Using DEXPI in investment projects

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AFRY (ÅF Pöyry) is an international leader within engineering, design and advisory services. We create solutions to support our customers worldwide to act on sustainability as well as the global trends of urbanisation and digitalisation.

We are more than 16,000 devoted experts within the fields of infrastructure, industry and energy operating across the world to create sustainable solutions for the next generation.

Making Future.

Quick facts

- More than 16,000 employees
- President and CEO: Jonas Gustavsson
- Head office in Stockholm, Sweden
- Five divisions:
  - Infrastructure
  - Industrial & Digital solutions
  - Process Industries
  - Energy
  - Management Consulting
- Offices in more than 50 countries

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1. AFRY
2. Problem and solution
3. THTH history using DEXPI
4. Use cases
5. Next steps

Some of the current problems in global engineering

- Lack of interoperability
- High cost of sharing
- Availability of trained resources
- Monolith and rigid project model
- Whole life cycle support

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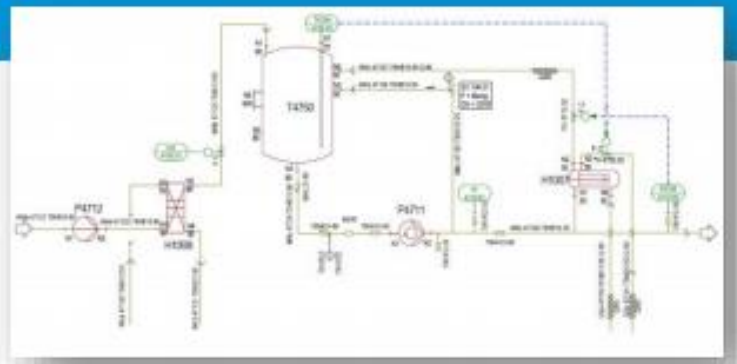
DEXPI Mission

What we do

DEXPI Data Exchange in the Process Industry

We work to create an **open**, neutral and reliable **data exchange standard** for the **process industry** to establish a future-proof **digitalized collaboration.**

... and we started with the P&ID



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DEXPI – A Successful Team

DEXPI Data Exchange in the Process Industry

International *Multi Sides Team*

Owner / Operators

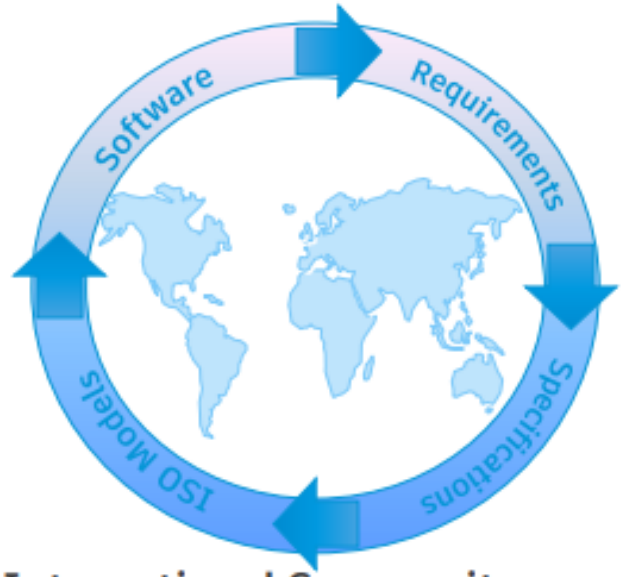
- BASF
- Bayer
- Covestro
- Equinor
- EVONIK
- Merck

EPC

- Air Liquide

Software Vendors

- Autodesk
- Aucotec
- Aveva
- Bilfinger
- Hexagon
- PTC
- Semantum
- Siemens
- X-Visual
- eVision



Research Organizations

- AixCAPE e.V.
- VTT of Finland
- TU Berlin
- RWTH Aachen University
- Tecgraf/PUC Rio

International Community

- ISO TC 184 SC4
- CII / FIATECH
- OPC Foundation
- CFIHOS
- DECHEMA / NAMUR / DKE / VDMA
- SSG

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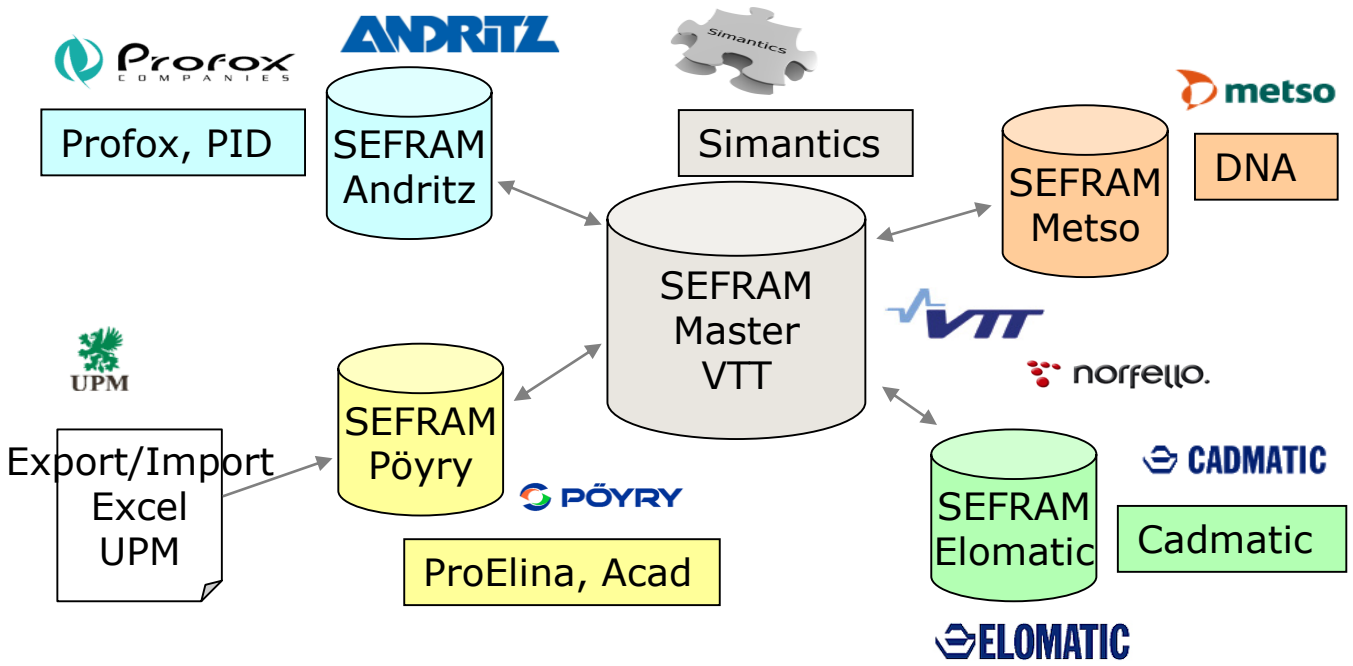
THTH – history using ‘DEXPI’

THTH – Tekes project for collaboration data exchange in 2008-2010.

Has ruleset for defining data model

Based on XmPLant (origin of Proteus, DEXPI)



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THTH – history using ‘DEXPI’

Project: Engineering Rulez

“Raising the level of automation and quality in plant engineering”

Group of R&D Projects funded by TEKES Research Benefit instrument

Tekes project where several THTH companies participate, 1.10.2016-31.12.2018

DEXPI was used in many work packages

PSK did thesis around DEXPI process and automation data exchange

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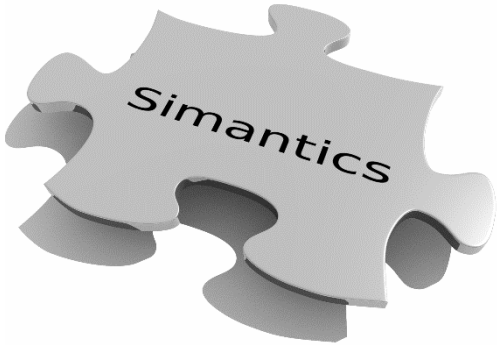

Use Cases

- PID to PID conversion
- Transferring data between different engineering tools (PID to Piping, …)
- Base for data modelling in applications
- Integration standard
- Project follow-up
- Base for machine learning

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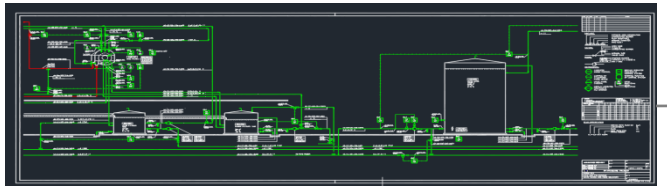
PID to PID

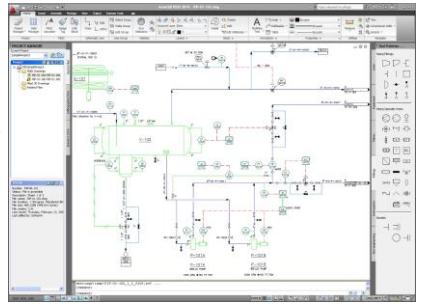


Original PID

DEXPI

Validator / Converter

DEXPI



Target PID

- From supplier PID to EPC PID
- From EPC to client
- PID to PID conversion might needed even both and origin and target systems are same
- Validator makes sure that data is format and sufficient
- Conversion sis needed if some data needs editing (different property sets)

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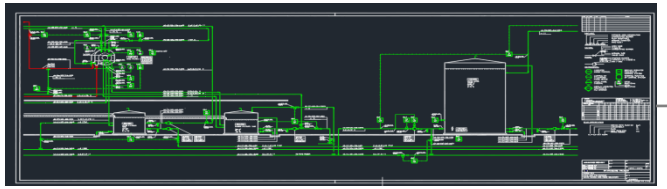
Transferring data between different engineering tools



Original PID

DEXPI

Validator / Converter

DEXPI

Target Tools

- From PID to 3D piping tools
- DEXPI is used for create pipelines, inline assets, etc. (not 3D geometry)
- Mapping between properties most possible needed
- Not only for 3D – also engineering databases might be target

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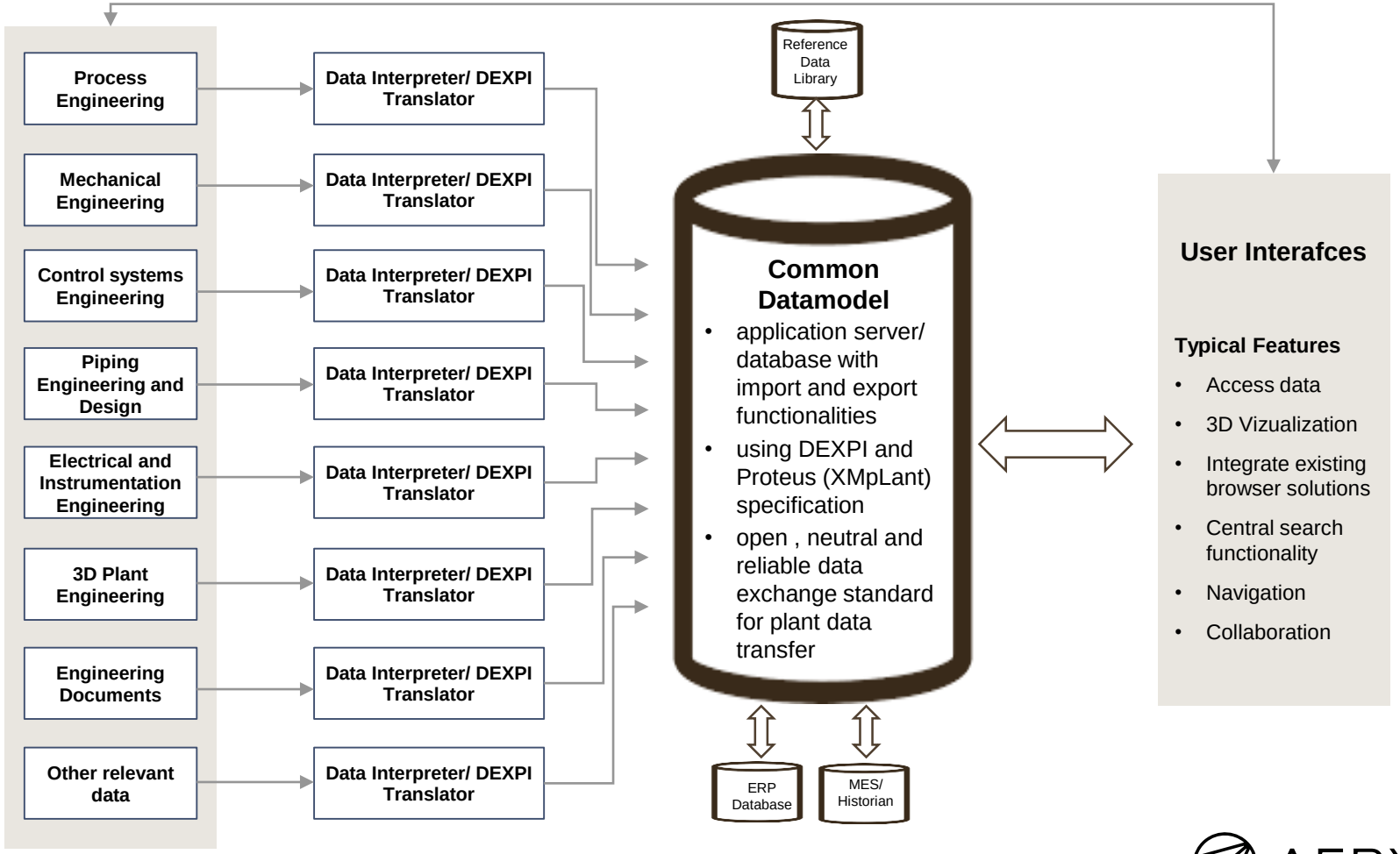
Base for data modelling in applications and Integration standard

Implementing integrated information management towards realizing digital twin

Data exchange approach using DEXPI and ISO 15926 across Plant Life Cycle stages



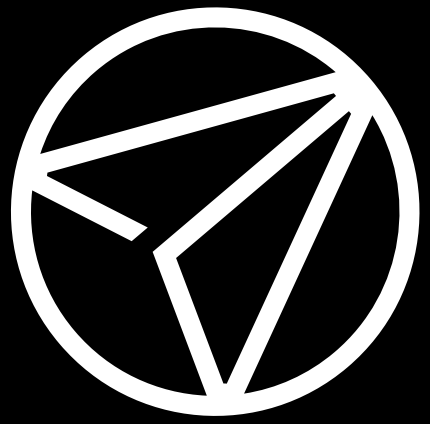
Project follow-up and Base for machine learning

- Build standardized enterprise memory
- Not locked to any specific tool and version
- Need instructions how to use DEXPI (no tool relations)

Next steps

- DEXPI is used mostly PID
- How to combine DEXPI PID with 3D design
- DEXPI relation to standards like ISO 15926, IFC, CHIFOS, etc.
- DEXPI is not standard – it should have some standardization status
- DEXPI is setting rules to Proteus format but still it has some freedoms which could lead interoperability issues
- Needs recommendations how to use DEXPI
- More use in plant industry (Finland, THTH, etc.)

DEXPI is Right WAY … WE ALL SHOULD USE IT



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