

Nordic Smart Specialization in Length and Dimensional Metrology

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A common Nordic strategy for high quality calibration and measurement services in Length and Dimension, to be provided in a cost-effective way, for the benefit of Nordic stakeholders.

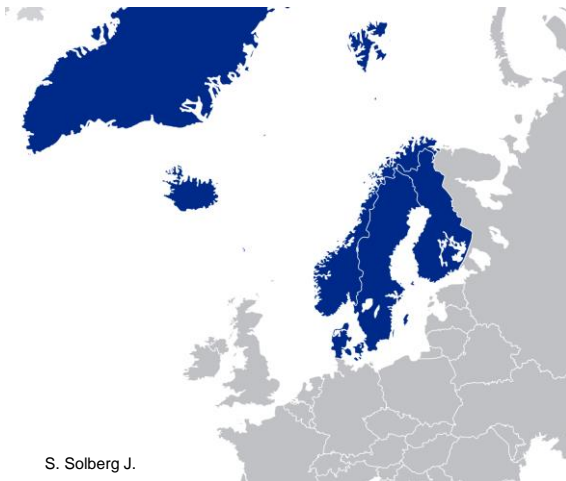
A strengthening of the research capability and knowledge transfer.

Collaboration regarding new services and training

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The Nordic Countries



S. Solberg J.

In general:

- Small/medium sized countries (26 million inhabitants in all: DK, FI, IS, NO, SE)
- Geographical closeness
- (Partly) common/similar culture
- (Partly) common/similar languages
- (Partly) different industry/trade/business profiles

In metrology:

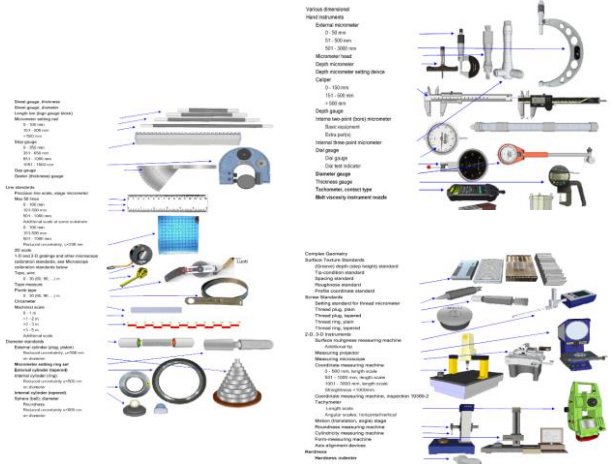
- Different organisation of the NMI/DI solutions
- Different size/ambitions/strategic direction
- All have prioritised some national standards/services
- Difficult/expensive to keep comprehensive offer of services for one country alone
- Can we collaborate?

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Services – collaborative activities already ongoing

- Investigating the present situation in Length and dimensional metrology in the NMIs
- Investigating the capabilities of the accredited calibration laboratories (could this reduce the pressure on the NMIs for some services?)
- Making strategic choices in: National measurement standards, services, R&D&I, knowledge transfer
- Clarifying financial aspects, investments
- Finding optimum customer interfaces
- Investigating future metrology service needs



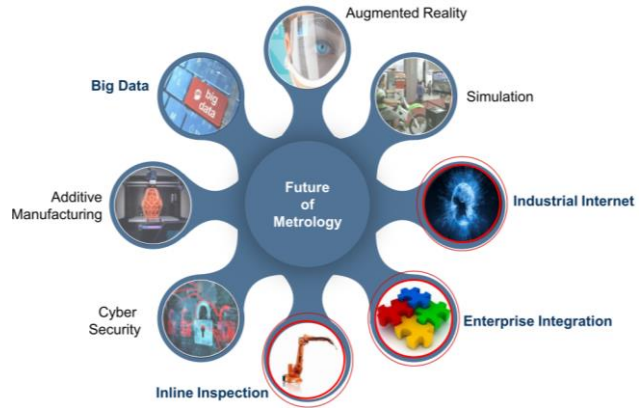
Metrology Training – Now and in the Future

- Seminars or workshops for industry:
 - Measurement techniques & metrology in industry
 - Uncertainty in measurements
 - Surface roughness
 - Geometric product specifications: Tolerances in manufacturing
 - Laser interferometric measurements
 - Co-ordinate measurements
 - Machine vision in industrial measurements
 - Quantitative microscopy
- Also tailored courses for one or several companies
- Technical educations at University College level and below
- Collaboration with educational institutions
- Development of educational material on metrology



Applied research, length metrology - Landscape

- Megatrends
 - Industrial renewal
 - Industry 4.0
 - Factories of the future
 - IoT
- Emerging technologies
 - Additive manufacturing
 - Industrial CT
 - Optical measurements
 - Freeform measurements
 - New materials
 - Inline metrology tools
 - Use of machine tool as CMM



Vision – applied R&D in 3D

- Nordic/European NMI s - A sought-after innovation partner to industry and academia, who drives development in 3D Technology
 - High-level technical services/evaluation of technical solutions/consulting
 - Quality assurance and metrological traceability
 - Good knowledge of industrial and societal needs in applied metrology – and how to solve them
 - Consortia building – linking the needed partners and competences so solve specific industrial and societal challenges
 - Technology watch – understanding future technologies
 - Managing large national and international projects
 - A close cooperation with academia – ass. Prof., Ph.D. students etc.



Vision – Nordic Smart Spezialisiation

- To ensure the competitiveness of the Nordic/European business community and contribute to a sustainable society

How to support this:

- We need to build strong environments for applied R&D
- Have a system perspective on applied measurement technology and broaden our perspective on services; including “design-of-experiment” to high level policy issues
- Increase the number of high-level services by engagement in more open research projects – leading to increased competence and new partnerships with industry and academia
- Increased attention by using the results from open R&D projects for marketing and increasing our media visibility
- To decrease previous fragmentation and achieve a critical mass
- A financially sound balance between services and research activities (balance between excellence and economy)

