

A Measurement Information Infrastructure

Vision, Progress and Participation



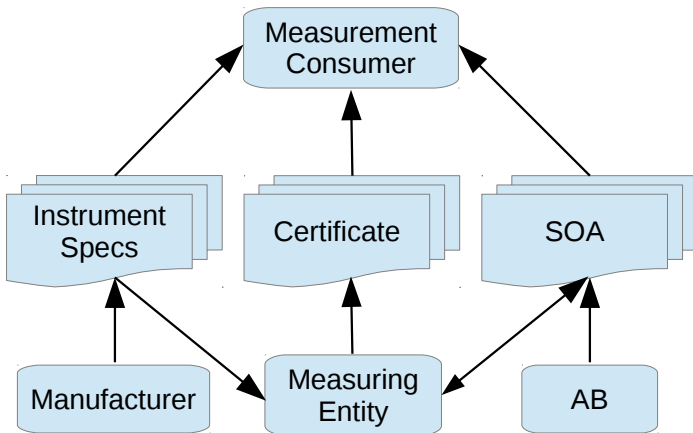
Toward a Metrology Information Infrastructure

Learning Objectives

By participating in the session, attendees will

- 1 Gain insight into MII opportunities and benefits,
- 2 Glimpse measurement data standardization efforts,
- 3 See an open-source MII software demo, and
- 4 **Learn how to contribute to MII development.**

Measurement Information Flow



Small excerpt from a vast network

MII Vision

Vision

- 1 Create a globally standardized infrastructure for creating, locating, communicating and processing measurement information.
- 2 Replace manually-processed documents with unambiguous machine-readable data.
- 3 Augment static web sites with smart web services.
- 4 Open new automation horizons and empower developers to take measurement-related software to whole new levels.
- 5 Lower the information barriers between testing & calibration labs, instrument manufacturers, vendors, accreditation bodies and measurement consumers.

MII Definition

Definition

Measurement Information Infrastructure—a set of normative standards that unambiguously define data structures, taxonomies, web service protocols and security for creating, locating, communicating and processing measurement information

The measurement information vehicles to structure include

- MII scopes of capability (SoCs) or accreditation (SoAs),
- MII instrument spec sheets,
- MII calibration and testing certificates.

Note that the MII itself encompasses only the open standards and infrastructure. MII-aware software then brings metrology into the modern world that airline, banking, investment, online retail and B2B industries already enjoy.

MII Motivation

Motivation

Such an MII would eliminate ambiguity from our human-readable documents, streamline many tedious and error-prone tasks, engender new service opportunities and value streams, improve traceability, and enhance measurement quality throughout the measurement economy.

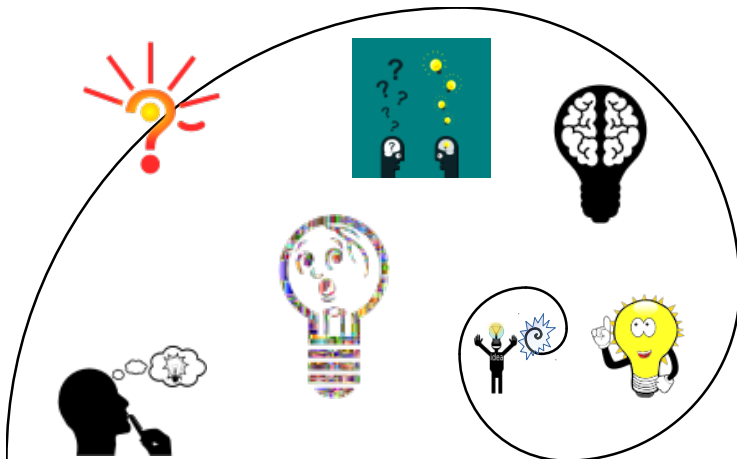
- No more tediously searching for the right instruments and service vendors
- No more manually writing, sending, interpreting documents
- No more transcribing, entering and updating information
- Our computers do it all unambiguously and automatically.

The technology already exists; we've only to harness it.

Which first, Adoption or Development?



Simultaneously Expanding Adoption & Development



Initial Steps

- 2013 to 2015: Formulate ideas.
 - Research similar projects and imagineer applications.
 - Draft MII document data models.
 - Stimulate interest via conferences, *Metrologist*, *Cal Lab*.
- 2015 to 2016: Begin real work.
 - Propose a project to accreditation body (AB) representatives.
 - Write & present a white paper demonstrating feasibility.
 - Develop an XML unit-of-measure (UoM) schema.

Recent Progress

- 2016 to 2017: Expand development, gather momentum.
 - Hold an MII Forum at NCSLI 2016.
 - Plan & start Project Beagle.
 - Stand up demo MII web sites and interim host servers.
 - Draft an XML scope of accreditation (SoA) schema.
 - Enhance the UoM schema.
 - Write a C# object model.
 - Develop a demo SoA DB and web search tool.
 - Begin developing an SoA editor.
 - Capture all U.S. AB-issued SoAs (250,000 CMCs).
 - Draft temperature & RF power taxonomies.
 - Repurpose the NCSLI 141 Committee for MII & automation.

Demos

Project Demonstrations

Challenges, Participation Opportunities

If this excites you, please participate:

- Discover and understand prior efforts,
- Research & develop taxonomies,
- Gather stakeholder advice input,
- Liason with related NCSLI committees and organizations,
- Develop XML schemas,
- Develop software—MII applications or APIs,
- Maintain MII web sites,
- Coordinate and host web meetings,
- Write articles and news releases for *Metrologist*, *Cal Lab*, etc.,
- Present papers and participate on future panel sessions,
- Help develop the MII documentary standard.

Open Discussion

Volunteers? Contact us!

Colin Walker, colin@qualer.com

Mike Schwartz, mschwartz@callabsolutions.com

Mark Kuster, mjk@ieee.org

MII community page at ncsli.org

Acknowledgments

- NCSL International
- Cal Lab Solutions
- Qualer
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Thank You for your time!