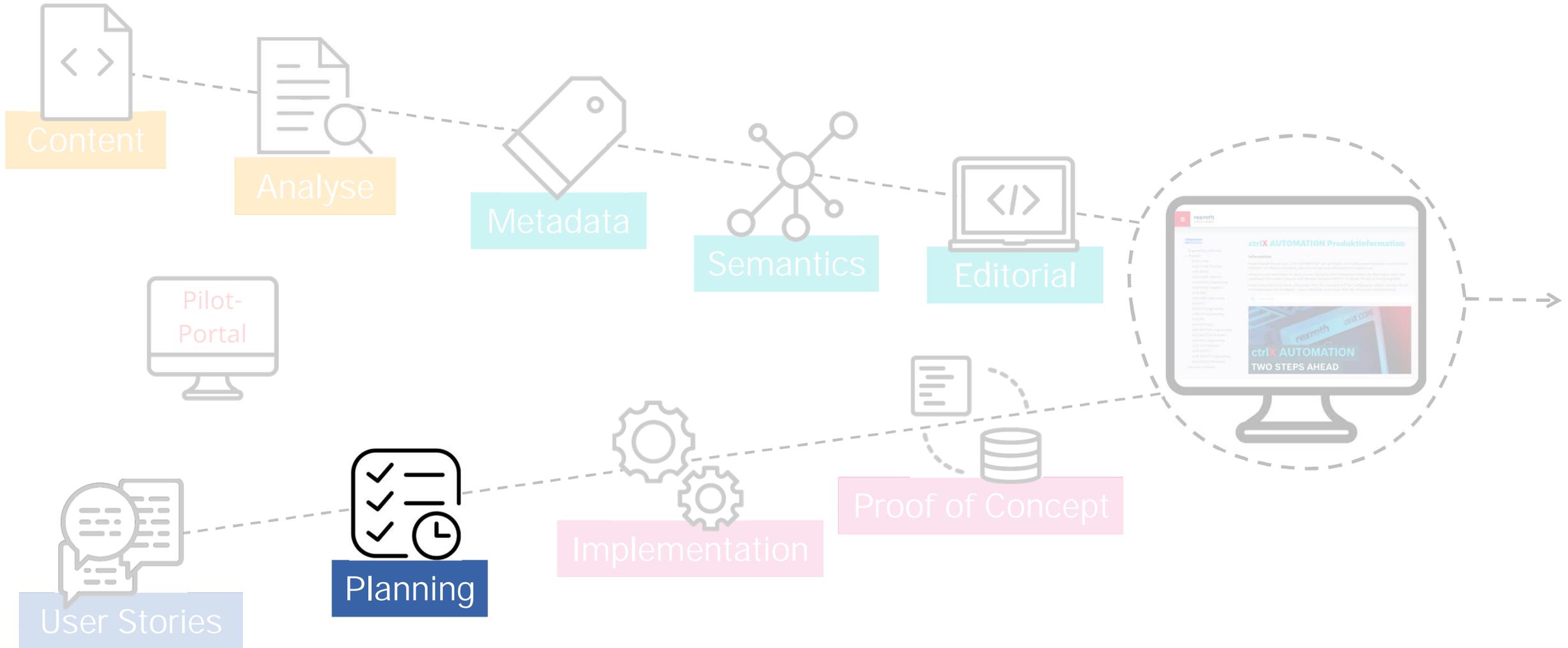
## Conclusion

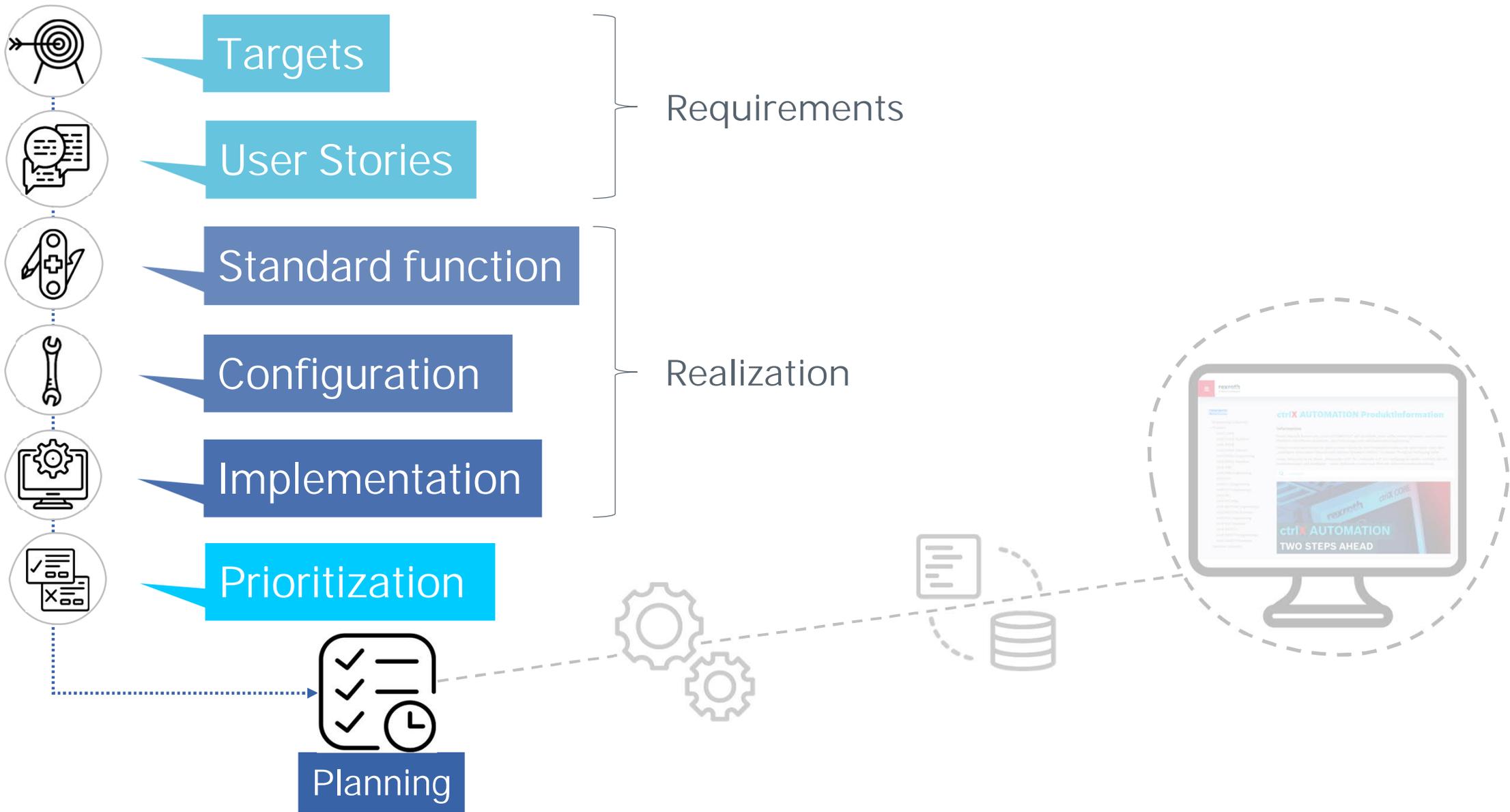
- > Our expectations were met
- > Information needed is found quickly
- > iiRDS works
- > Initial functional requirements have emerged from the test cases
- > The clear results shown by the pilot portal on the basis of user stories and Rexroth products convinced the management!

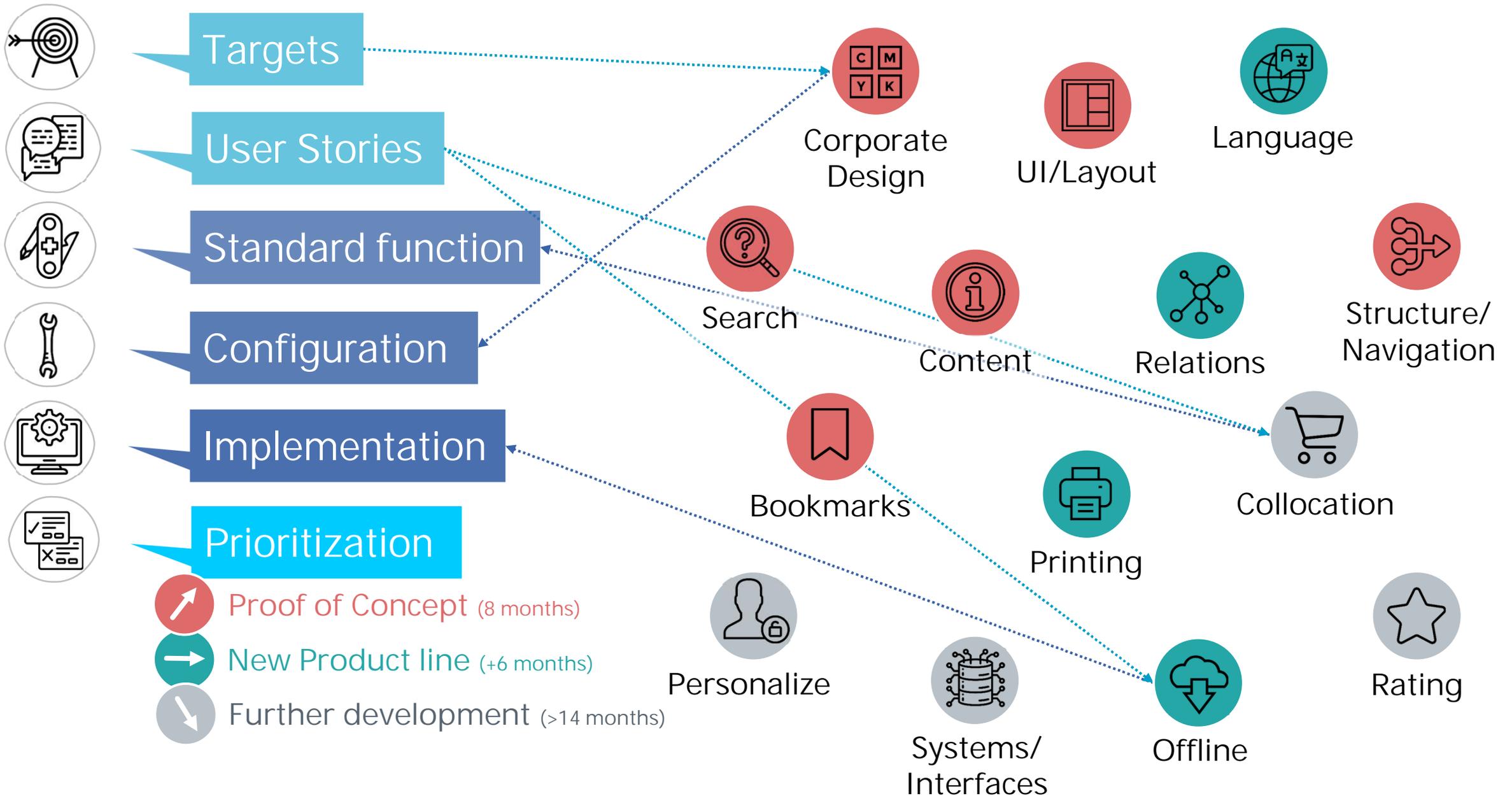
# And after the showcase?

Green light for the development of the  
Rexroth Product Information Portal

# Planning









## Planning

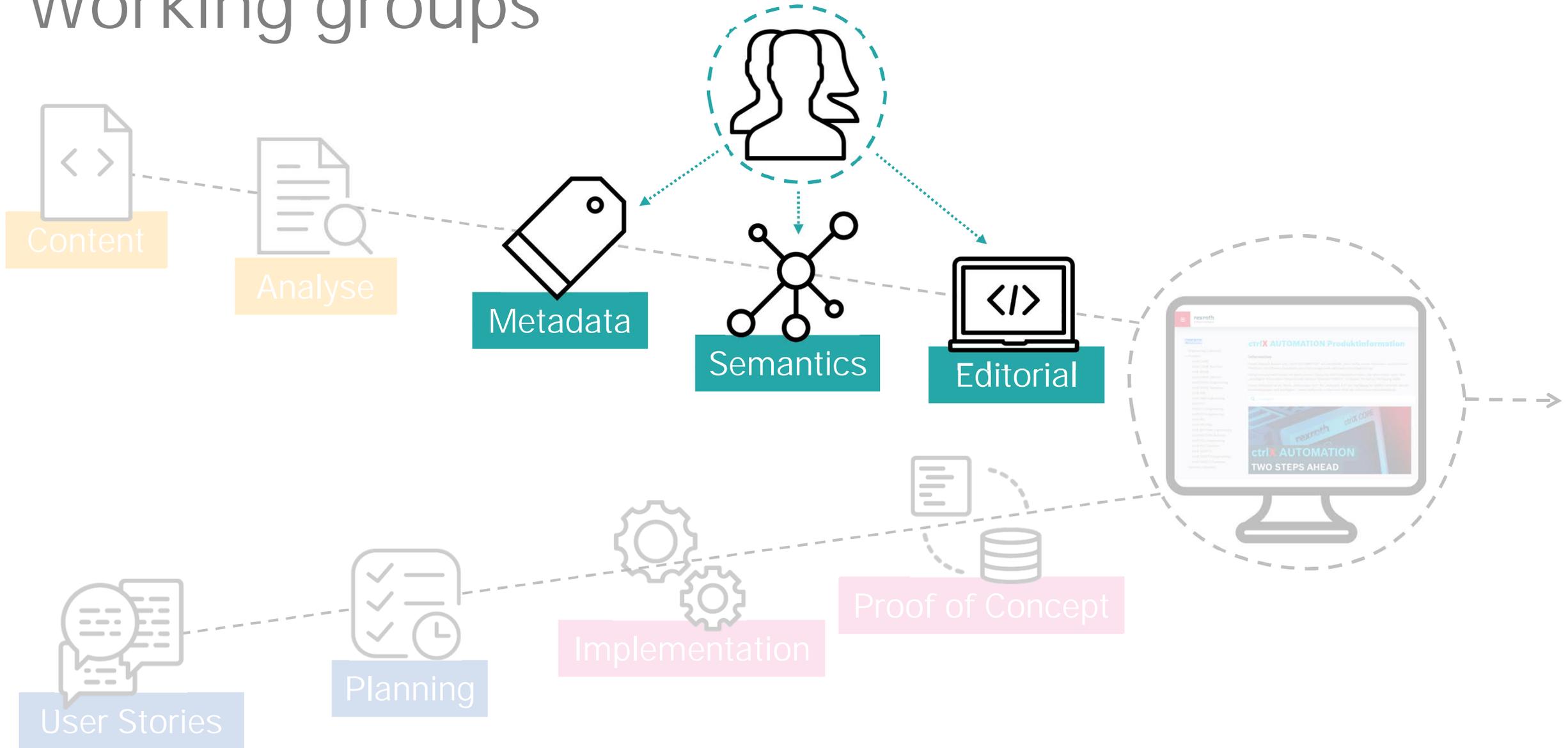
# Conclusion

- > Identify requirements and functions based on user stories and specifications
- > Prioritization and limitation to essential functions for Proof of Concept
- > Consider future functions, but not yet specified in detail
- > Organize working groups and workshops to develop solution concepts
- > Agile project organization makes sense (e.g. SCRUM)

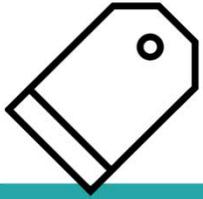
# Topics, Metadata and the Knowledge Network

The core of the information portal

# Working groups



# Modeling Metadata



Metadata



Semantics



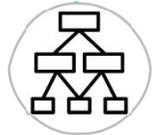
Editorial



Determine relevant metadata



Modeling standardized and proprietary metadata according to iiRDS



Mapping the product model

# Standardized and proprietary metadata according to iiRDS

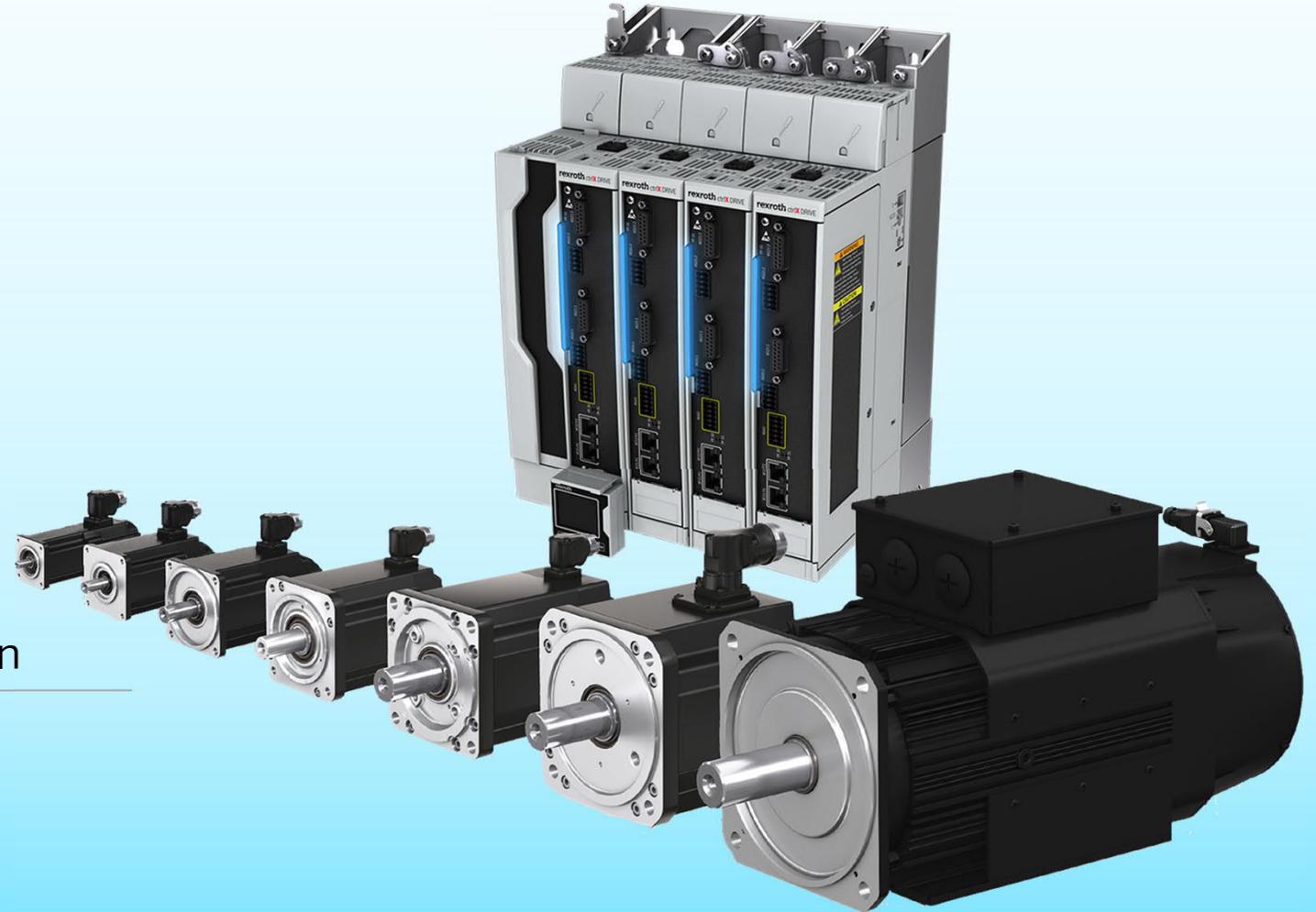
Topic type		Troubleshooting Reference <span style="border: 1px solid black; padding: 2px;">Library</span>
Information subject		Circuit Diagram Declaration of conformity <span style="border: 1px solid black; padding: 2px;">Type examination</span>
Component		<span style="border: 1px solid black; padding: 2px;">Control unit</span> <span style="border: 1px solid black; padding: 2px;">Fan</span>
Product variant		<span style="border: 1px solid black; padding: 2px;">ctrIX DRIVE XCS1</span> <span style="border: 1px solid black; padding: 2px;">ctrIX DRIVE MS2N</span>
Event		<span style="border: 1px solid black; padding: 2px;">Error F3125</span>
Consumable supply		<span style="border: 1px solid black; padding: 2px;">Battery NP7-12</span>

= proprietary metadata

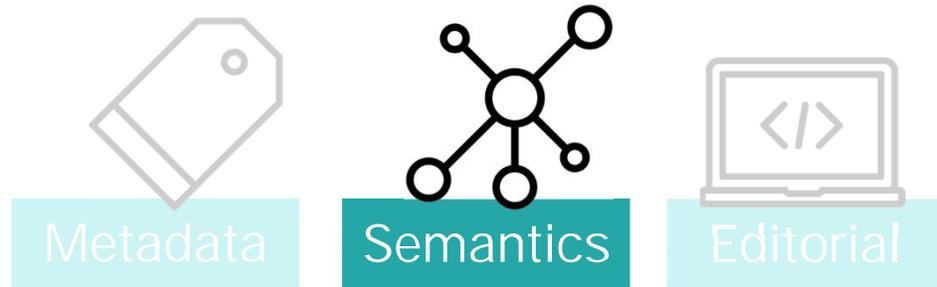
tekomiRDS

# Mapping the product model

Product variant	 <ul style="list-style-type: none"><li>ctrIX DRIVE XCS1</li><li>ctrIX DRIVE XMD1</li><li>ctrIX DRIVE XVE1</li><li>ctrIX DRIVE MS2N</li></ul>
Component	 <ul style="list-style-type: none"><li>Control unit</li><li>Fan</li><li>Encoder</li><li>Temperature sensor</li></ul>
Product property	 <ul style="list-style-type: none"><li>Size 03</li><li>Power: 72 kW</li><li>Encoder type: Multiturn</li></ul>
Product function	 <ul style="list-style-type: none"><li>Axis control</li><li>Speed control</li><li>Positioning</li><li>Temperature control</li></ul>



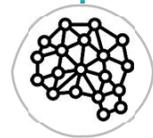
# Semantic cross-linking



Using semantic object dependencies of iiRDS

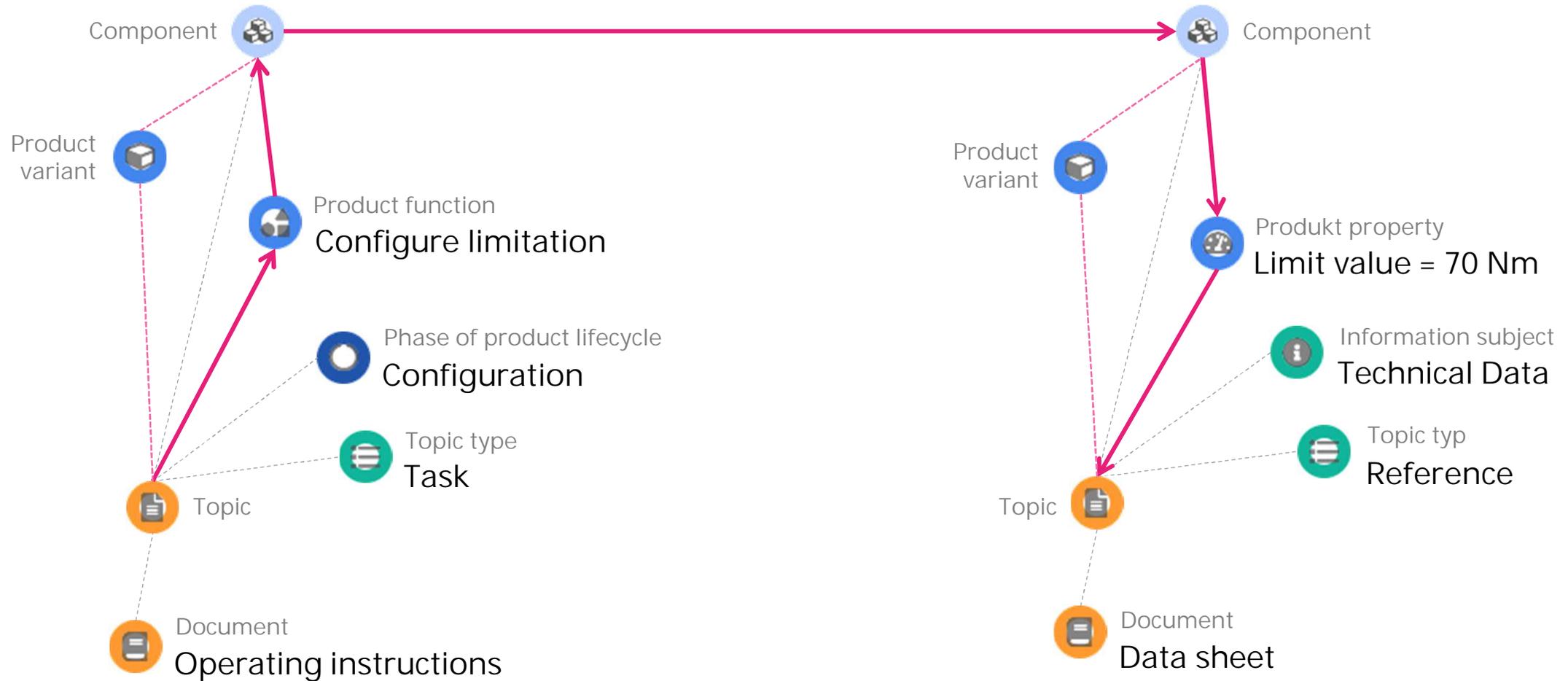


Extend the semantic network by product relationship knowledge

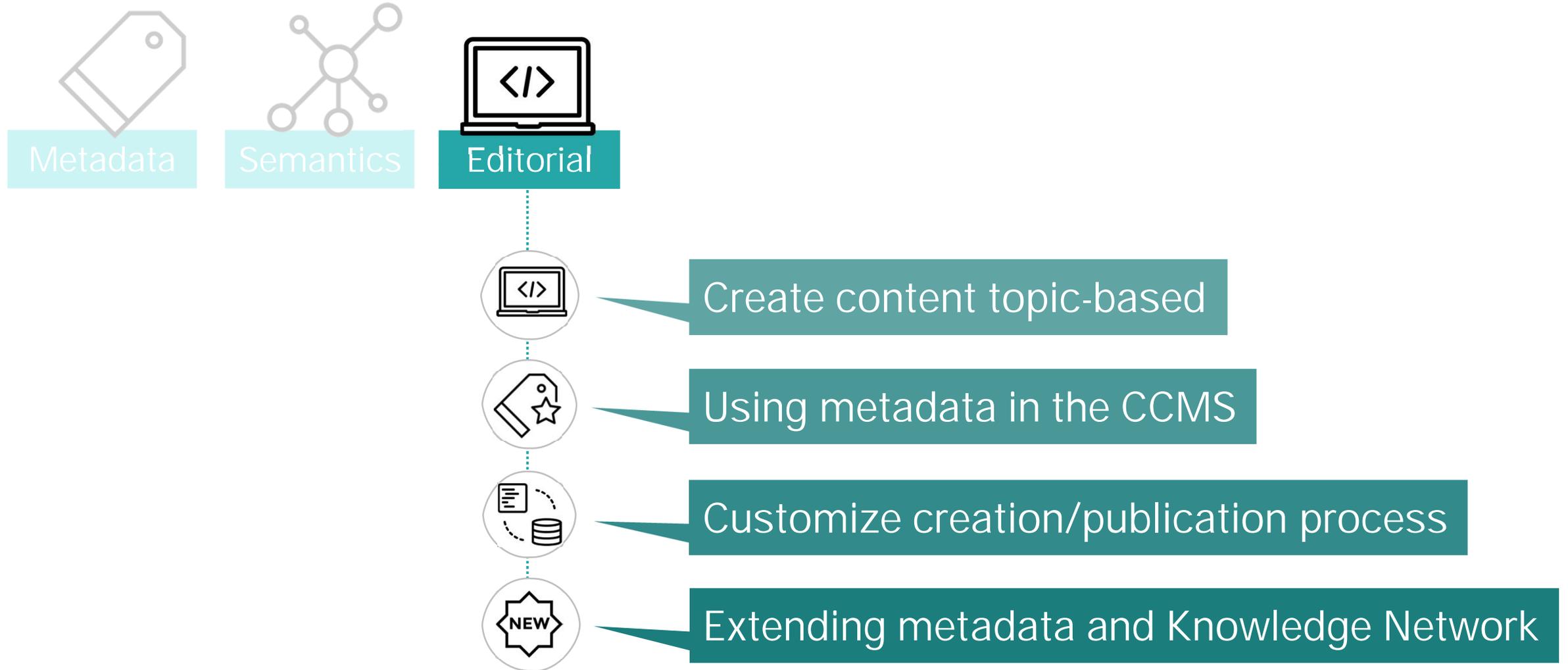


Example: Automate "Related Topics" to link closely related issues

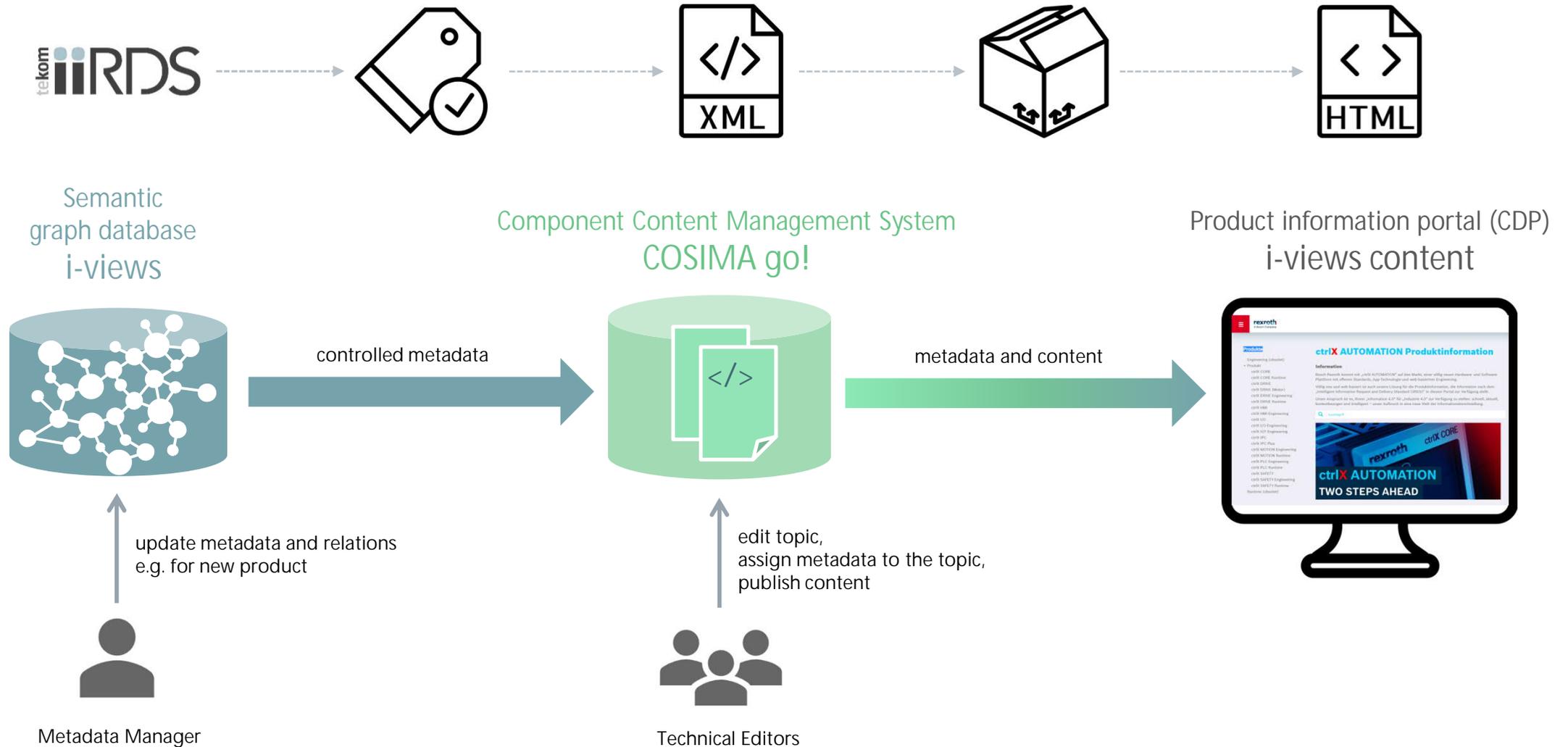
# Related topics: Traversing the Knowledge Network



# Consequences for the Technical editing



# Systems and workflow



# Using Metadata in CCMS

Product variant	ctrIX DRI ctrIX DRI ctrIX DRI ctrIX DRI
Component	Control u Fan Encoder Tempera
Product property	Size 03 Power: 7 Encoder
Product function	Axis cont Speed co Positioni Tempera

Metadaten bearbeiten

e2.MS2N03-B0BYN\_techndaten\_mka, 4, Deutsch

Geben Sie die Metadaten ein

IO  IO Version  IO Sprachvariante

Name: e2.MS2N03-B0BYN\_techndaten\_mka

Beschreibung: Modul - Kapitel

Produkt: MS2N

Komponente:

Produktfunktion:

Informationsthema: Technische Daten

Produktphase: Informieren

Software:

Baugröße: Baugröße 03

Baulänge: Baulänge B

Wicklung: Wicklung BY - 9000 1/min

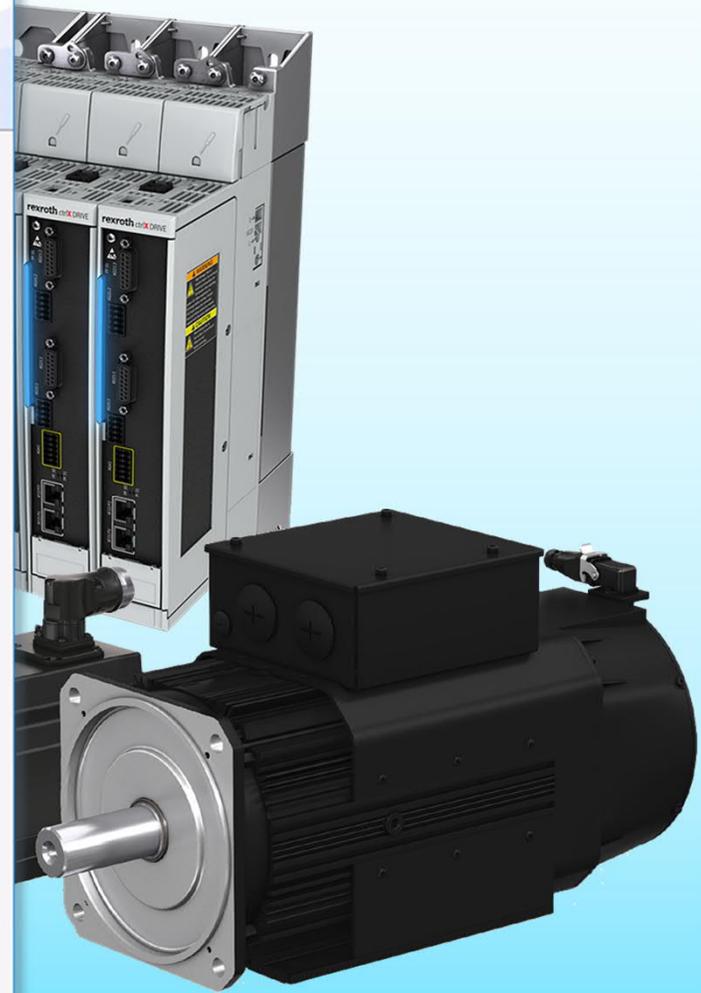
Rotorträgheit: Niedrige Trägheit

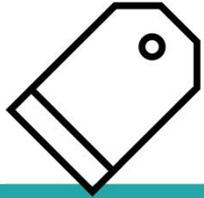
Geberperformance:

Geberausführung:

Temperatursensor:

Kühlart: Selbstkühlung

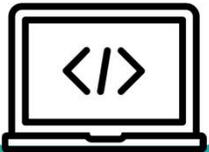




Metadata



Semantics



Editorial

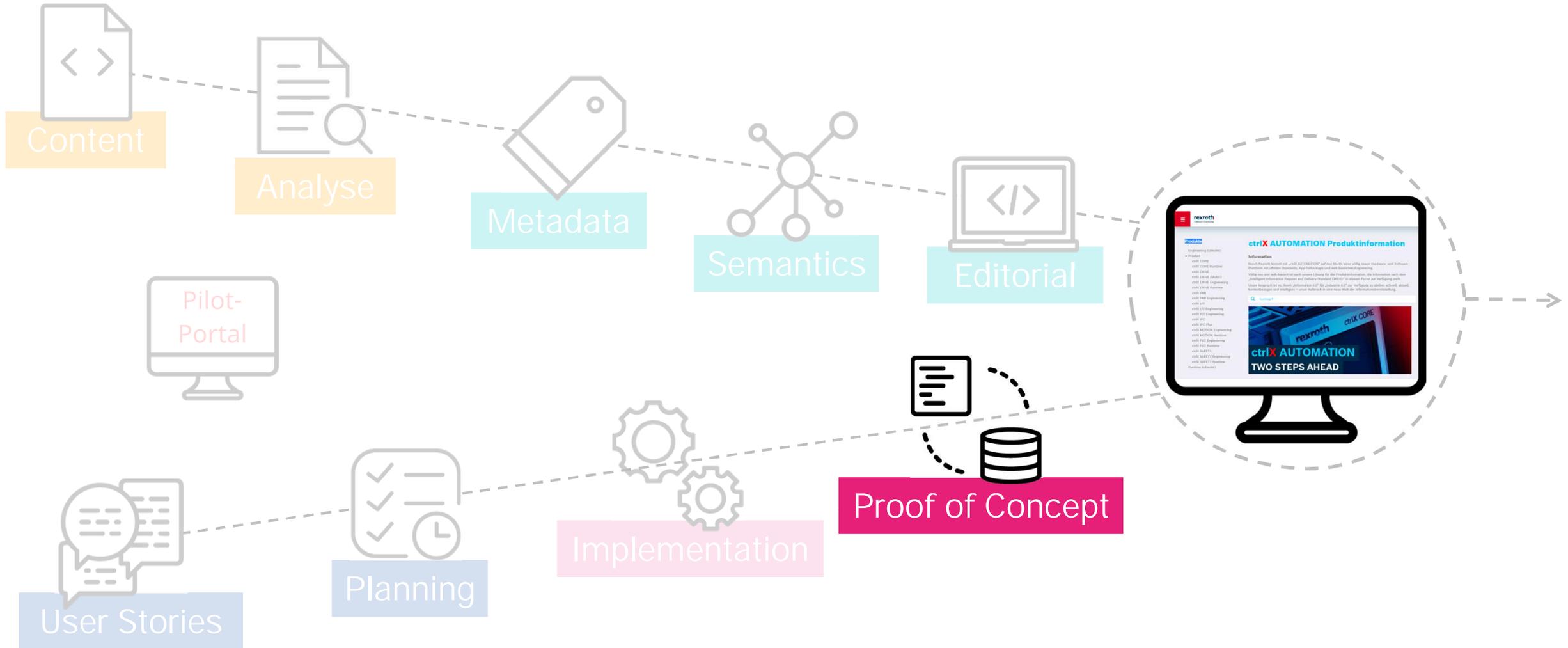
## Conclusion

- > Proprietary metadata can be easily embedded in the iiRDS model
- > Product metadata must be classified by variants, components and features
- > Products and thematically related topics can be linked via semantic relations

# Accomplished!

The Rexroth Product Information Portal in action

# Proof of Concept



## Produkte

- ▼ **ctrlX AUTOMATION**
  - ctrlX CORE
  - ▶ ctrlX DRIVE
  - ▶ ctrlX DRIVE (Motor)
  - ctrlX HMI
  - ctrlX I/O
  - ctrlX IPC
  - ctrlX SAFETY
  - ▶ ctrlX WORKS

## ctrlX AUTOMATION Produktinformation

### Information

Bosch Rexroth kommt mit „ctrlX AUTOMATION“ auf den Markt, einer völlig neuen Hardware- und Software-Plattform mit offenen Standards, App-Technologie und web-basiertem Engineering.

Völlig neu und web-basiert ist auch unsere Lösung für die Produktinformation, die Information nach dem „Intelligent Information Request and Delivery Standard (iIRDS)“ in diesem Portal zur Verfügung stellt.

Unser Anspruch ist es, Ihnen „Information 4.0“ für „Industrie 4.0“ zur Verfügung zu stellen: schnell, aktuell, kontextbezogen und intelligent – unser Aufbruch in eine neue Welt der Informationsbereitstellung.

Betriebsbereiche und **Kennlinien**





**Dokument**

ctrIX DRIVE (Motor), MS2N Sy...	117	□
crtIX Drive (Motor), MKE Synchr...	4	□
ctrIX PLC Engineering, Bibliothek...	3	□

**Thema**

Funktionsbaustein	3	□
Schnittstelle	1	□
Technische Daten	119	□
Technische Übersicht	1	□

**Produkt**

Bosch Rexroth +	124	□
Elektrische Antriebe und St...	124	□
ctrIX AUTOMATION +	124	□
ctrIX WORKS +	3	□
ctrIX WORKS Engineeri...	3	□
ctrIX PLC Engineering	3	□
ctrIX DRIVE (Motor) +	121	□
MKE (EU ATEX)	4	□
MS2N	117	□

**Produktkomponente**

Abtriebswelle	1	□
Motor	3	□
Temperatursensor	1	□

**Eigenschaft**

Baugröße 03	2	□
Baugröße 037	1	□
Baugröße 04	6	□
Baugröße 047	1	□
Baugröße 05	6	□
Baugröße 06	8	□
Baugröße 07	47	□
Baugröße 098	1	□
Baugröße 10	44	□

**Betriebsbereiche und Kennlinien**

... und **Kennlinien** ... werden durch **Kennlinienfelder** entsprechend Abb. 19 ... Dauerbetriebskennlinie (Übertemperatur 60K am Gehäuse) Die einzelnen **Kennlinien** sind in nachfolgender Abbildung beschrieben ...

**Sprache:** Deutsch

**MKE118 Technische Daten**

... -Drehzahl **Kennlinie** MKE118B-024 ...-Drehzahl **Kennlinie** MKE118B-058 ... **Kennlinie** MKE118D-012 ...

**Sprache:** Deutsch

**Derating bei abweichenden Umgebungsbedingungen**

... Sie die S1-**Kennlinie** M S1 parallel zur Drehzahlachse bis zum Schnittpunkt von S1-**Kennlinie** und dem auf der Drehmomentachse liegenden, errechneten Punkt M 0 red . ⇒ Die ermittelte **Kennlinie** M S1 red ...

**Sprache:** Deutsch

**MKE098 Technische Daten**

... -Drehzahl **Kennlinie** MKE098B-047 ...-Drehzahl **Kennlinie** MKE098B-058 ...

**Sprache:** Deutsch

**MKE037 Technische Daten**

... -Drehzahl **Kennlinie** MKE037B-144 ...

**Sprache:** Deutsch

**MKE047 Technische Daten**

... -Drehzahl **Kennlinie** MKE ...

**Sprache:** Deutsch

**Thermischer Motorschutz**

... : **Kennlinie** ...



Dokumente **Inhaltsverzeichnis**

ctrlX AUTOMATION > ctrlX DRIVE (Motor) > MS2N

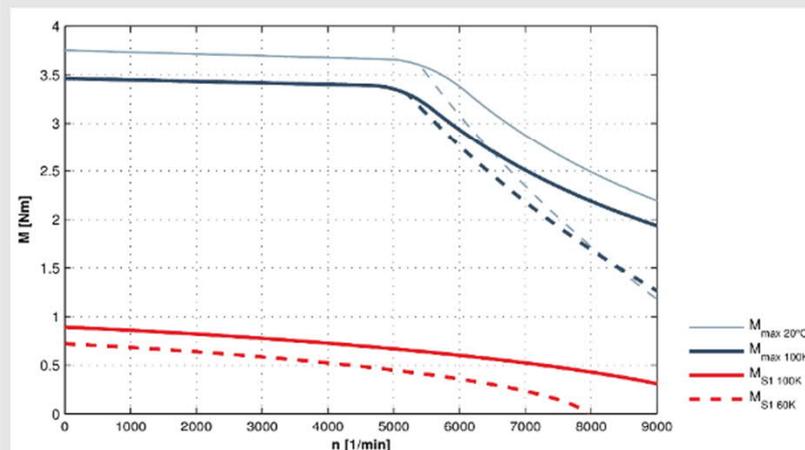
ctrlX DRIVE (Motor), MS2N Synchron-Servomotoren, Projektierungsanleitung

- ▶ Zu dieser Dokumentation
- ▶ Sicherheitshinweise
- ▶ Identifikation
- ▶ Merkmale und Funktionen
- ▶ Typenschlüssel
- ▶ Betriebsbereiche und Kennlinien
- ▼ Technische Daten
  - ▼ MS2N03 Technische Daten
    - ▼ Selbstkühlung
      - MS2N03-B0BYN**
      - MS2N03-D0BYN
      - MS2N03 Maßangaben Selbstkühlung
      - MS2N03 Axialkraft
      - MS2N03 Radialkraft
    - ▶ MS2N04 Technische Daten
    - ▶ MS2N05 Technische Daten
    - ▶ MS2N06 Technische Daten
    - ▶ MS2N07 Technische Daten
    - ▶ MS2N10 Technische Daten
    - ▶ MS2N13 Technische Daten
  - ▶ Elektrische Versorgung anschließen
    - Anschluss Wasserkühlung
    - Sperrluftanschluss anschließen
  - ▶ Umweltbedingungen
    - Servicearbeiten, Instandsetzung und Ersatzteile
    - Umweltschutz und Entsorgung
  - ▶ Anhang

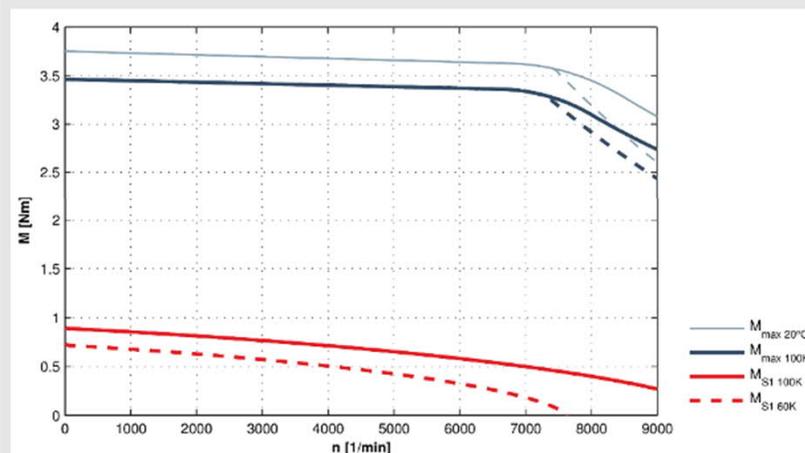
## Drehmoment-Drehzahl Kennlinie MS2N03-B0BYN

### Drehmoment-Drehzahl Kennlinie MS2N03-B0BYN

IndraDrive, Einspeisung ungeregelt 3 × AC 400 V



IndraDrive, Einspeisung geregelt 3 × AC 400 ... 480 V



#### Informationsthema

Technische Daten

#### Produkt

MS2N

#### Eigenschaft

Baugröße 03

Baulänge B

Kühlart: Selbstkühlung

Rotorträgheit: niedrig

Wicklung BY - 9000 1/min

#### Produktphase

Informieren



# Summary



- > Obtain customer opinion and describe user stories
- > Start with a manageable project size
- > Make project known as early as possible and obtain feedback
- > Consider potential interdependencies with other systems
- > Allow plenty of time for setting up metadata
- > It was worth the effort!

# Contact

