Danfoss goes iiRDS

Moving to a standard-based metadata model – the journey continues

Agenda

Introduction: Danfoss and parson

Recap of last year's presentation

Project implementation – iiRDS in action

Future outlook

Questions?

Introduction

Danfoss and parson

Danfoss in brief

We aspire to be the leading technology partner for our customers who want to decarbonize through energy efficiency, machine productivity, low emissions, and electrification.

Employees worldwide

41,000+ Results are created by people

Global footprint

100+ factories close to our customers and partners

Business segments with global leading positions

Worldwide sales

Sales
in more than

100
countries

The Americas

38%

Europe

40%

Asia

22%

Danfoss
Power Solutions

Danfoss
Climate Solutions
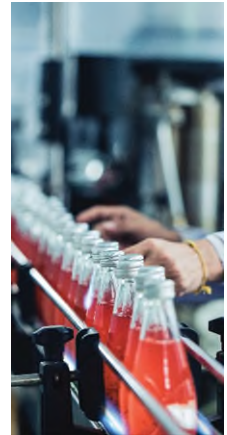
Danfoss
Power Electronics
and Drives

ENGINEERING **TOMORROW**

Danfoss Power Electronics and Drives Product Portfolio

DrivePro® Lifecycle Services

DrivePro® Lifecycle Services

DrivePro® Lifecycle Services Portfolio

Low-voltage drives

iC7 drives

VLT® drives

VACON® drives

iC2 drives

VLT® and VACON® legacy drives

Options

Decentral drives

VLT® decentral drives

VACON® decentral drives

Legacy decentral drives

System modules

iC7 system modules
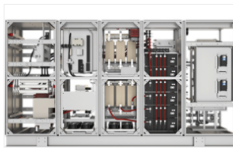
VACON® system modules

Enclosed drives

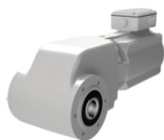VACON® drives

Power options

Filters

Legacy filters

Motion control and servo drives

VLT® FlexMotion™ drives

Legacy drives

Medium-voltage drives

VACON® drives

Gear motors

VLT® gear motors

Soft starters

VLT® soft starters

VLT® legacy soft starters

Software tools

MyDrive® Suite

- Electric and energy efficient solutions to help decarbonize any industry.
- Industries:
  - HVAC
  - Water treatment
  - Energy
  - Marine and offshore
  - Mining and minerals
  - Food and beverage
  - Heavy industries

ENGINEERING **TOMORROW**

Holger Thater

Electrical engineer & Technical Communication professional since 11/1990

Senior Manager Technical Communication
Danfoss Power Electronics A/S, Gråsten, Denmark (since 11/2014)

Main responsibilities:
- Team lead for global technical communication team of 14
  Team tasks:
  - Creating technical product information in English master language for all product lines
  - Handling translations in up to 29 languages
  - Terminology Management
  - Release of documents to company website & product store
  - Make technical product information available on digital customer channels
- Member of the Digital Data Chain Consortium
- Vice-president tekom Danmark

Holger Thater | LinkedIn

ENGINEERING **TOMORROW**

Frank Ralf

Senior Technical Consultant for parson AG since 2014

Focus

- Information architecture

- Metadata modeling

- Optimization of documentation workflows

- DITA authoring environments

Contact

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LinkedIn

Experts for intelligent content and information architecture

❖ Intelligent content for products and services

❖ Information management systems

❖ Automation of content processes

www.parson-europe.com

❖ iiRDS Consortium and Working Group Member

❖ Certified iiRDS Consultants

www.iirds.org

parson AG – Who we are

❖ Founded by
  Ulrike Parson in 2006

❖ **Hamburg**
❖ Berlin, Potsdam
❖ Freiburg
❖ Hildesheim, Bremen

❖ 14 technical communicators
  and consultants
❖ 4 administrators

Recap of last year's presentation

Pain points and goal

Pain points

- **Unspecific**, as manuals are created on product family level
- **Inconsistent user experience**
- **Lack of digital content delivery**
- **Poor findability**

©Anatoly Maslennikov – Fotolia.com

Goal

Fast and **easy** access to **relevant** technical product information for our customers in **standard formats**.

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CCMS history at Danfoss

Teamcenter (2009-2014)   TechPub Studio (2014-2023)   IXIA CCMS (2023-)

The road to DITA

Teamcenter CMS

- Publication-oriented authoring using DocBook structure
- Inconsistent versioning & baselining
- Basic metadata on publication level, no metadata for external use
- Time demanding search procedure (difficult reuse)

TechPub Studio®

- Modular topic-based authoring with DITA structure
- Metadata on bookmap and topic level
- Consistent versioning and baselining
- Easy search procedure using metadata (increased reuse)
- Client-server based architecture
- Difficult to integrate in our digital content delivery

MadCap IXIA CCMS

- Modular topic-based authoring with DITA structure
- Metadata based on iiRDS
- Consistent content structure organization using DRM and libraries
- Enabling conditional profiling
- Enabling easier integration in our digital content delivery strategy

Creating a metadata model based on iiRDS
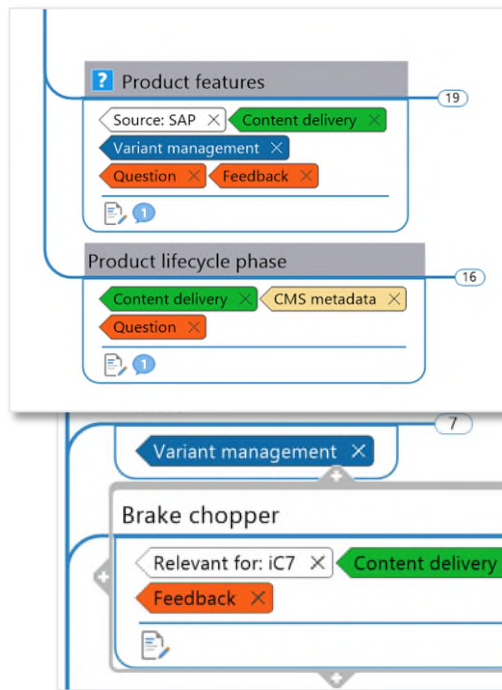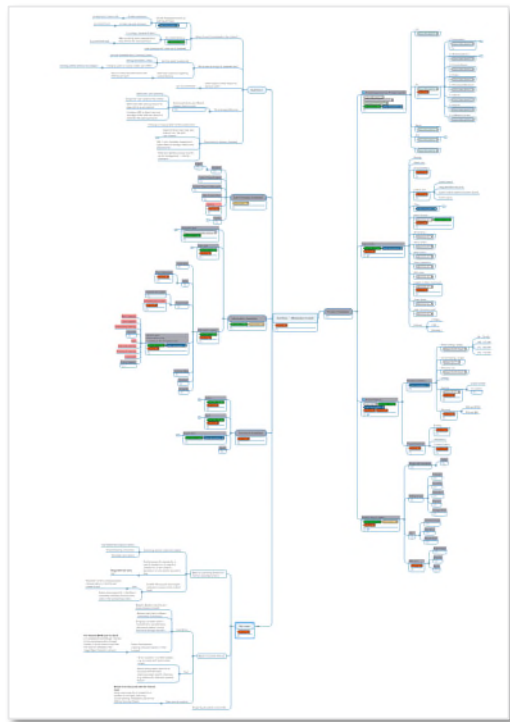
- Reusing as much iiRDS attributes as possible (grey boxes)
- Defining use cases (e.g. variant management)
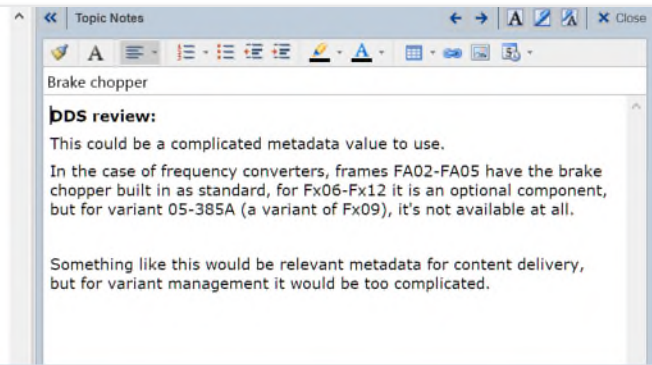
Metadata, relevant for variant management and content delivery
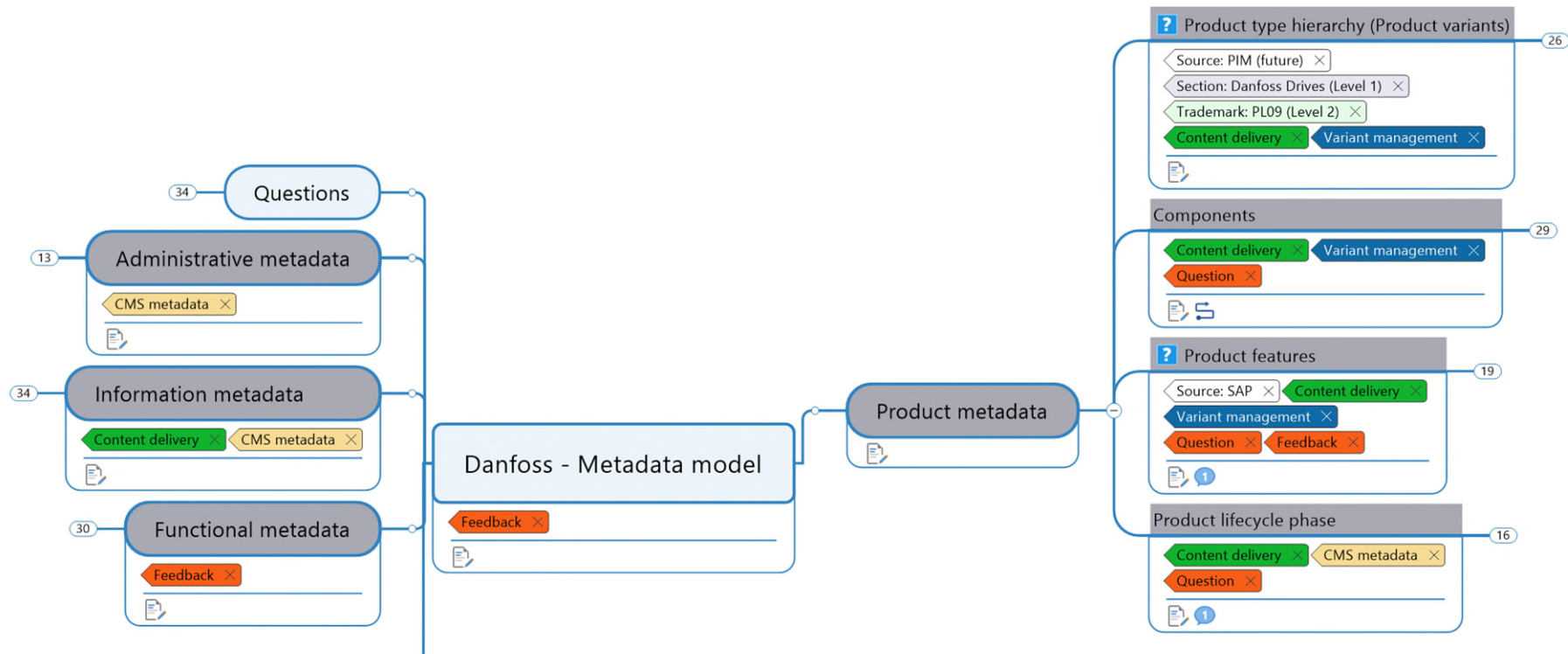
Product variants for product lines, e.g. iC7
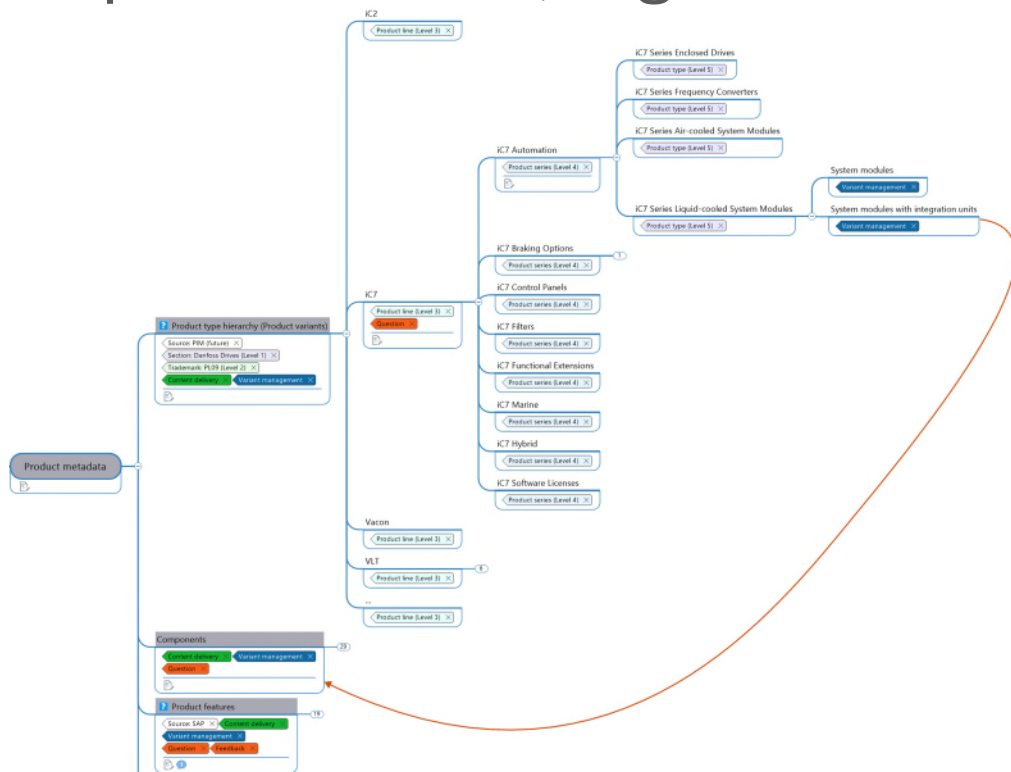
iiRDS in action

Implementing the metadata model

From theory to practice – Project phase 2

- Joint iiRDS project of Danfoss and parson
- How we worked together
- Implementation decisions

Examples
- Mapping iiRDS to CCMS features
- iiRDS product property
- iiRDS product type hierarchy
- Implementation in IXIA DRM (Dynamic Release Management)

parson's contribution

Method

- Workshops and interactive training for Danfoss
  - Knowledge transfer
  - Enable Danfoss to make implementation changes themselves

Topics

- Fine-tuning the DITA specialization (DITA-OT plugin)
  - Rename profiling attribute in line with iiRDS naming
    `product-characteristic > product-property`
- Support with implementation in IXIA CCMS
  - Concept for product and library hierarchy

General implementation decisions

Which parts of the metadata model should be implemented?

Implement

- `product-type-hierarchy`
- `rename` `product-characteristic` > `product-property`

Implement not yet

- `product-components`
- `product-functions`
- `product-lifecycle-phase`

Where to implement the metadata model?

- As metadata in the DITA content (specialized DITA elements and attributes)
- Using specific features of IXIA CCMS
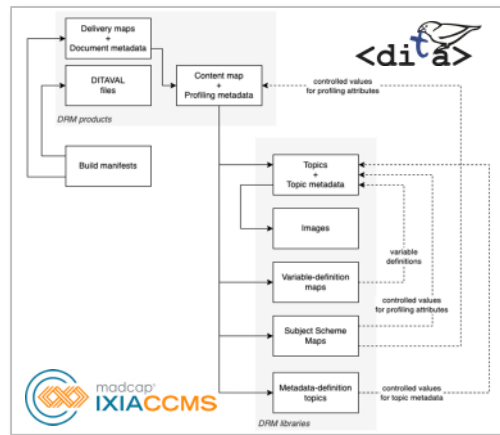
Where to implement?

Implementation of metadata as **DITA elements and attributes**.
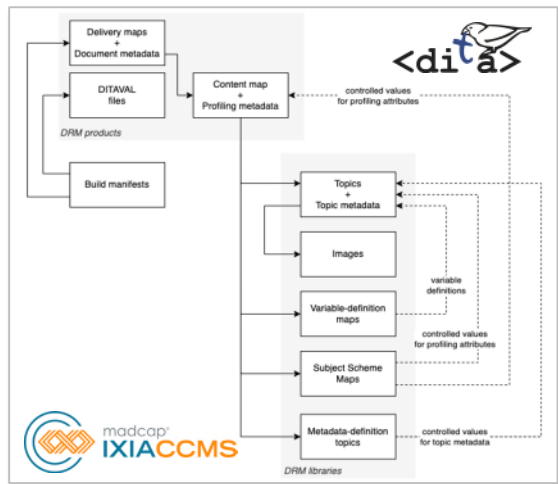
Implementing part of the iiRDS-based metadata model with specific **features of IXIA CCMS**.

- DRM = Dynamic Release Management
- Libraries
- ~~Taxonomies~~
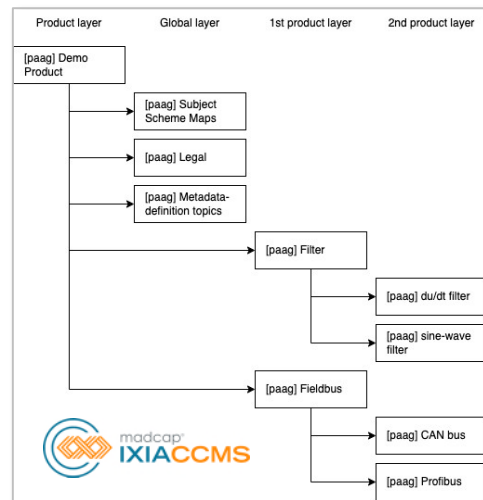
Mapping iiRDS to CCMS features

DITA implementation – Profiling attributes

4 new profiling attributes for Danfoss

- `@product-type-hierarchy`
- `@product-components`
- `@product-property`
- `@product-functions`

- Allowed values managed via DITA Subject Scheme Maps
- Separate `@product-type-hierarchy` for each product series
- Stored in IXIA DRM libraries

Profiling attributes
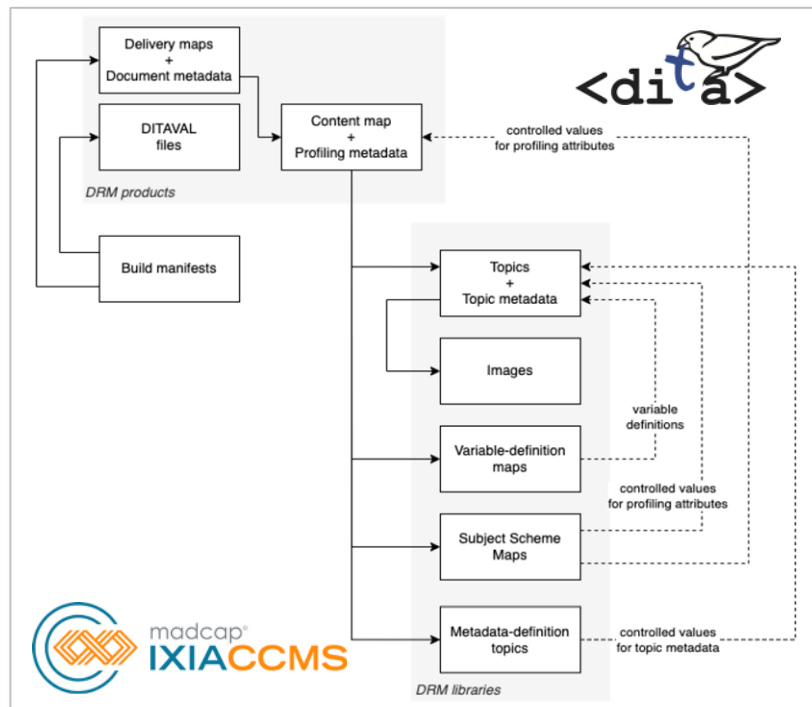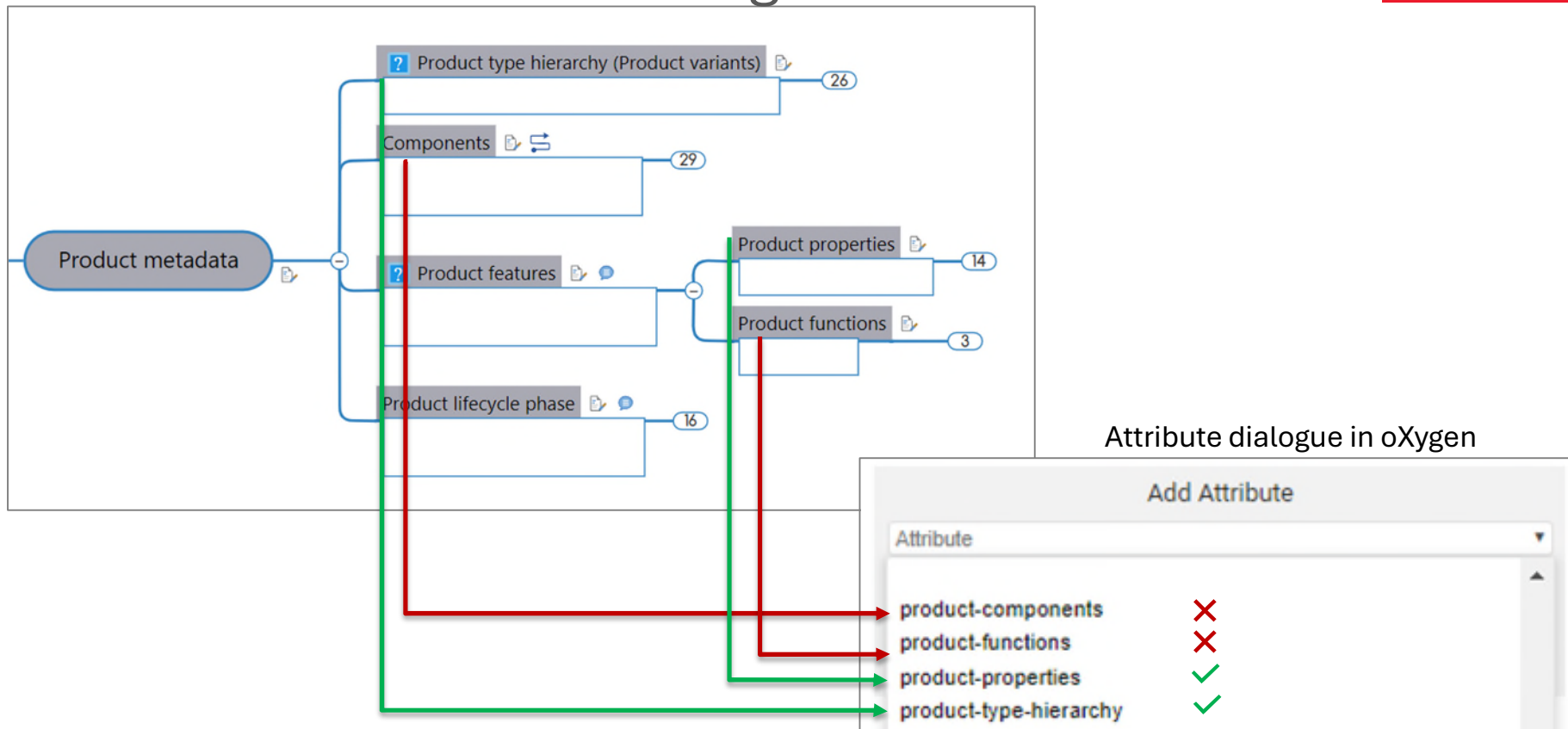
Attribute dialogue in oXygen

DITA implementation – Elements

One specialized "Delivery" map

Specialized elements with sub-elements

```
delivery-map-dds:
    document-title-dds,
    document-meta-dds,
    keydef*,
    topicref*,
    disclaimerref-dds*,
    reltable*
```

```
document-meta-dds:
    keywords*,
    othermeta*,
    document-type-dds*,
    document-numbers-dds?,
    cover-image-dds?,
    brand-logo-dds?,
    front-url-dds?,
    (data.elements.incl; |
    foreign.unknown.incl
```

```
document-title-dds:
    maintitle-dds,
    subtitle-dds*
```

```
event-dds:
    event-type-dds,
    event-code-dds?,
    event-desc-dds
```

```
document-numbers-dds:
    document-set-num-base-dds,
    document-version-dds,
    document-revision-dds,
    region-code-dds,
    m-number-dds,
    r-number-dds,
    master-date-dds
```

Standard `<authorinformation>` element plus specialized metadata elements aligned with iiRDS represented in a delivery map (specialized map type used as the main map for a publication).
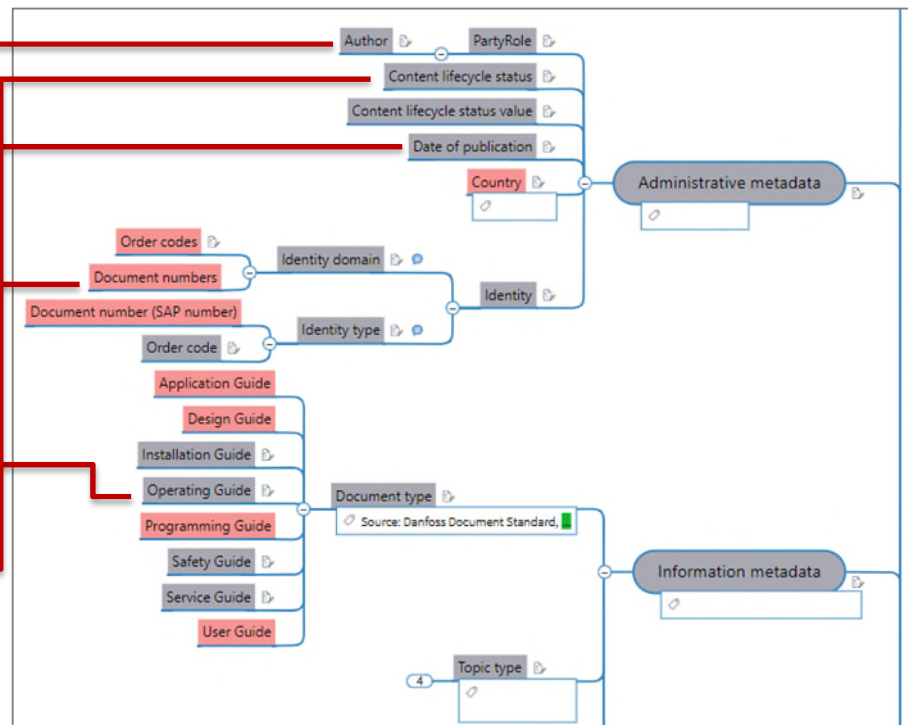
Graphics types aligned with iiRDS
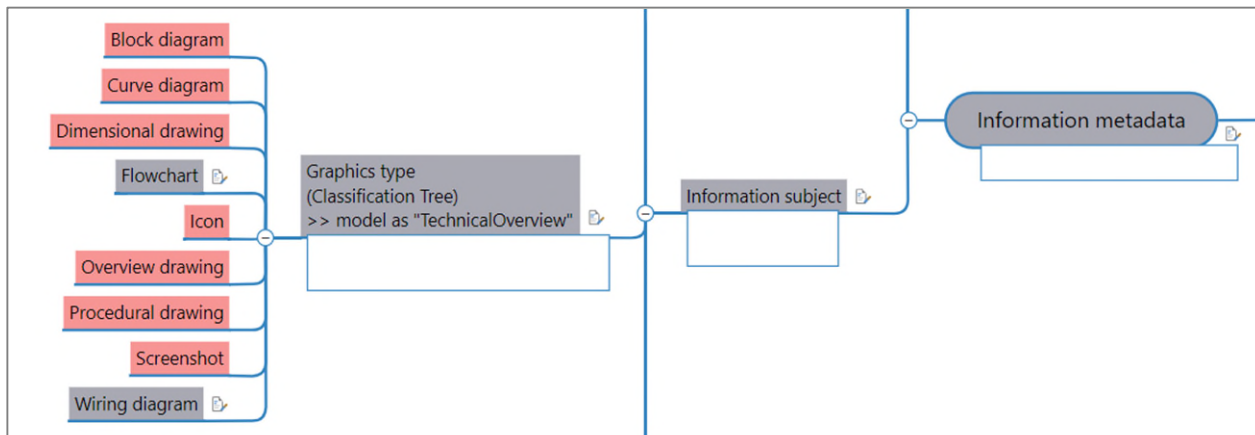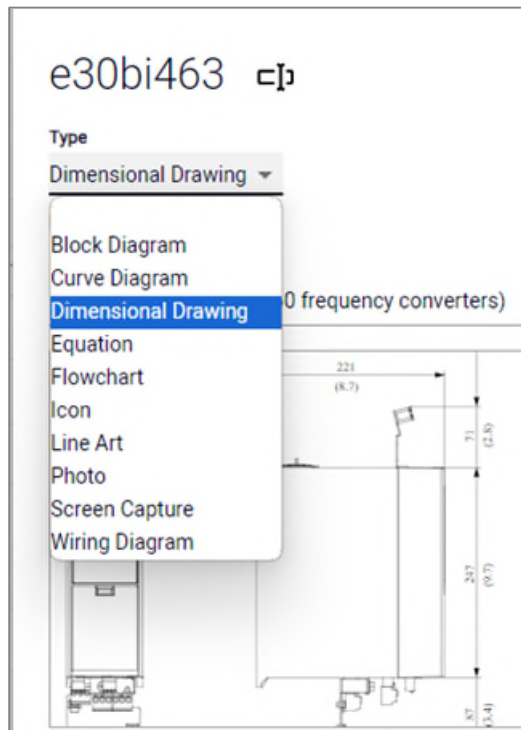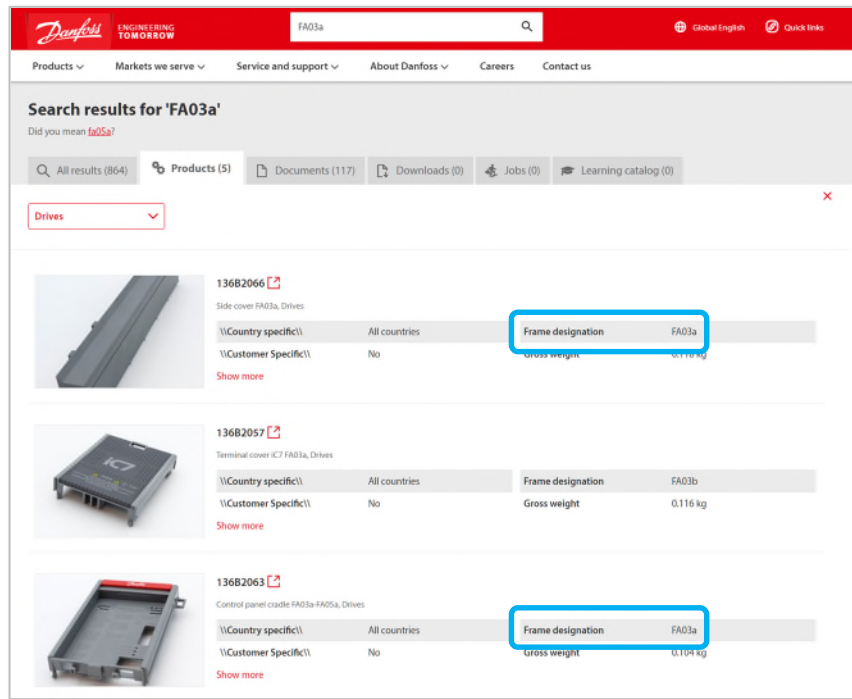
- Drop-down from IXIA for any graphics element
- Specific types defined: some too generic, one removed (Overview drawing)

iiRDS Product property

Example: Frame size FA03a

Frame designation FA03a

- Frame designation = frame size
- iiRDS class "Product property"
- DITA profiling attribute `product-property`
  (formerly `product-characteristic`)
- Used with DITAVAL
- Deepest level to use with DITAVAL

iiRDS class "Product property"

iiRDS class hierarchy

Documentation metadata

    Product metadata

        Product feature

            Product function

            Product property
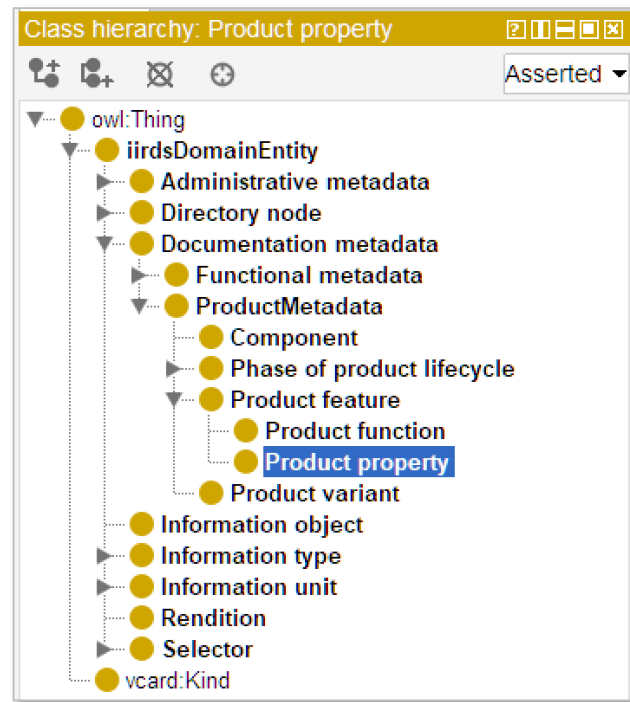
iiRDS-based Danfoss metadata model
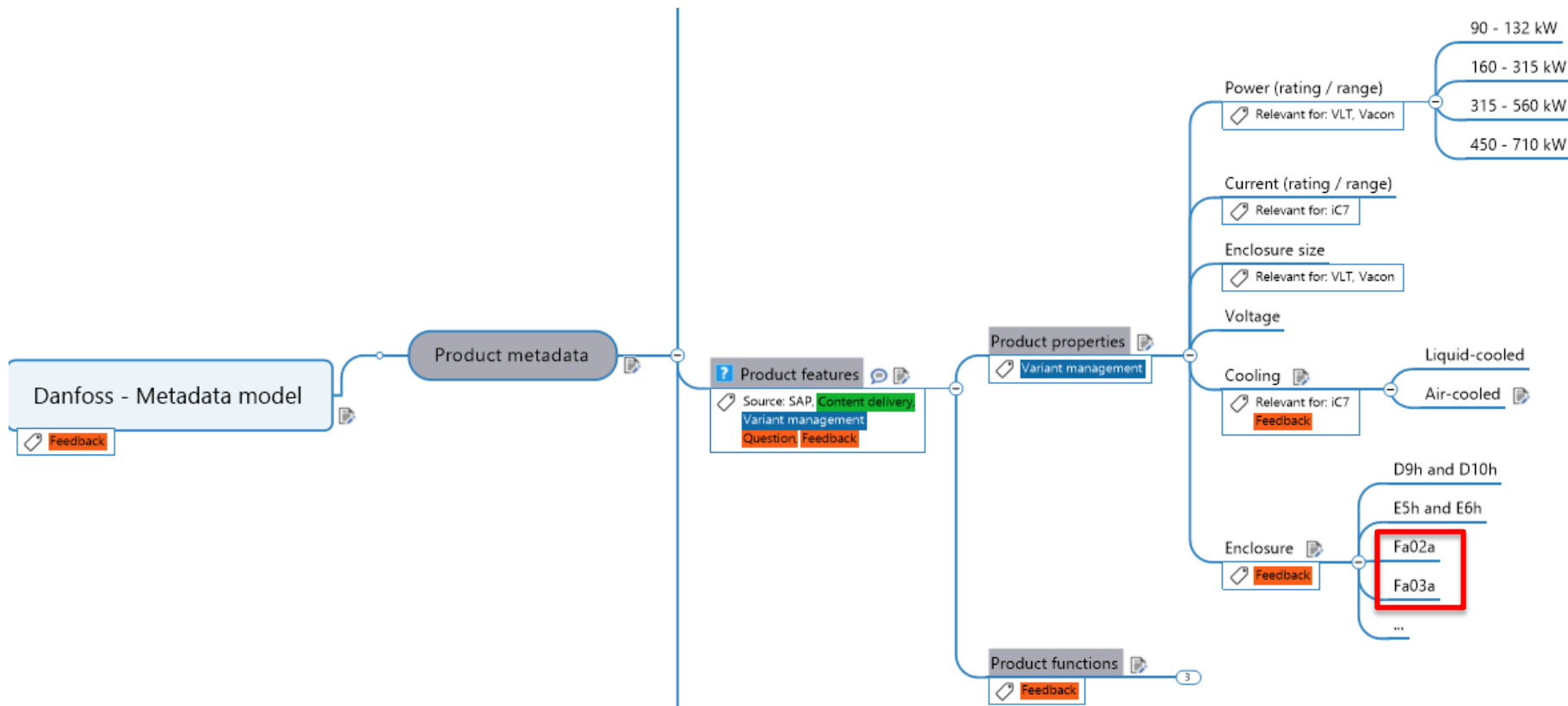
DITA subject scheme map

Attribute: `product-property`

- Provide controlled attribute values for authors.

- **keys** aligned with code used in other systems (SAP, DAM, PIM). Currently manually maintained; codes will be stable in the future.

- **navtitle** used for product name to make profiling easier for authors.

Values from external systems

SAP document classification

Classification in DAM

Product type hierarchy

Example: VLT® Servo Drive System ISD 520

Product Type Hierarchy in Product Store

Metadata, relevant for variant management and content delivery

Attribute: `product-type-hierarchy`
- *keys* aligned with code used in other systems
- *navtitle* used for product name to make profiling easier for writers

Subject Scheme map
- Product type hierarchy for motion drives
- Enables usage of conditional profiling attributes (using DITAVAL)

Example of attribute use in a VLT® Motion Drives topic

Attribute: `product-type-hierarchy`
- *keys* aligned with code used in other systems
- *navtitle* used for product name to make profiling attribute selection easier in the *Edit Profiling Attributes* dialog in Oxygen

Implementation in IXIA DRM

Dynamic Release Management

DRM – Basic concepts

Products

- Products separate the content into different content sets.
- No reuse between products, only within the same product.
- 3 release management levels:
  - Product (metadata only)
  - Release (with own metadata)
  - Version (content) = Branch

Libraries

- Libraries are "below" products.
- Libraries can be reused anywhere:
  - by all products
  - between other libraries
- Multi-level libraries provide layers.
- Content can only be reused from the bottom up.

DRM architecture – Simplified design principle
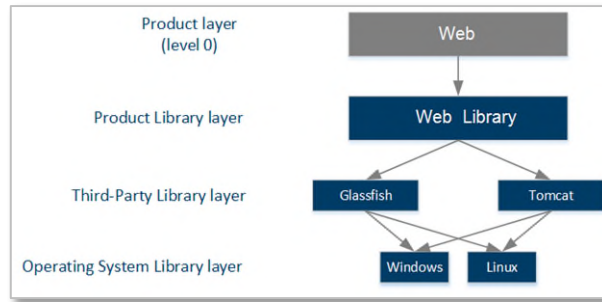
Product collections
- Split based on product brands: no reuse of product-based information between the different Danfoss Drives product brands for 2 reasons
  - Differences in product features
  - Differences in content lifecycle and content evolution
- Top-level organization for publications
- Content for publications gathered from the library collections

iC[x]	VACON	VLT®

Library collections for product-specific content
- Slight variation in the library collection design for different product brands based on the product series or product architecture
- Library design decisions based on content type and content reuse potential

Hardware
- For content about the hardware of Danfoss Drives products
- Separate branches for the different hardware variants of a Drives product

Software
- For content about software that may be combined with different hardware variants in different publications

Optional accessories etc.
- For content about optional accessories etc. that are compatible with multiple products within a Drives product brand

Common brand-specific/product-specific information
- For generic content that can be shared within a product brand or product series

Library collections for common content
- Common libraries linked to all content collections

Hazard statements and other legal information
- Common repository for hazard statements and other legally required information
- Aiming for reusable hazard statements and avoiding copies

Illustrations
- Common repository for illustrations
- Each illustration has a unique identifier that isn't generated by the CMS. Stored in the common repository to avoid the same illustration being uploaded to the CMS twice

Common DDS product information
- Common repository for content that isn't brand or product-specific, but applies to all (or almost all) Danfoss Drives products
- Product names done as variables to enable reuse.

DRM architecture – VLT® Motion products

Product collection: VLT® Motion Drives
- Top-level organization for publications

VLT® Motion Drives

Product branches
- Location for publications
- Split made to enable content sharing when necessary and content variation when needed

| VLT® Servo Drives | VLT® Gear Drives | VLT® Motion Drive Options |

Library collections relevant for Motion Drives

VLT® Motion Drives
- For Motion drives specific content

VLT® Common
- For generic content that can be shared within a product brand or product series

VLT® P400 Common
- For generic content that can be shared within a product family

Library collections for common content
- Common libraries linked to all content collections: every single Danfoss Drives technical documentation publication can use

Hazard statements and other legal information
- Common repository for hazard statements and other legally required information
- Aiming for reusable hazard statements and avoiding copies

Illustrations
- Common repository for illustrations
- Each illustration has a unique identifier that isn't generated by the CMS. Stored in the common repository to avoid the same illustration being uploaded to the CMS twice

Common DDS product information
- Common repository for content that isn't brand or product-specific, but applies to all (or almost all) Danfoss Drives products
- Product names done as variables to enable reuse.

Example: VLT® Motion Drives, Flexmotion series
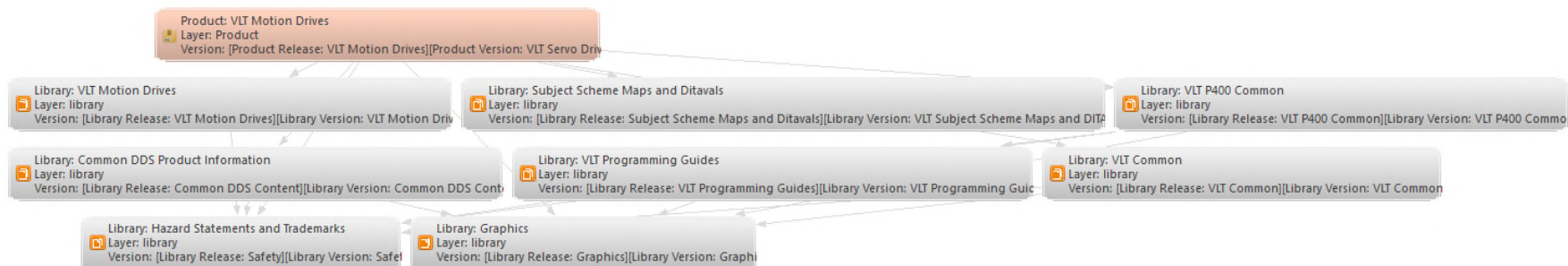
- The publications are created and maintained in product branch *VLT® Servo Drives*.
- Content for the guides is collected from library collections *VLT® Motion Drives*, *VLT® P400 Common*, and *VLT® Common*.
- Hazard statements and illustrations for the content created in the aforementioned libraries is collected from library collections *Hazard Statements and Trademarks* and *Graphics*.

Title	Status	Locked By	Last Mod By	Last M
Product: Customized Documentation	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Product: Danfoss Multi-Brand Manuals	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Product: iC Series Application Guides	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Product: iC Series Frequency Converters	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Product: iC Series Options	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Product: iC Series System Modules and Enclosed Drives	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Product: iC2-Micro	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-
Product: iC7-Automation	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Product: iC7-Hybrid	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-
Product: iC7-Marine	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-

Filter product by name...

Title	Status	Locked By	Last Mod By	Last M
Library: Common DDS Product Information	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Library: Danfoss Power Options Safety and Warnings	Authoring:open		Tina Bertelsen Lock [tina.lock@danfoss.com]	2023-
Library: Graphics	Authoring:open		Tina Bertelsen Lock [tina.lock@danfoss.com]	2024-
Library: Hazard Statements and Trademarks	Authoring:open		Tina Bertelsen Lock [tina.lock@danfoss.com]	2024-
Library: iC Series Frequency Converters	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Library: iC Series Options and Common Product Information	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Library: iC Series Software	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Library: iC Series System Modules and Enclosed Drives	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2024-
Library: iC2-30 Frequency Converters	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-
Library: iC7 Filters	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-
Library: Service Guide, Kits, Spare Parts, Drive Pro	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2024-
Library: Subject Scheme Maps and Ditavals	Authoring:open		Tina Bertelsen Lock [tina.lock@danfoss.com]	2024-
Library: VACON Decentral Drives	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Library: VACON Drive Modules	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Library: VACON Enclosed Drives	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Library: VACON Options and Common Product Information	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Library: VACON Software	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Library: VACON Wall-mounted Drives	Authoring:open		Janna Haapala [janna.haapala@danfoss.com]	2023-
Library: VLT Common	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-
Library: VLT Compressor Drives	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2024-
Library: VLT Frequency Converters	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-
Library: VLT Motion Drives	Authoring:open		Don Koneval [don.koneval@danfoss.com]	2023-
Library: VLT Options and Software	Authoring:open		Tina Bertelsen Lock [tina.lock@danfoss.com]	2024-

Filter library by name...

parson

Future outlook

What is the future plan?

Developing publication channels to expose the CCMS topics with metadata to support:

Danfoss My Drive Assistant
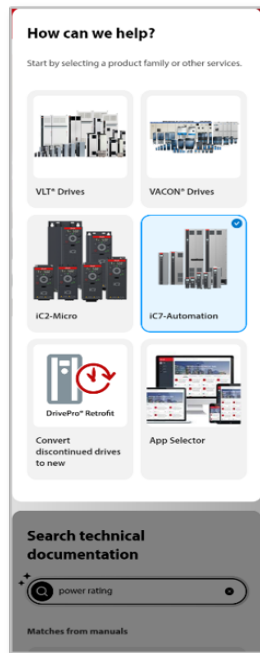
- Released topics populating the knowledge base automatically

Danfoss Software Tools

- Accessing exposed topics to provide online help

Content Delivery Portal

- Accessing exposed topics via a CDP, where customers can search for information on their product – down to topic level – and create their own content collections. Investigation regarding using Microsoft Copilot or commercial CDP
- Metadata enrichment planned to happen as part of the post-publishing process, not in CCMS as previously planned

How can we help?

Start by selecting a product family or other services.

VLT® Drives | VACON® Drives

iC2-Micro | iC7-Automation

DrivePro™ Retrofit / Convert discontinued drives to new | App Selector

Search technical documentation

power rating

Matches from manuals

My Drive Assistant

What is the future plan?

Topic-based exposing of content to different touchpoints

	Product-instance-based documentation	DITA topics are the granular base of information to create **serial number specific product information**.
	VDI 2770	Compiling activity-related documents for automated VDI 2770 (and later iiRDS) package **generation**.
	Integrations	**PIM** (inheriting product hierarchy and product attributes). **PLM → DAM** (connecting information products to product lifecycle).

Questions?

Thank you!

WE ARE EXHIBITING AT
tekom
FAIR24
STUTTGART, NOV 5 – 7

Meet parson at the fair:
Booth 2E05