



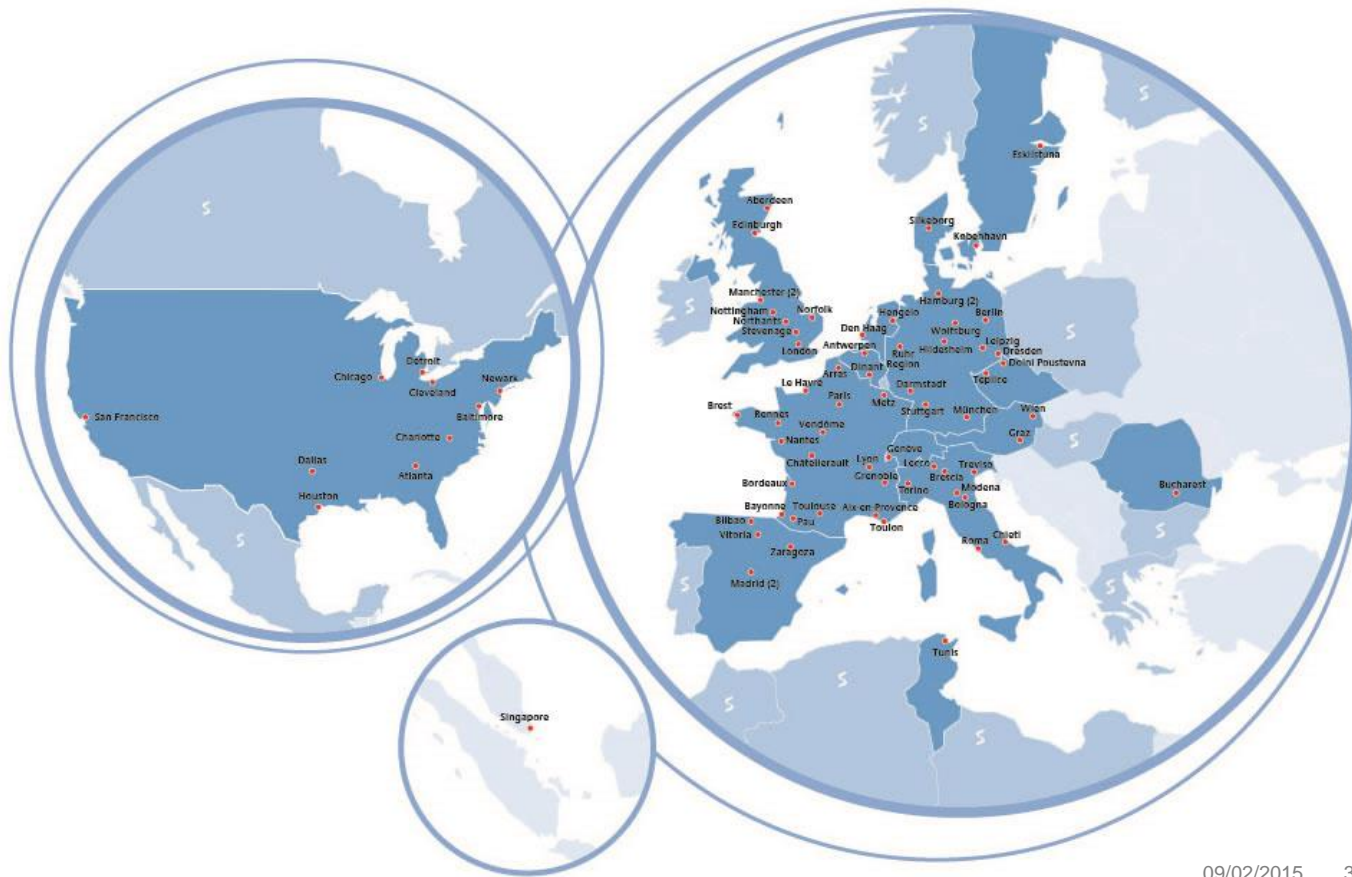
CALIBRATION | SOLUTIONS
TO | IMPROVE | YOUR | PERFORMANCE

VISITING COMMITTEE ON ADVANCED TECHNOLOGY

NIST - Importance of Global Leadership

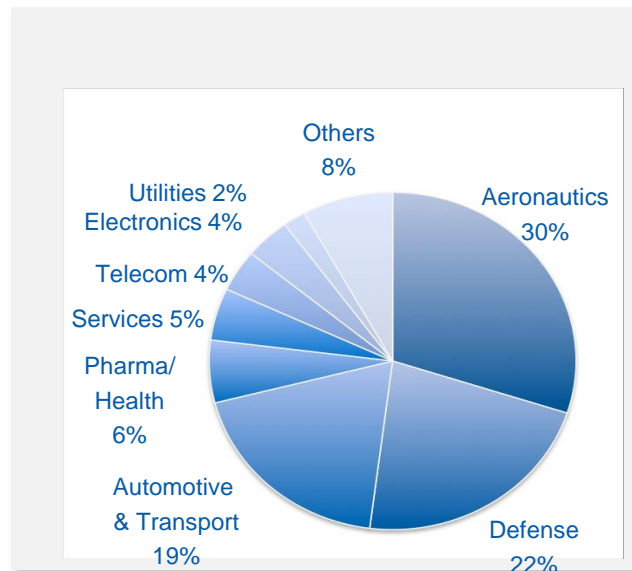
Lonnie Spires
February 5, 2015

- 1. Trescal Overview**
2. Global Measurement Challenges
3. NCSLI – Education & Training
4. NIST Leadership and Influence
5. Summary



Trescal Top 10 Clients & Industry Segments

1	Defense	
2	Aeronautics	
3	Aeronautics	
4	Automotive	
5	Aeronautics	
6	Aero./ Defense	
7	Med. / Utilities	
8	Aeronautics	
9	Transport / Energy	
10	Automotive	



- > 2013 Turnover : \$250M
- > 1,925 employees
- > 166 sites with 71 laboratories and 95 customer implants
- > Calibration & Measurement in 30 countries
- > 1.5 million calibrations per year

09/02/2015 4

Trescal USA Overview

- > 9 of 10 are USA based Global Companies
- > 2014 Total Revenue: \$45M
- > 330 employees
- > 10 laboratories and 16 customer implants
- > 300k calibrations per year

**Global Confidence in
Measurements
is Paramount**

1. Trescal Overview
2. **Global Measurement Challenges**
3. NCSLI – Education & Training
4. NIST Leadership and Influence
5. Summary

- > New Technology & Innovation Improvements
- > Measurement Quality & Integrity
- > Qualified Skilled Workforce



09/02/2015 7

> New Technology with better uncertainties

- > Nano
- > Chemical
- > Mobile Telecom

> Innovation Improvements

- > Multi-Discipline
- > Integrated Solutions
- > “NIST on a CHIP”

> Onsite Solutions

- > On the line, in use
- > Asset Management & Tracking

Measurement Quality & Integrity

- > Measurement Quality
 - > Traceable
 - > Reliable
 - > Repeatable
- > Measurement Integrity
 - > Must have the same RIGHT measurement
 - > Must be the recognized leader!
 - > Inter-laboratory Comparisons
 - > Nationally
 - > Internationally
- > Global Standards Development
 - > Common platform for technical evaluation
 - > International acceptance & compliance

Calibration Guides	
EURAMET has published a couple of calibration guides which are intended to improve harmonisation in the calibration of measuring instruments.	
All guides can be downloaded as pdf-Version.	
Former versions of Calibration Guides and differences between versions »	
Notification about updates of EURAMET Calibration Guides	
If you would like to receive information about updates of EURAMET Calibration Guides p	
No	Calibration Guides
01	Calibration of Stylus Instruments for Measuring Surface Roughness *
02	Calibration of Gauge Block Comparators
03	Calibration of Pressure Balances
04	Uncertainty of Force Measurements
05	Coordinate Measuring Machine Calibration**
06	Extent of Calibration for Cylindrical Diameter Standards
07	Calibration of Oscilloscopes
08	Calibration of Thermocouples
09	Measurement and Generation of Small AC Voltages with Inductive Voltage Dividers
10	Determination of Pitch Diameter of Parallel Thread Gauges by Mechanical Probing

09/02/2015 9

> Aging Workforce

- > Lowry PMEL training stopped in 1990's
- > Old Technology
- > Willingness to teach/ train

> Limited University Metrology/Measurement Programs

- > Virtually ZERO prior to mid 1990's
- > Most are only Associates programs
- > Primarily focused on Dimensional

> Career Planning

- > Not Promoted by High School counselors
- > Lack of awareness on the importance of measurement

1. Trescal Overview
2. Global Measurement Challenges
3. **NCSLI – Education & Training**
4. NIST Leadership and Influence
5. Summary



NCSL INTERNATIONAL
Serving the World of Measurement

Vision

To be the Recognized Leader for Excellence
in Measurement Science

Mission

Invest in the Advancement of Measurement Science
Promote Education and Skill Development
Provide Tools and Resources to Enhance Member Processes
Drive Technical Integrity in Documentary Standards

Partners with NIST for 50+ years

**MEASUREMENT
SCIENCE**
AND THE
Quality
OF
LIFE

NIST Partnership

- Learning & Development
- Standards writing and development
- Tutorial Instructors
- Metrology Careers Website & DVD
- International Collaborations & Events
- Pressing Problems – Real Research



METROLOGY: THE SCIENCE OF MEASUREMENT

Cool Careers
in Metrology

Ask
Metrologists

Made to
Measure

Learn
More

Participate
in our Blog

To learn more about
Metrology, visit these sites:

- Weights and Measures
 - Metrology Information
 - Sample 2-Yr. Colleges
 - Sample 4-Yr. Colleges
 - International Schools
- The National Institute of Standards and Technology
 - NCSL International
 - American Society for Quality, Measurement Quality Division
 - Measurement Science Conference
 - Metrology In-Short (PDF)
 - Metrology Careers: Jobs for Good Measure (PDF)
 - World Metrology Day (May 20th)



Educator Resources

Credits



09/02/2015

NCSL INTERNATIONAL
Serving the World of Measurement

1. Trescal Overview
2. Global Measurement Challenges
3. NCSLI – Education & Training
- 4. NIST Leadership and Influence**
5. Summary



- > Continue to be the LEADER amongst the NMI's
- > Further develop RELATIONSHIPS in South America
- > Promote/Market NIST INVOLVEMENT and roles
- > Strive for International ACCEPTANCE of Measurements
- > TEACH sound Measurement Techniques
- > Establish CONSENSUS on Measurement & Quality Standards

1. Trescal Overview
2. Global Measurement Challenges
3. NCSLI – Education & Training
4. NIST Leadership and Influence
- 5. Summary**

Summary

- > Innovation – Stay at the forefront of Technology
- > Ensure Global Competence in Measurement
- > Educate, Train, & Develop
- > Leadership & Influence

“It is simple; Boeing
doesn’t build airplanes
without NIST”

Derek Porter
2011

Industry will collapse
without NIST. Global
economy is 100%
dependent
Measurement
Standardization