

Title: Support for a European Metrology Network promoting smart specialisation in the Nordic-Baltic region

Abstract

In the Nordic-Baltic region, the NMIs/DIs maintain and develop national measurement standards and provide calibration and measurement services of various scopes and accuracy levels. However, for some of the services the market in one single country may not be sufficiently large to justify the continuation of all services whilst at the same time developing new services, undertaking R&D and providing metrology training. In order to continue providing the high-quality services requested by the customers, NMI/DI capabilities and facilities need to be developed further in a regionally coordinated manner, thus ensuring critical mass. A solution is therefore sought to enable the sharing of tasks in those cases where future metrology services, R&D and training can cover the needs of several countries of the Nordic-Baltic region.

Keywords

Smart specialisation, regional metrology strategy, Nordic-Baltic region, metrology services, metrology training, metrology R&D, traceability

Background

Efficient and relevant metrology services (R&D, calibrations, inter-comparisons, training) provided by the national metrology institutes (NMI) and Designated Institutes (DI) are vital for industry. In the Nordic-Baltic countries, the efficiency has been achieved by providing the services locally at each country within a narrow scope fitting the needs and resources in the individual country. Fast high-quality services communicated in the appropriate language are valued by the customers. However, customers are increasingly operating in more than one country, and their metrology needs are becoming more diverse, and hence a situation is faced now where the customer base in a single country is not large enough to justify providing all services requested. Historically, the Nordic-Baltic NMIs/DIs have operated individually aiming to provide a comprehensive range of services for their country alone, however this has been both challenging and expensive over the long term.

The countries in the Nordic-Baltic region are all sparsely populated and near the arctic region, and thus share challenges related to climate and geography. Thus, there are specific challenges related to industrial metrology needs in the area, including related to energy production and energy distribution, the automotive industry and the forest industry. In industry, the business environment is changing fast due to the digitalisation and the demanding environmental challenges specific to the Nordic-Baltic region. New investments in research and equipment are needed to develop metrology services for the future and thus enable sustainable growth of the economies. Due to the limited financial resources, coordination and specialisation is needed. Strengths in research and service excellence at each NMI should be exploited maximally and efficient capacity building is needed to enable efficient metrology services in this geographical region. In order to ensure the competitiveness of the Nordic-Baltic region, it is necessary to decrease current fragmentation in NMI/DI operations, achieve a critical mass and contribute to a sustainable society by building strong metrology environments for existing and future services, capacity building and knowledge transfer as well as applied R&D. In addition, the impact of metrology should be widened through new and extended partnerships with industry and academia, increased visibility in public media and strengthened relations to stakeholders, decision- and policymakers.

How and where NMIs should focus limited resources to obtain maximum impact for society urgently requires a strategic plan and significant coordination at all levels. No single NMI has the expertise or resource to tackle all or even a significant fraction of the most critical priorities without collaboration. Without coordination, there is a strong likelihood of unnecessary duplication, with NMIs potentially independently choosing to focus efforts on the same challenge with consequential neglect of others. EURAMET establishes European Metrology Networks to coordinate the NMI response, to establish close links to the stakeholder community, to develop

and implement a strategic agenda and establish a knowledge, technology transfer and promotion plan, to ensure an effective response is put in place. This SNT is intended to elaborate how a network could support EURAMET and to support that network in its initial tasks.

Objectives

Proposers should address the objectives stated below, which are mainly based on the PNT submissions. Proposers may identify amendments to the objectives or choose to address a subset of them in order to maximise the overall impact, or address budgetary or scientific / technical / legal / regulatory / market constraints, but the reasons for this should be clearly stated in the protocol.

The JNP shall focus on developing a long-term ongoing dialogue between the metrology community and relevant stakeholders. This dialogue should support the take-up of research outputs from the metrology community and the collection of needs from stakeholders to inform future research and service provision in the Nordic-Baltic region. In addition, the JNP should focus on developing a plan for a coordinated and sustainable European metrology infrastructure in the Nordic-Baltic region via a European Metrology Network.

The specific objectives are:

1. To establish regular, constructive dialogue and liaison between the project and stakeholders to promote smart specialisation in the Nordic-Baltic region, including industry, accreditation bodies, accredited laboratories, research organisations, academia, networks, NMIs/DIs and standards developing organisations. This should include not only fostering existing liaisons, but also promoting new collaborations and identifying stakeholders' needs.
2. To develop a Strategic Agenda (SA) and roadmaps for smart specialisation in the Nordic-Baltic region that take into account feedback and the metrological needs of stakeholders identified in Objective 1. This should include a strategy and mechanisms for smart specialisation which will (i) ensure a financially sound and sustainable coordinated offering of services and research activities fulfilling the needs of industry and society in the Nordic-Baltic region, (ii) enable NMI capabilities and facilities to be developed further in a regionally coordinated manner, (iii) address the sharing of facilities, (iv) improve the efficiency and quality of NMI services, research and quality infrastructure through decreased fragmentation in metrology operations and creation of a critical mass of resources in various metrology fields.
3. To develop a web-based platform for relevant stakeholders in the Nordic-Baltic region that provides a single point of contact for their metrological needs. The platform should provide easy access to European metrology capabilities and services, relevant metrological tools and information in order to support decision-making and identify gaps in current NMI/DI measurement services. The platform should be developed in a manner that allows it to be maintained by an EMN.
4. To set up a knowledge-sharing programme in the Nordic-Baltic region, to promote the dissemination and uptake of information by stakeholders. This should include a range of activities regularly organised by the project, such as the exchange of researchers and collaboration between organisations, metrology workshops, seminars, interdisciplinary studies, summer schools and training courses.
5. To develop the implementation plan for a multidisciplinary and sustainable European Metrology Network in the Nordic-Baltic region. The plan should be completed within 12 months of the start of the project and should: (i) identify the detailed scope of the EMN, with respect to the remits of other EMNs, (ii) use coordination and smart specialisation of capabilities and services, (iii) align with other running initiatives and projects, (iv) promote the development of emerging member states, and (v) consider how to extend collaboration to third countries.

The proposed activities shall be justified by clear reference to the measurement needs within strategic documents published by the relevant stakeholders. Proposers should establish the current state of the coordination in this area, and explain how their proposed project goes beyond this.

The proposed activities should not include those essential for the establishment and operation of the EMN. EMNs will be established and operated by the EURAMET members using their own national resources regardless of whether specific EMPIR proposals are funded. EMPIR funding is for specific tasks aimed at ensuring a proposed EMN will progress quickly towards its establishment and implementation and contribution to the objectives of the programme.

EURAMET expects the average EU Contribution for the selected JNPs in this TP to be 0.4 M€, and has defined an upper limit of 0.5 M€ for this project.

Potential Impact

Proposals must demonstrate adequate and appropriate participation/links to the “end user” community, describing how the project partners and collaborators will engage with relevant communities during the project to facilitate knowledge transfer and accelerate the sustainability of the organisation. Evidence of support from the “end user” community (e.g. letters of support) is also encouraged.

You should detail how your JNP results are going to:

- Address the SNT objectives and deliver solutions to the documented needs,
- Provide a lasting improvement to coordination in the European metrological community and communication with their stakeholders beyond the lifetime of the project,

You should detail other impacts of your proposed JNP.

You should also detail how your approach to realising the objectives will further the aim of EMPIR to develop a coherent approach at the European level in the field of metrology and include the best available contributions from across the metrology community. Specifically, the opportunities for:

- improvement of the efficiency of use of available resources to better meet metrological needs and to assure the traceability of national standards
- the metrology capacity of EURAMET Member States whose metrology programmes are at an early stage of development to be increased

Time-scale

The project should be of up to 3 years duration.