

A Nordic Interoperability Initiative for the Process and Energy Industries

Enabling digital transformation of key sectors of the Nordic economies.

19.8.2020

Slides by NIC joint working group (David Cameron, Erik Molin, ...)

Presented by David Hästbacka

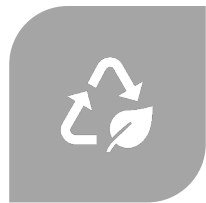
Why do we want to achieve this vision?

- Process, energy and natural resource industries are large parts of the Nordic economies.
- Our engineering and equipment companies supply the world with high-technology oil & gas, paper, metallurgical and energy plants.
- We are leaders in digitalization, with leading companies, both suppliers and users.
- We have high labour costs: we must be smart, effective and automated to compete.
- We must have a license to operate: always safe, low-carbon, circular.
- We need to adopt new business models to succeed.

Common business problems across the sector



DIGITAL
OPERATIONS



ENVIRONMENTAL
COMPLIANCE AND
CIRCULARITY.



DATA ENGINEERING
AND
MANAGEMENT.



SHORTAGE OF
SKILLED WORKERS



CYBERSECURITY

Process industry challenges that block our digital vision



Process industry is not the same as manufacturing industry. We cannot use the same methods directly.



Data is not of good enough quality



Data is not accessible, locked in application silos.



No commonly approved business principles for information sovereignty



No common ways for computers to talk about our processes and equipment

Nordic Interoperability Cooperation's Vision

- To digitalize, the process industries need data:
 - Data that is cheap, fast and easy to use.
 - Data that has an agreed meaning.
 - Data that can be used in many applications.
 - Data that supports artificial intelligence and autonomy.
- This requires the development, proving and dissemination of standard ways of accessing data: what we call **semantic interoperability**.
- The Nordic Interoperability Cooperation will build on our proven experience in this area to:
 - Improve data access for the Nordic, European and Global process industries.
 - Position Nordic suppliers as leaders in digital engineering and operations.

Why are we in
a good
position to
take the lead
in this work?

- Overall
 - We build on a Nordic model for collaboration and trust.
 - Good integration of suppliers, universities, R&D and business.
 - Robust, diverse, digital process industries.
- Finland:
 - Tools for simulation and engineering that embody best practices and standards for knowledge representation.
 - THTH industry organization that manages and develops these tools.
- Sweden:
 - Robust and diverse process industry that is working on piloting standards.
 - SEIIA industry organization that coordinates piloting and development.
- Norway:
 - Standards for describing and structuring data for oil and gas facilities. PCA.
 - Ways of representing engineering data and requirements in the supply chain.
 - Joint Industry Projects that develop local and global standards.

Our planned Nordic Interoperability Cooperation (NIC)

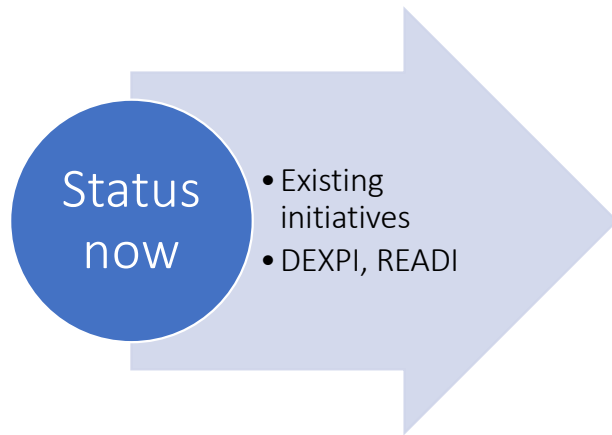


Objectives: What will the Collaboration do?

- We want to contribute to and lead Digital Europe and Green Deal.
- Build a framework for Nordic collaboration around Semantic operability.
 - Involve Nordic operating and engineering companies.
- Expand this framework into Europe through one or more European projects.
- Contribute to and gain value from international standardisation initiatives.
 - Provide our methods and experience.
 - Refine the standards through application to real business problems.
- Formulate a common vision and roadmap for using semantic interoperability.
- Provide an implementation platform that allows us to use standards to drive innovation.
- Build competence and new businesses.

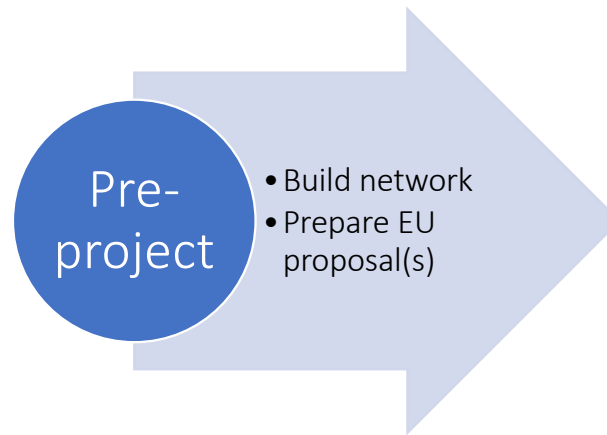
Our plans

May 2020



September 2020

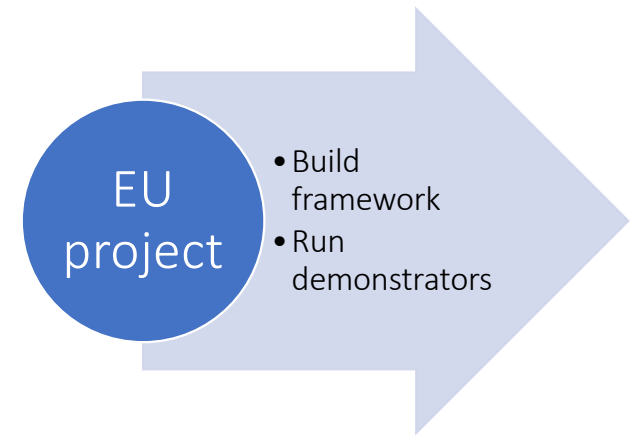
May 2021



“NIC 1”

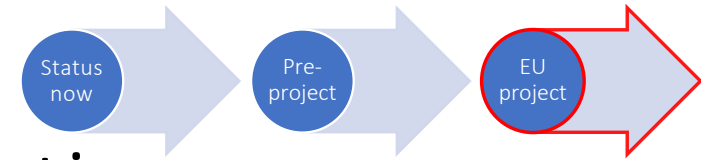
January 2022

December 2024



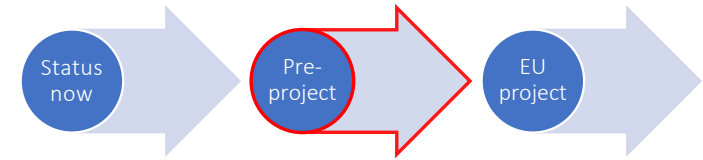
“NIC 2”

Expected EU funding contribution €4-10 million for process industry companies and research institutes



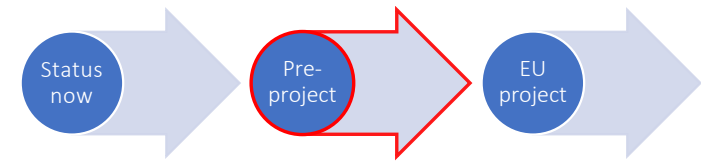
Tasks for the EU project collaboration

- Further build and expand the Nordic process industry ecosystem.
 - Better cross-sectoral collaboration and transfer of technology (oil-energy-minerals-paper-process-metals).
 - Spread the good news of semantic integration.
- Exert influence in international and European forums.
 - Interact with branch organizations and European partner programs.
 - Interact with initiatives such as Industrie 4.0.
 - Drive European projects that further our aims.
 - Strength in numbers: we have more impact together as a Nordic team.
- Develop the implementation framework and tools needed:
 - Driven by industrial use cases.
 - Demonstrators of best practice and new business models.
- Build competence and transfer technology:
 - Universities, small companies, large companies, adult education and training.



Nordic Interoperability Cooperation NIC 1 BF Co-creation project

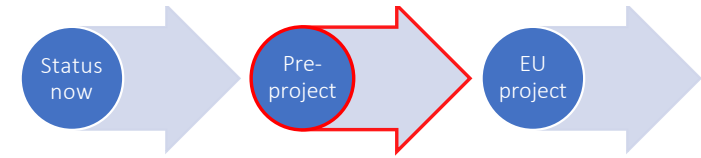
David Hästbacka and Teemu Mätäsniemi with THTH



Aims and objectives

(Business Finland Co-creation project, NIC 1)

- Align a set of international standards for Finnish industry needs (pulp&paper, process industry, energy...)
 - For engineering, project and operation and maintenance phases
 - Identify gaps in current practices and business processes -> step, roadmap?
- Define a path to overcome issues in digitalization (EU digi white book)
 - Business processes and operations
 - Information systems and information exchange
- Build international network of companies and research organizations (around PCA, DEXPI, IOGP, USPI, MIMOSA, SEIIA, ENAA, ...)
 - Provide feedback to relevant ISO/IEC standardization groups
 - Outlining joint European digitalization efforts (project activities, ...) and sustaining future development (rapid standardization, ...)



Tasks

(Business Finland Co-creation project, NIC 1)

- Task 1: Deepening understanding of current practices, organizational and technical gaps for using standards to improve industrial ecosystems information exchange
- Task 2: Identification of potential solutions and elements for conceptual and technical development needs
- Task 3: International network building and sustaining future actions
- **Companies will be involved in workshops and/or interviews**

Conclusion

- NIC pre-project (NIC 1) to be started in October-November 2020
- NIC EU project (NIC 2) preparation October 2020 - May 2021,
 - Project to be started in 2022

Thank you!

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