iiRDS
Introduction and Status

Ralf Robers, tekom
Agenda

You will get information about iiRDS with respect to the

1. motivation to develop such a standard
2. team behind it
3. conceptual approach
4. underlying ontology
5. implementation
6. services on the tekom website
7. visualization of its content
8. status and next steps
What (Smart) Users want

- The right information
- for the right person
- at the right place
- at the right time
- on the most suitable device

tekom wants to offer a state-of-the-art concept to create and convey intelligent information
Many names – one phenomenon: „Digitization“

- Smart factory
- Industrial internet
- Industry 4.0
- Internet of things

Image source: www.packingstrategies.com
Digitization is invading our daily life

Source: HEIDELCOM, 2017
Digitization: Things become „assets“

Physical world

- Physical or abstract object

Real asset

Terms

- properties, states, location, time, allocations, functions

Reflection

- Metadata

Information world

- „Digital twin“

Source: HEIDELCOM, 2017
Industry 4.0 component

Physical world

Information world

Source: HEIDELCOM, 2017
Smart user information is located inside Industry 4.0 components

Home of metadata for smart user information

Information world

Physical world

Shopfloor

Source: HEIDELCOM, 2017
Further Motives

1. a contemporary, cross-industry standard for the electronic exchange of technical documentation content between different manufacturers is overdue for many years,

2. an international vocabulary for the standardized description of technical (user) documentation and its piece parts (metadata) is missing,

3. a standardized delivery standard for technical (user) information, which can be handed over dynamically to servers, (web) portals or applications does not exist,

4. an automatic aggregation of technical (user) documentation from different manufacturers and an individual request/evaluation by users or applications is not possible.

Source: HEIDELCOM, 2017
Members of the Working Group „Information 4.0“

Over thirty experts from various fields of expertise:

- **Industry Experts**
  - Machine Building and Systems Engineering
  - Power Plants
  - Electronics / Electrotechnical Industries
  - Software

- **Software Vendors**
  - CCMS
  - Content Delivery Systems
  - Enterprise Search
  - Semantic Graphics Database

- **Consulting and Academia**
  - Universities
  - Consulting Service Providers

Kick-off 27.06.16
Conceptual approach – User stories

Definition of Requirements in User Stories with Prioritization (according to MOSCOW)

As a service technician, in a case of malfunction I want instructions to be displayed context sensitive so that I can act in an adequate way

As a user / operator / service technician I want that, in case of changes of the software configuration or of hardware components also the information for use will be adjusted, so that system and information are congruent at any time

§ 10 thematic fields with 59 User Stories all over ...
## Conceptual approach – terminology

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The power of ontologies

Subjects & objects

Ontology

Hierarchical structure or taxonomy

relations
Example for an „RDF triple“ of iiRDS
View on iiRDS classes (extract)

Main conceptual classes
- Documentation metadata
- Information type
- Information unit

= Auxiliary classes
The packaging format

Root
   iiRDS Container (zip file)
      mimetype
      META-INF
         metadata.rdf
         <arbitrary directory structure>
            *.* (content files)
            <arbitrary directory structure>

xml code:

```xml
<iirds:references-information-unit>
  <iirds:topic rdf:about="content/3_2_Teleskopstand_und_Standplatte_montieren.html">
    <iirds:has-topic-type rdf:resource="http://iirds.tekom.de/iirds#Task"/>
    <iirds:relates-to-product-metadata>
      <iirds:Component>
        <rdfs:label>Bodenstaender</rdfs:label>
      </iirds:Component>
      <iirds:relates-to-product-metadata>
        <iirds:Component>
          <rdfs:label>Teleskopstange und Standplatte montieren</rdfs:label>
        </iirds:Component>
      </iirds:relates-to-product-metadata>
      <iirds:ProductLifeCyclePhase rdf:about="http://iirds.tekom.de/iirds#Installation">
        <rdfs:label xml:lang="en">Installation</rdfs:label>
        <rdfs:label xml:lang="de">Installation</rdfs:label>
      </iirds:ProductLifeCyclePhase>
    </iirds:relates-to-product-metadata>
  </iirds:topic>
</iirds:references-information-unit>
```
Information with different modular structure can be exchanged

Deeply structured information

Flat structured information
Scope and history

Cross-checking with other standardization projects, like
- VDI 2770
- OPC-UA
- AutomationML

Liasing with
- RAMI 4.0, and become official member of the Industry 4.0 platform
- eCl@ss, and submit the iiRDS-vocabulary to international standardization

Developers’s preview
- April 2017

Start with Request for Comments (RfC)
- October 2017
Access over website

iiRDS – The International Standard for Intelligent Information Request and Delivery

tekom welcomes you to the growing home of iiRDS – the standard that enables dynamic information request and delivery in the era of the Internet of Things and Industry 4.0.

REQUEST FOR COMMENTS

Request for Comments is now open!
We invite you to comment on the current version and the newest technical specifications of iiRDS.

VERSION 1.0

Version 1.0 of iiRDS will be released soon.
Re: a pilot and fly with it! If you are interested in implementing iiRDS as one of the first, don’t hesitate to contact us with any questions or for further information.

Get in touch with us!
Download area on website

iiRDS Download Area

All documents related to tekom iiRDS are available for download from this page.

iiRDS is in a state of steady development: you can find the most recent specifications and the RDFS here, but also read about the very start of iiRDS in the archive.

iiRDS RFC 0.9

Click to view the specification in a new window.
How to visualize the RDFS format

1. Download RDFS file from iiRDS website
2. Change file extension from “.rdfs” to “.xml”
3. Install visualization tool, e.g. Protégé
   https://protegewiki.stanford.edu/wiki/Main_Page
4. Install Plugin OntoGraf
   https://protegewiki.stanford.edu/wiki/OntoGraf
5. Open iiRDS xml file from Protégé “File” menu
6. Select tab OntoGraf
Licensing and Status

- iiRDS is an open source project, which is protected by a Creative Commons license

<table>
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<th>Acronym</th>
<th>Allows Remix culture</th>
<th>Allows commercial use</th>
<th>Allows Free Cultural Works</th>
<th>Meets 'Open Definition'</th>
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- Version 0.9 is published on https://iirds.tekom.de/
- The source data is kept on a separate server in Germany hosted by tekom
What's next?

- Collect comments for iiRDS V.09 from the community until end of December 2017
- Rework iiRDS based on the comments received
- Publish first release of iiRDS in January 2018
- Find members for the iiRDS consortium starting in 2018
- Create an iiRDS community
- Reach out to all members of the world-wide techwriting community
How to contact us

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The feedback tool will be available even after the conference!