PANTOPIX

Enabling Intelligent Service Assistants with Knowledge Graphs

NORDIC TechKomm Copenhagen 2025

Karsten Schrempp

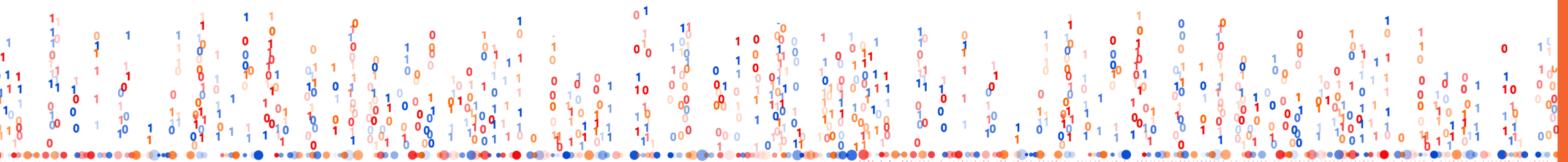
PANTOPIX

Intelligent Solutions for Technical Communication

We empower our customers to step confidently into their digital future.

Together, we're crafting the intelligent information landscape of tomorrow.

With exceptional consulting expertise and cutting-edge technological innovation.



Turning information into value

Knowledge Graphs

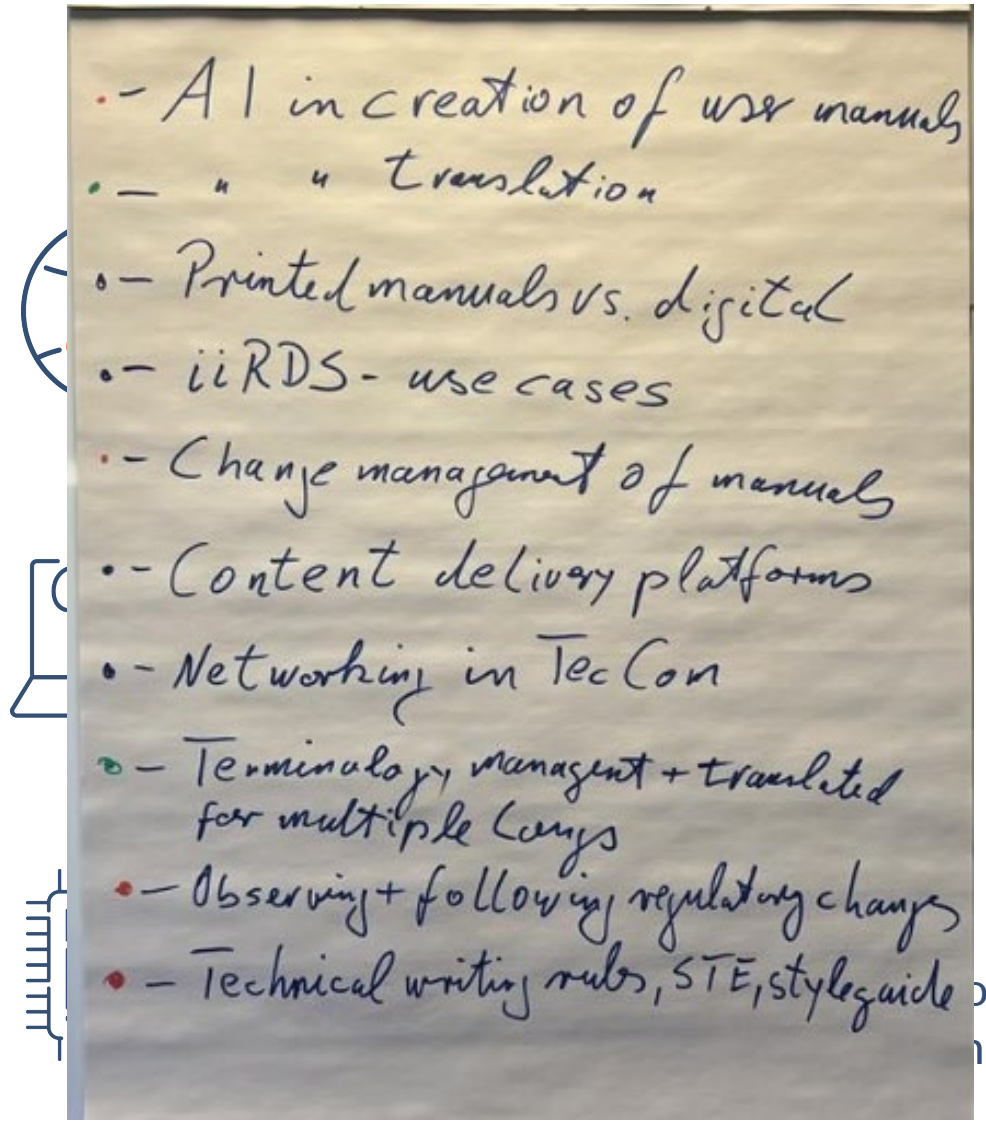
Connecting information silos with the help of semantic technologies.

AI-powered Solutions

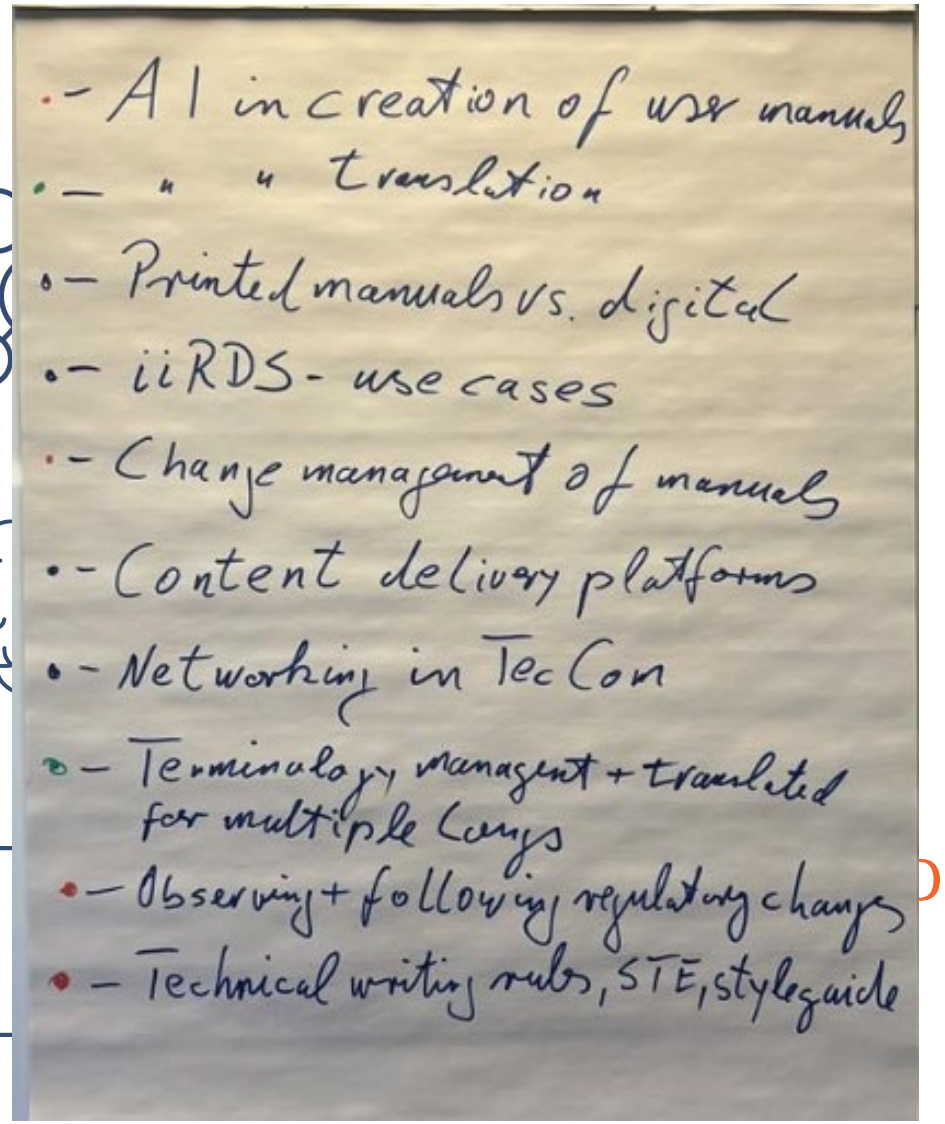
AI as a driver for intelligent provision of information.

Content Management & Delivery

Conception, configuration, migration and integration.



Turning information into value



Delivery

iiRDS

The technical standard enables a content-neutral transfer of information.

Data Pipelines

Transformation, publication and migration of data.
Automated and intelligent.

DITA

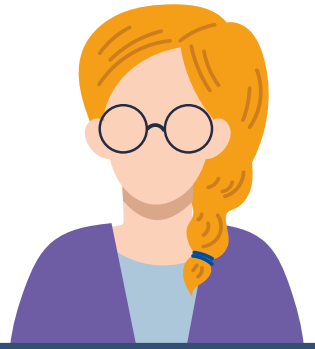
Topic-based creation, distribution and use of technical information.

About me

“Field technicians don't need more data - they need the right information at the right time. With Knowledge Graphs, we can finally deliver intelligent service assistants that truly assist.”

Karsten Schrempp | Founder & Managing Partner

Challenges in service



What annoys me most *is that I have to spend far too long searching for the information I need for my work. And when I do find something, it's sometimes not even up to date!*

My problem

TINA TECHNICIAN

Field Service Engineer

- Installation
- Repair
- Maintenance

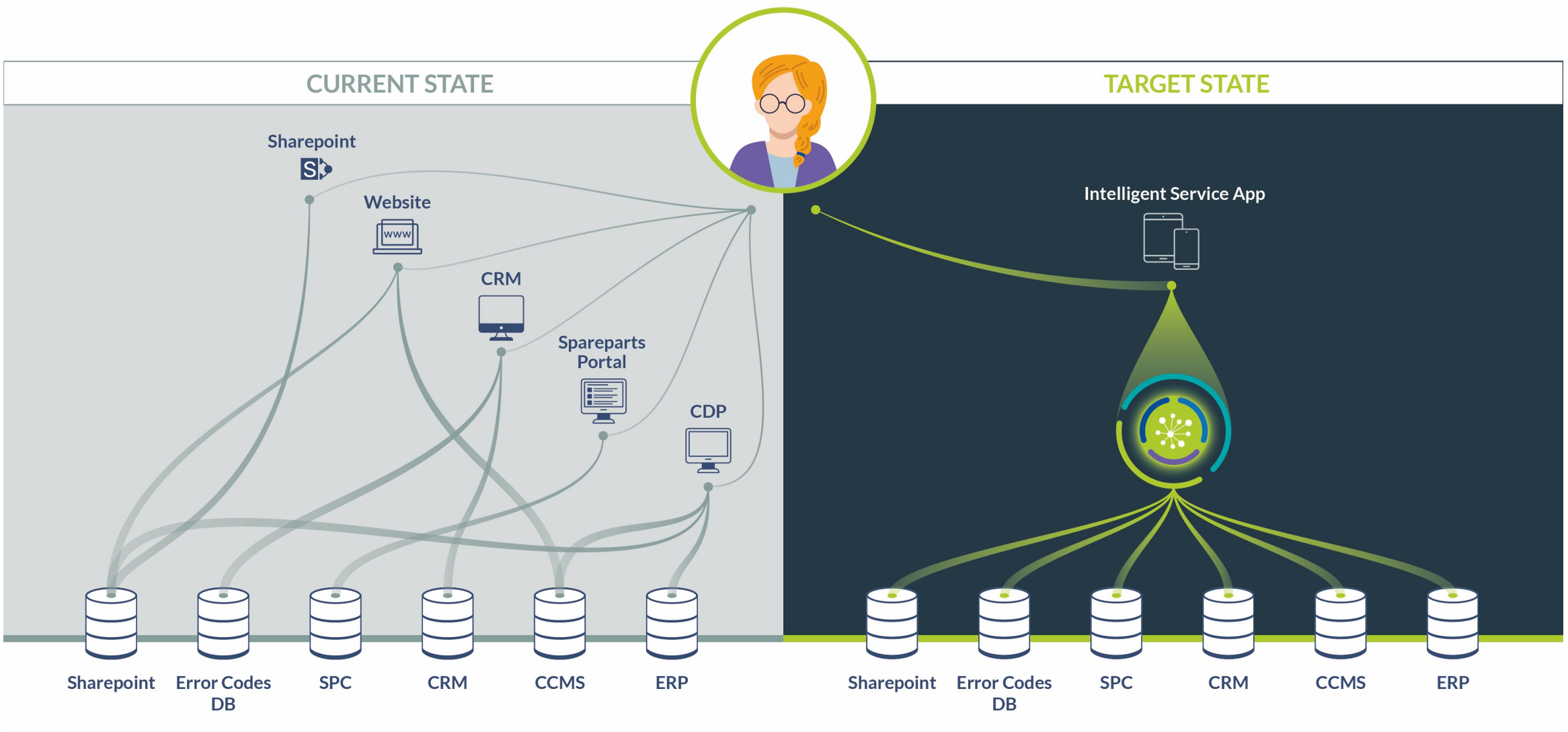
CHALLENGES

- Many sources of information
- Different data and information (format, structure, metadata)
- Various access routes
- Search and find
- Topicality
- Time pressure
- Unclear error messages
- Unclear information

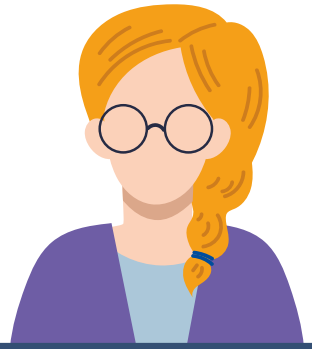
INFORMATION SILOS

- Repair and maintenance (CCMS)
- Spare parts (SPC)
- Machine configuration
- Service tickets (CRM)
- Error codes (product)
- IoT data (data lake)
- Various documents (SharePoint)

Challenges and opportunities in service



Opportunities in service



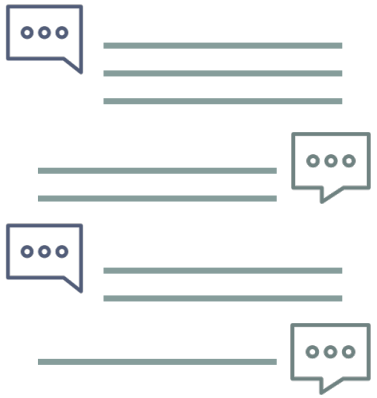
TINA TECHNICIAN

Field Service Engineer

- Installation
- Repair
- Maintenance

*The **Service Assistant** provides all relevant information for a specific service case, such as repair or maintenance, without lengthy searches.*

My vision



- Order, customer information -> Ticketing system, CRM
- Product status -> Data Lake, Error Codes DB
- SPSpare parts -> SPC
- Step-by-step instructions -> CCMS

Challenges for IT

I want to make my organisation fit for the future. *The use of new technologies should advance our digitalisation strategy. Approaches that are scalable across different areas of the company are ideal.*

My problem

SELMA SEMANTICS

Chief Information Officer

- Strategic IT planning and development
- Digitalisation
- Implementation of new technologies

CHALLENGES

- Various specialist departments
- Support for specialist departments
- Established system landscape
- Integration of information from different information silos
- Future security and investment protection

TRENDS IN SERVICE*

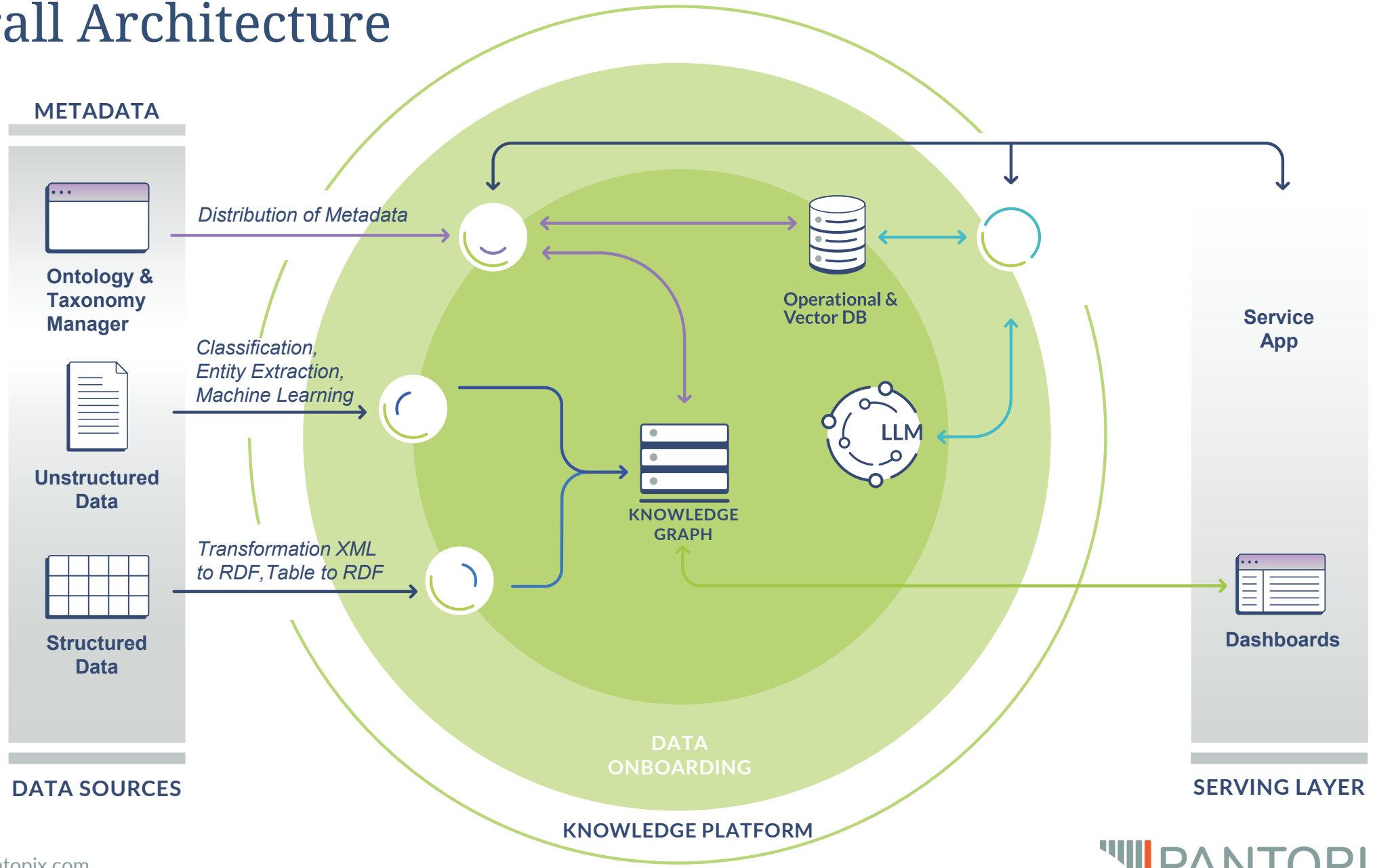
- Industrial Internet of Things
- Data collection and predictive analytics/maintenance
- New maintenance strategies: proactive, cognitive and prescriptive
- Service for higher growth rates/against cyclical revenues
- Importance of service KPIs
- Training and regrouping of service staff

* References: Boston Consulting Group, McKinsey, Prometheus Group

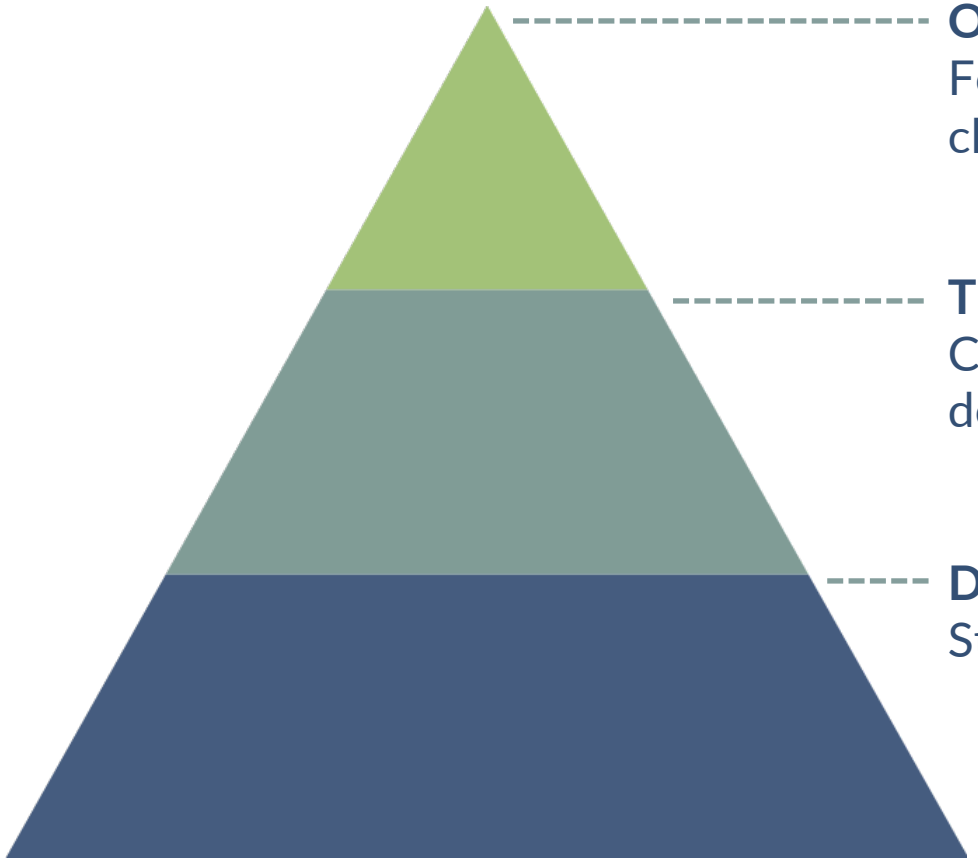
Knowledge Graph

- Networking and virtualisation of structured and unstructured data and ‘information silos’
- Integration of diverse information through automated classification, text mining and auto-tagging of information
- 360° knowledge modelling in the company
- Linking corporate knowledge with ‘public knowledge’
- Knowledge model (controlled vocabulary, one or more ontologies)
- Instance data to make knowledge of a domain available

Overall Architecture



Knowledge model and instance data (1/3)

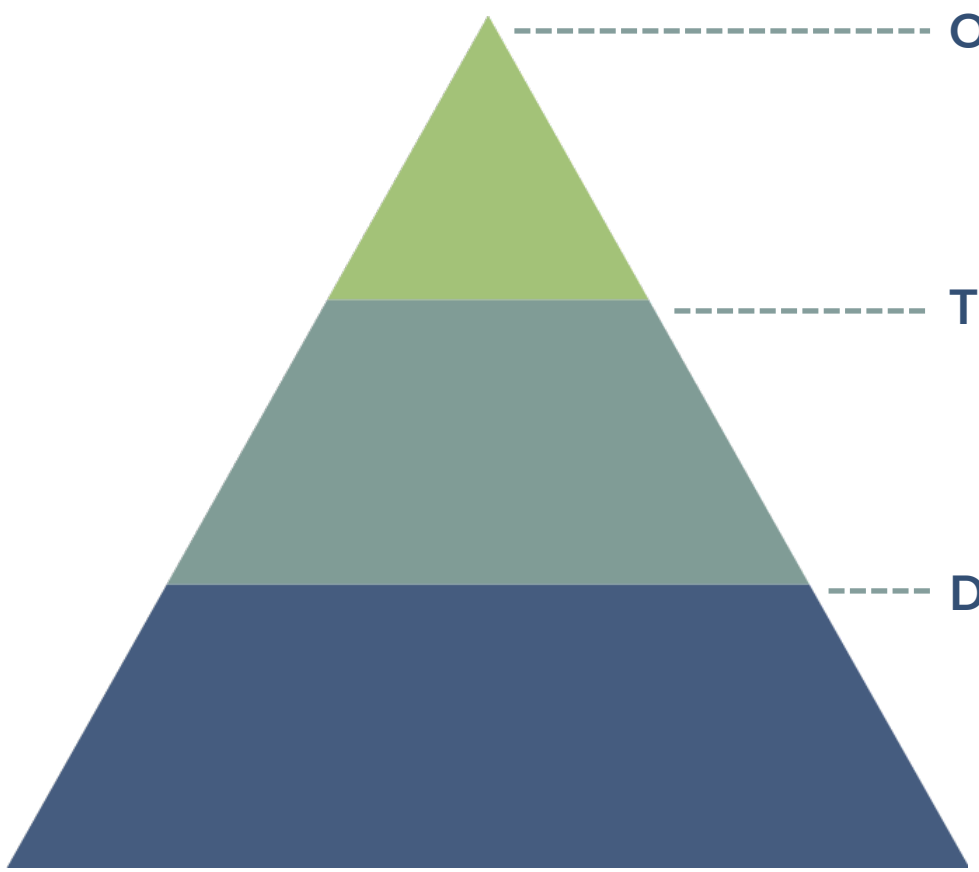


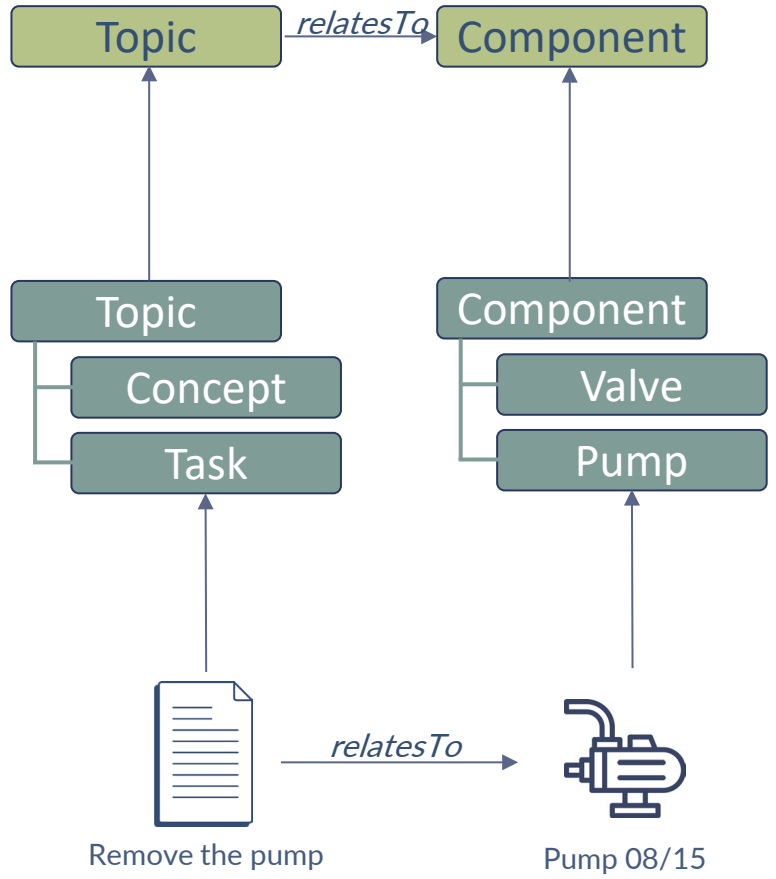
Ontologies
Formal knowledge representation using classes and relations

Thesauri/Taxonomies
Controlled vocabulary of a knowledge domain, metadata (e.g. SKOS)

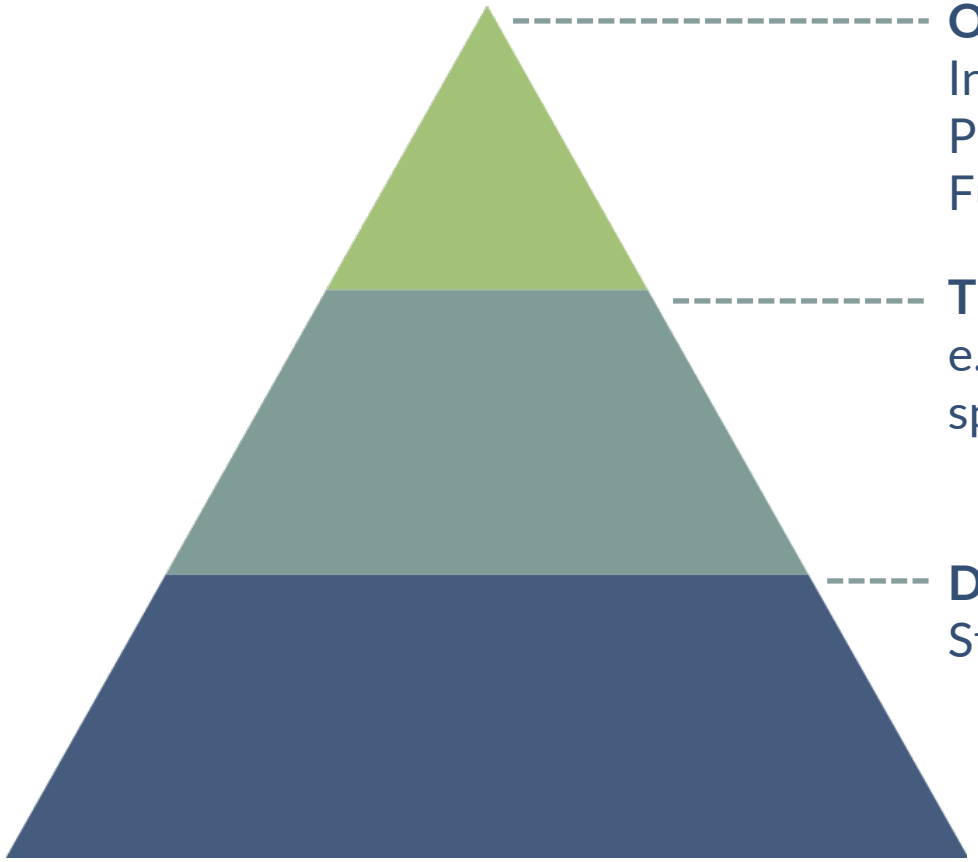
Data/Information
Stored in different information silos

Knowledge model and instance data (2(3)





Knowledge model and instance data

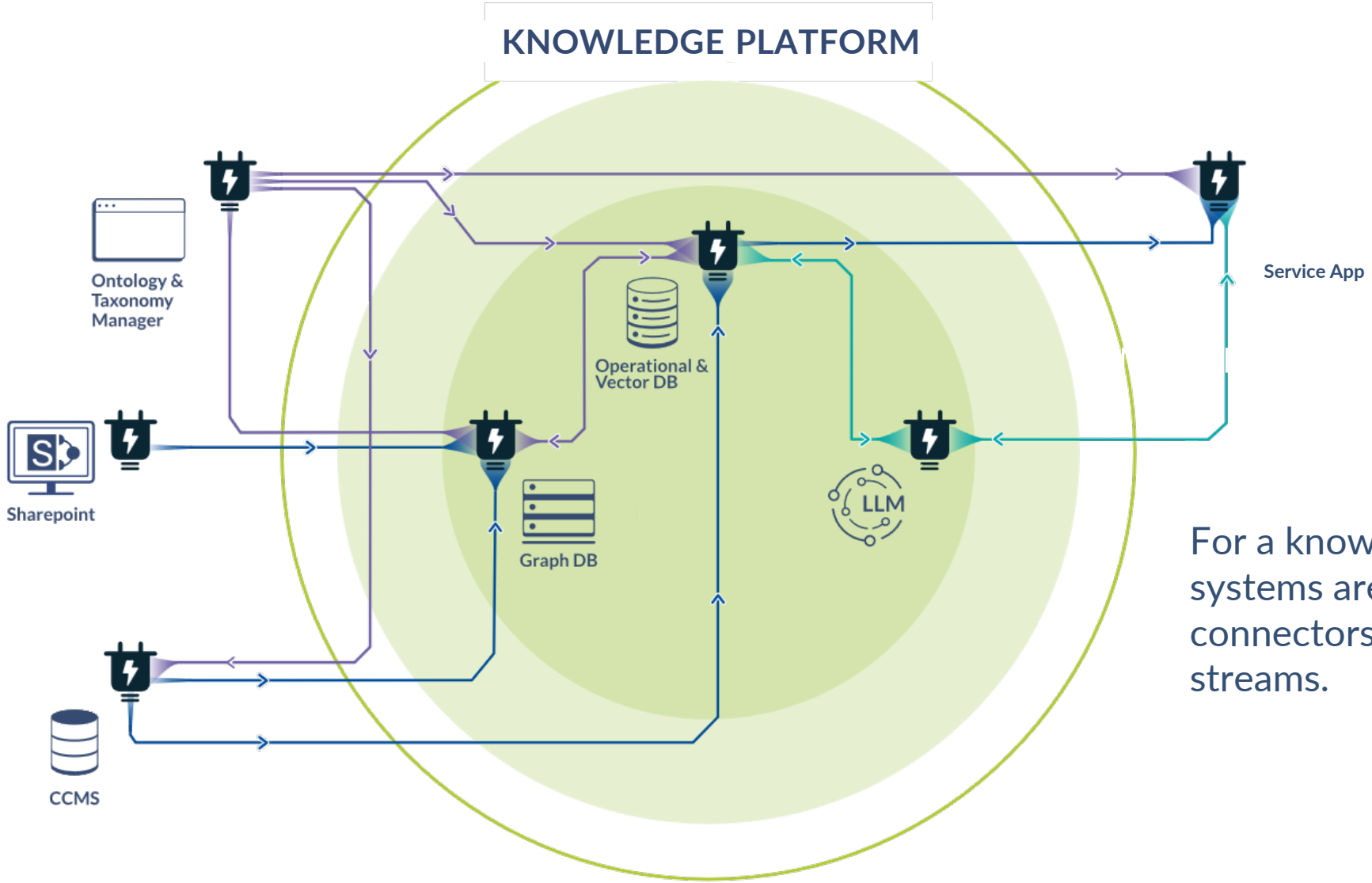


Ontologies
Information-related: iiRDS
Product-related: Product ontology
Functional: Events, roles, rights

Thesauri/Taxonomies
e.g. based on iiRDS, VDI 2770 Company-specific

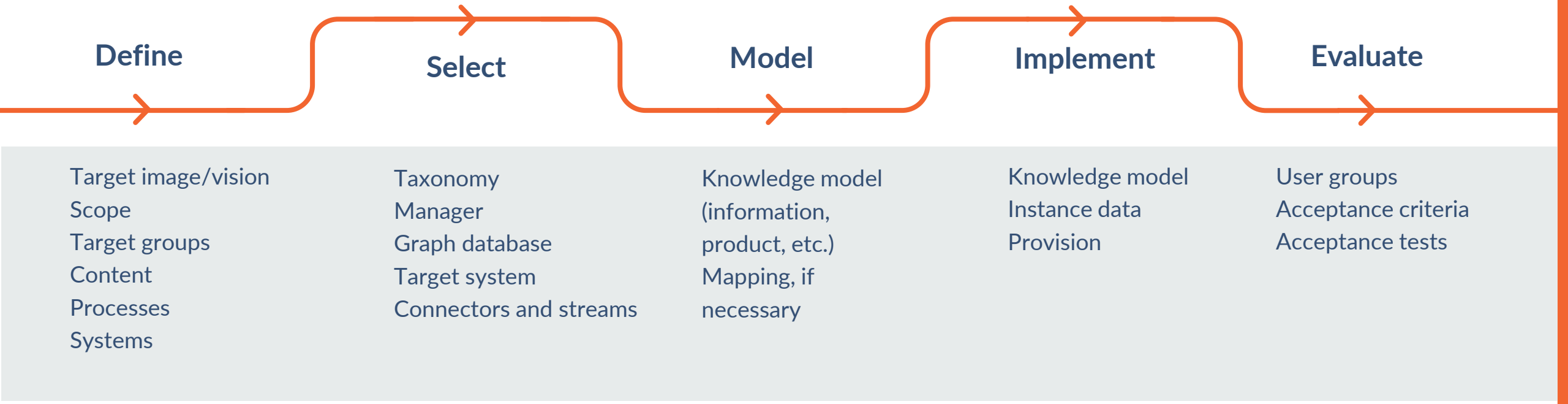
Data/Information
Stored in different information silos

Connectors and streams



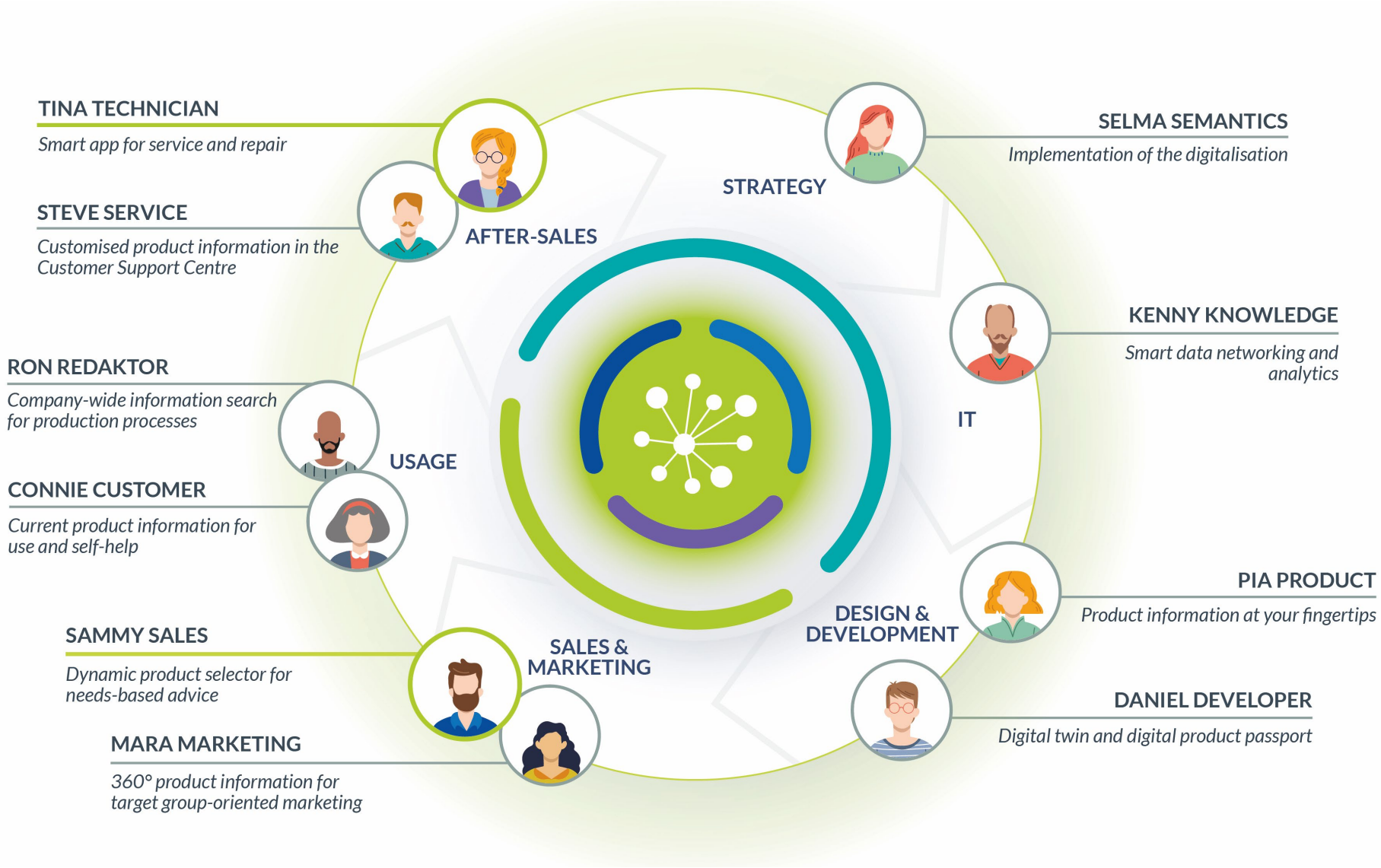
For a knowledge hub, multiple systems are connected via connectors and multiple streams.

The path to intelligent service assistants



- Iterative approach: vision, analysis, POC, MVP, etc.
- Challenges: common understanding, procedural requirements, content requirements

Outlook


TINA TECHNICIAN
Smart app for service and repair
STEVE SERVICE
Customised product information in the Customer Support Centre
AFTER-SALES
STRATEGY
SELMA SEMANTICS
Implementation of the digitalisation
KENNY KNOWLEDGE
Smart data networking and analytics
IT
RON REDAKTOR
Company-wide information search for production processes
USAGE
CONNIE CUSTOMER
Current product information for use and self-help
PIA PRODUCT
Product information at your fingertips
DESIGN & DEVELOPMENT
DANIEL DEVELOPER
Digital twin and digital product passport
SAMMY SALES
Dynamic product selector for needs-based advice
SALES & MARKETING
MARA MARKETING
360° product information for target group-oriented marketing

In conclusion

*For me, **knowledge graphs** are relevant from two perspectives: as an editor, knowledge graphs support me in **my company-wide information research**. At the same time, however, the service assistant is only successful if I provide **topics enriched with metadata**. In the end, it is still the content that counts!*

PANTOPIX

Thank you!

www.pantopix.com

Feedback

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