LABORATORY STRUCTURE

Michael Kröning

Leading Points

- Mission
- Clients
- Financing
- Cooperation

Structure

- Core Competencies
- Innovation & Marketing
- Quality Control
- Projects & Services

ORGANIZATION (coordinated division of responsibility and labor):

- A planned, coordinated and purposeful collective action
- to reach a common goal
- ***Framed by formal membership and institutional rules***

DEFINED BY:

- ***its elements***
- ***Its communication***
- ***Its autonomy***
- ***Its rules of action to outside events***

? MATRIX ORGANIZATION ?

for

APPLIED R&D LABORATORIES

COMPETENCIES (functional)	PHYSICS	METHOD I	SYSTEMS	SERVICES
PROJECTS (executive) (TEAM FORMATION)	2	3 + Assigned Manager	4	2 + Level III
Market I				
Market II				
Market III				

Laboratory Structure

MATRIX ORGANIZATION

ADVANTAGES

- Individuals can be chosen according to the project needs
- Dynamic problem view
- Expert responsibility for cost- and time-line
- Performance controlled carriers

DISADVANTAGES

- Conflict of loyalty between line and project managers over the allocation of resources
- Overhead expenses: project & line management

Late releases of SAP software support matrix reporting

Laboratory Structure

GRINM

General Research Institute for Nonferrous Metals

SEMINAR

R&D Laboratory on Industrial Demand

TOLMI

JUST AN EXAMPLE FOR DISCUSSIONS

"FORMATION OF TOLMI AT TOMSK POLYTECHNIC UNIVERSITY"

Tomsk Open Laboratory for Material Inspections

A Status Report on its

- Mission
- Objectives
- Strategy
- Organization and Resources
- Results

Laboratory Structure

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R&D Laboratory on Industrial Demand

TOLMI

TOLMI MISSION

EXCELLENCE & RELEVANCE
OF
SCIENCE

Open Grant of the Government of the Russian Federation

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ
(МИНОБРНАУКИ РОССИИ)

research projects implemented by leading Scientists at Russian Institutions of higher learning

Laboratory Structure

TOLMI MISSION

KNOWLEDGE CREATION

EDUCATION

KNOWLEDGE DISTRIBUTION

RECOGNITION → EXCELLENCE

REFRAMING OF SCIENCE → RELEVANCE

GLOBALIZATION

SOCIO-ECONOMIC UTILIZATION

SCIENCE PRODUCT MARKETING

Laboratory Structure

TOLMI MISSION

EXCELLENT & RELEVANT APPLIED SCIENCE
THROUGH NATIONAL & INTERNATIONAL

KNOWLEDGE AND TECHNOLOGY MANAGEMENT
MARKET AND PRODUCT DRIVEN R&D PROJECTS
FUNDAMENTAL & PROFESSIONAL STUDENT EDUCATION

FOR THE DEVELOPMENT OF
INNOVATIVE METHODS, INSTRUMENTS, SYSTEMS, SERVICES
TO BE APPLIED IN INDUSTRY

SAFE TECHNICAL STRUCTURES – CERTIFIED QUALITY PRODUCTION

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TOLMI

TOLMI OBJECTIVES

KNOWLEDGE GENERATION (Next Three Years)

CORE RESEARCH : OBJECTIVES COMPETENCIES STRATEGY

CONTRACT RESEARCH: SCIENCE &KNOWLEDGE MARKETING SCIENCE COMMUNICATION OFFICE

PHD THESES: NEW KNOWLEDGE SUSTAINABLE DEVELOPMENT TOLMI AGENTS

Laboratory Structure

TOLMI OBJECTIVES

EDUCATION (Next Three Years)

SCIENTIFIC CULTURE:

- TEAM WORK
- INTERNATIONAL
- VISIONARIES
- RESULT ORIENTATION

FUNDAMENTAL SCIENCE:

- KNOWLEDGE SCREENING
- FILLING THE GAP

APPLIED SCIENCE:

- PRODUCTS/SYSTEMS
- SYSTEM ENGINEERING
- PROFESSIONAL MANAGEMENT

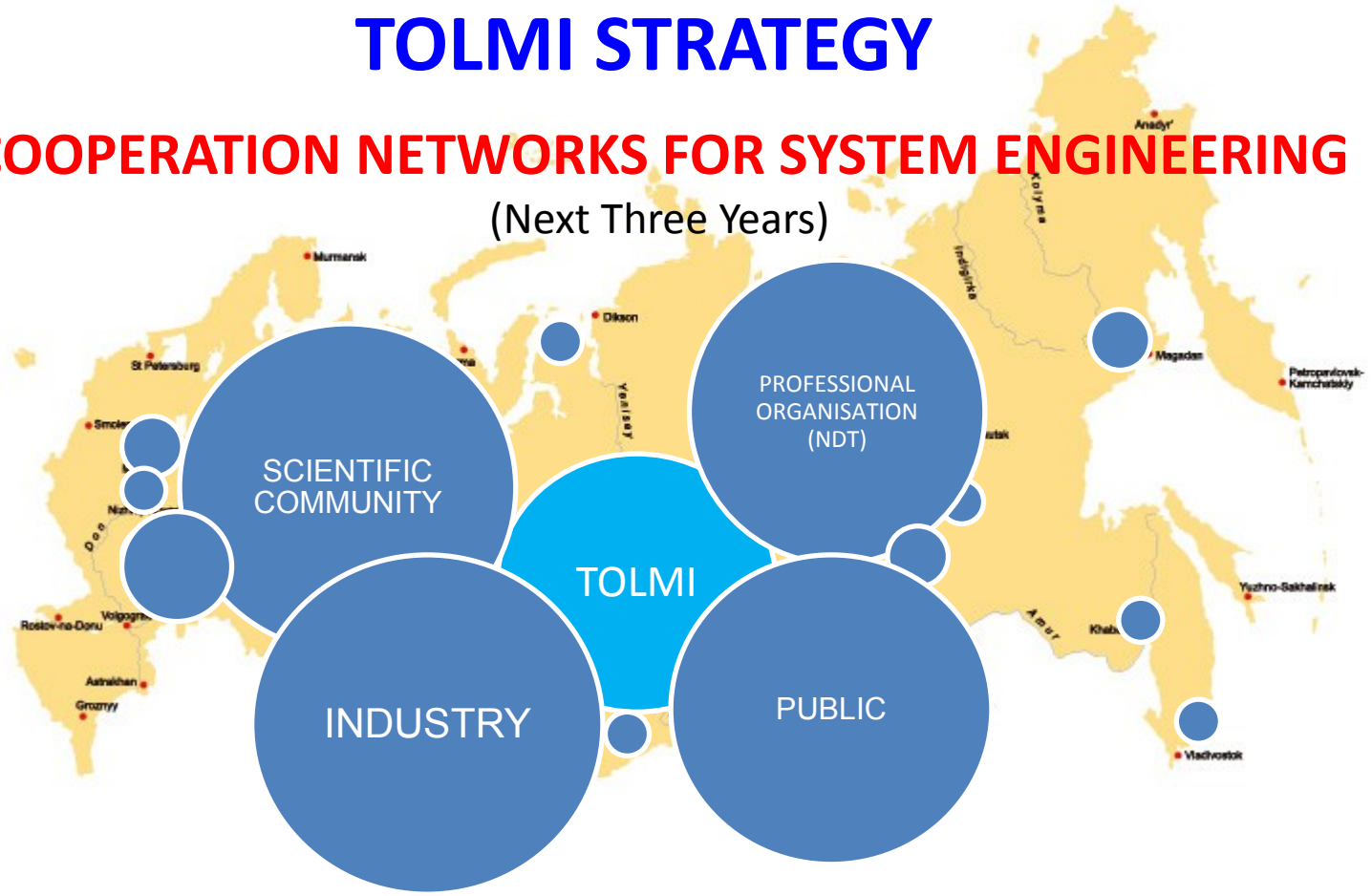
NEW BUSINESS

- STRATEGIC NETWORKS
- CUSTOMER BASED
- PROFIT BASED
- INNOVATION MANAGEMENT

TOLMI STRATEGY

COOPERATION NETWORKS FOR SYSTEM ENGINEERING

(Next Three Years)



Laboratory Structure

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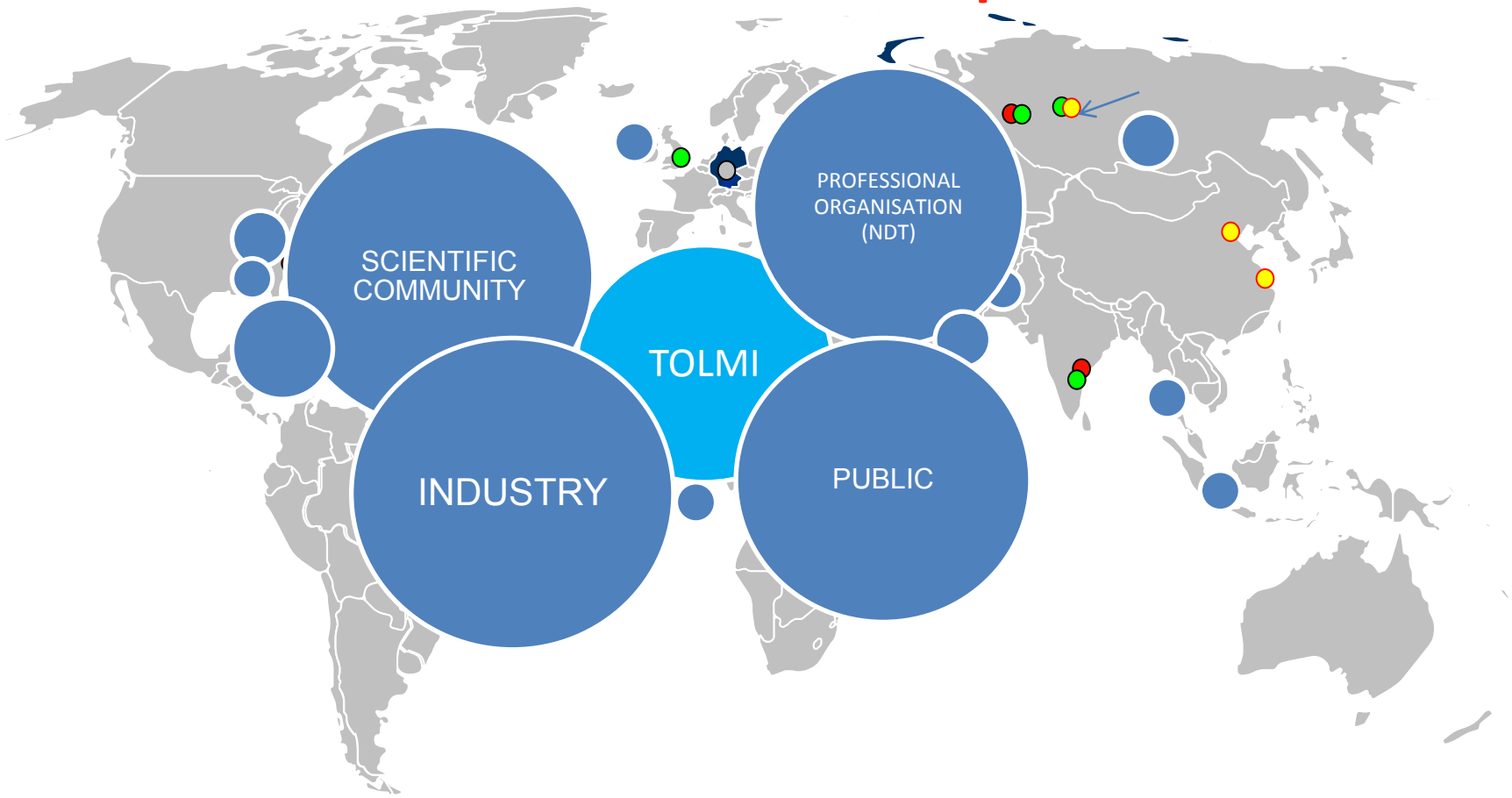
TOLMI

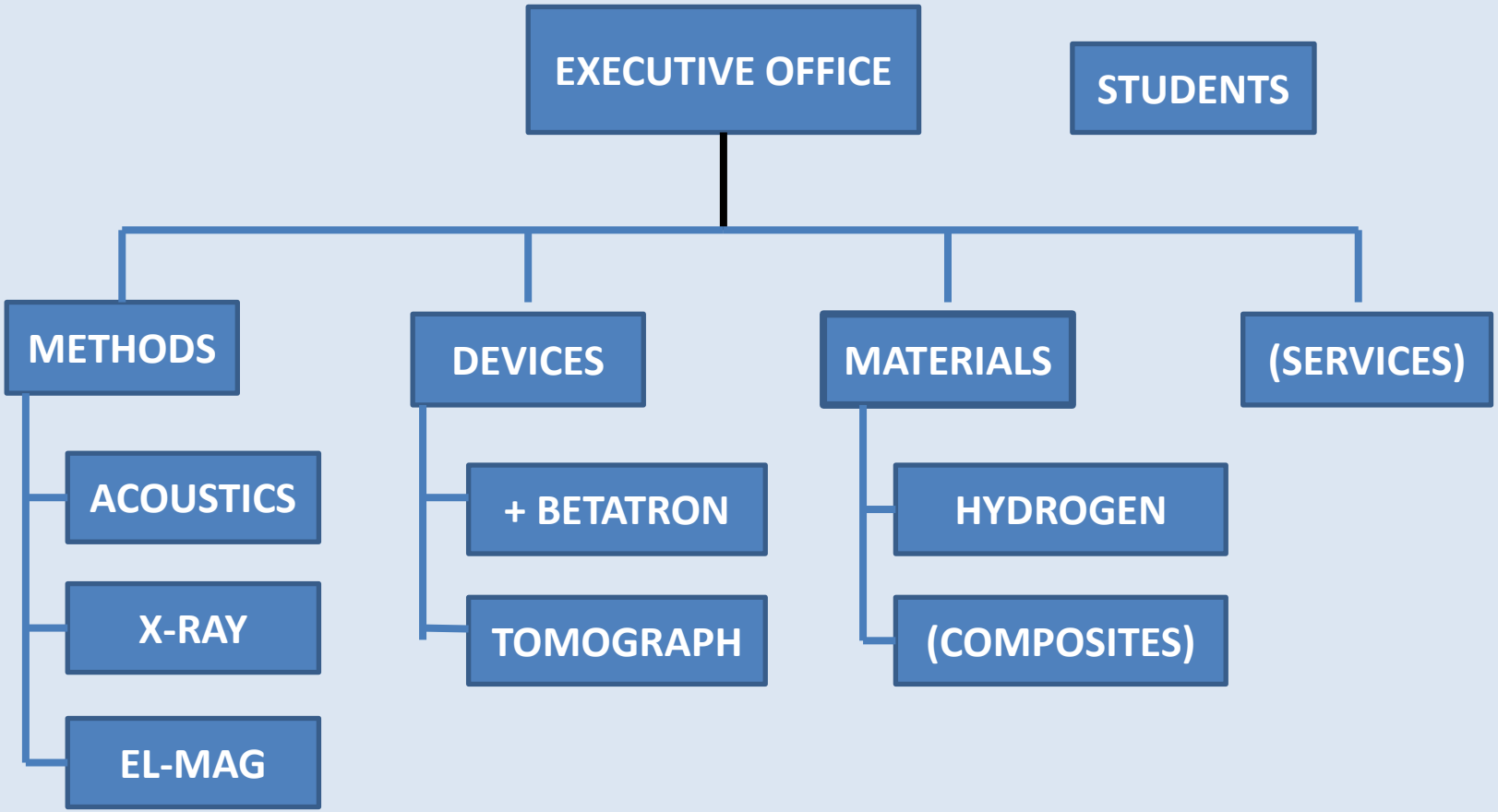
TOLMI STRATEGY

International Scientific Cooperation



Laboratory Structure

TOLMI ORGANIZATION



Laboratory Structure

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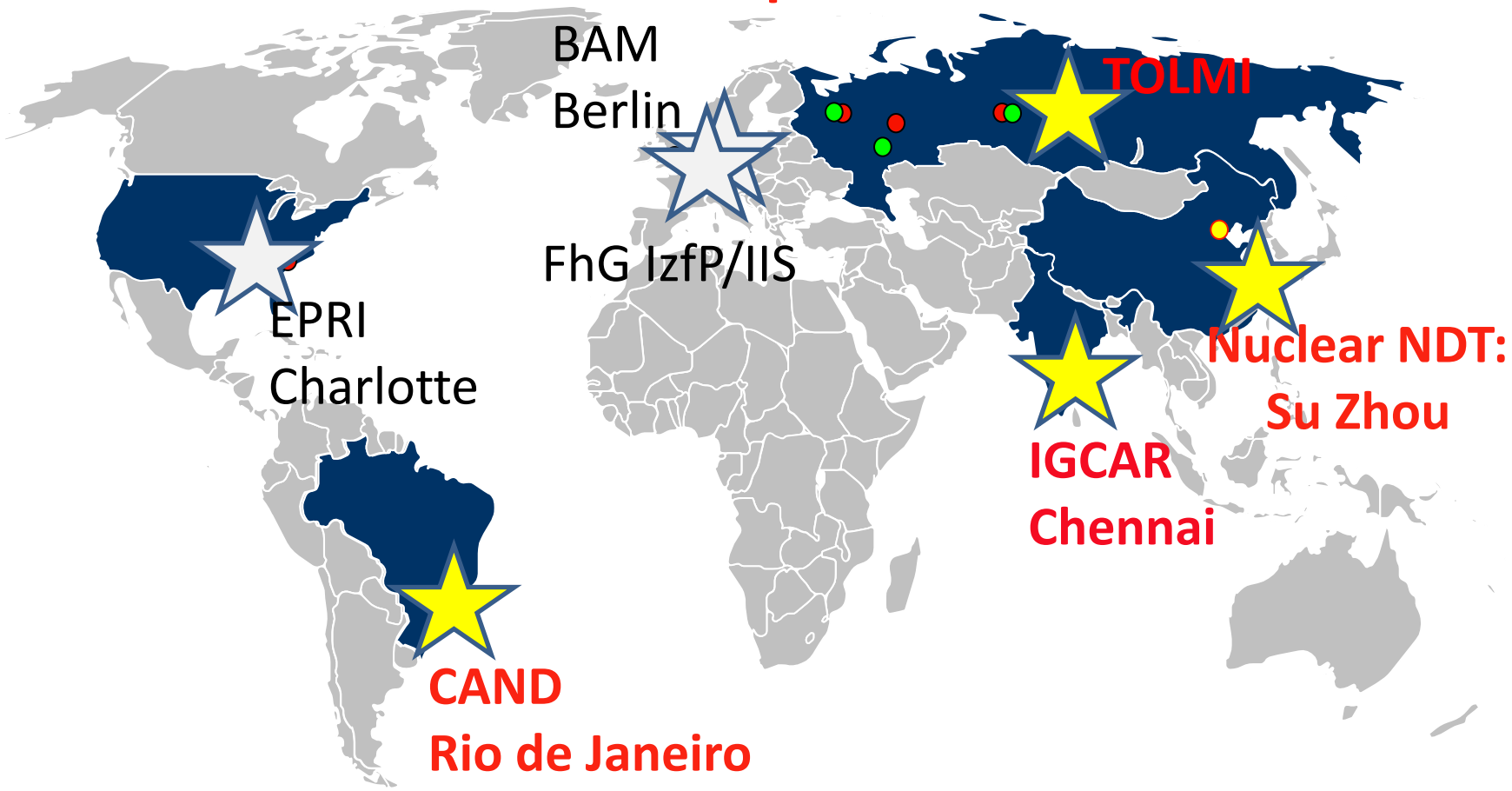
TOLMI

TOLMI RESULTS

International Scientific Cooperation: NDT CENTERS



Laboratory Structure

TOLMI OUTSTANDING RESULTS

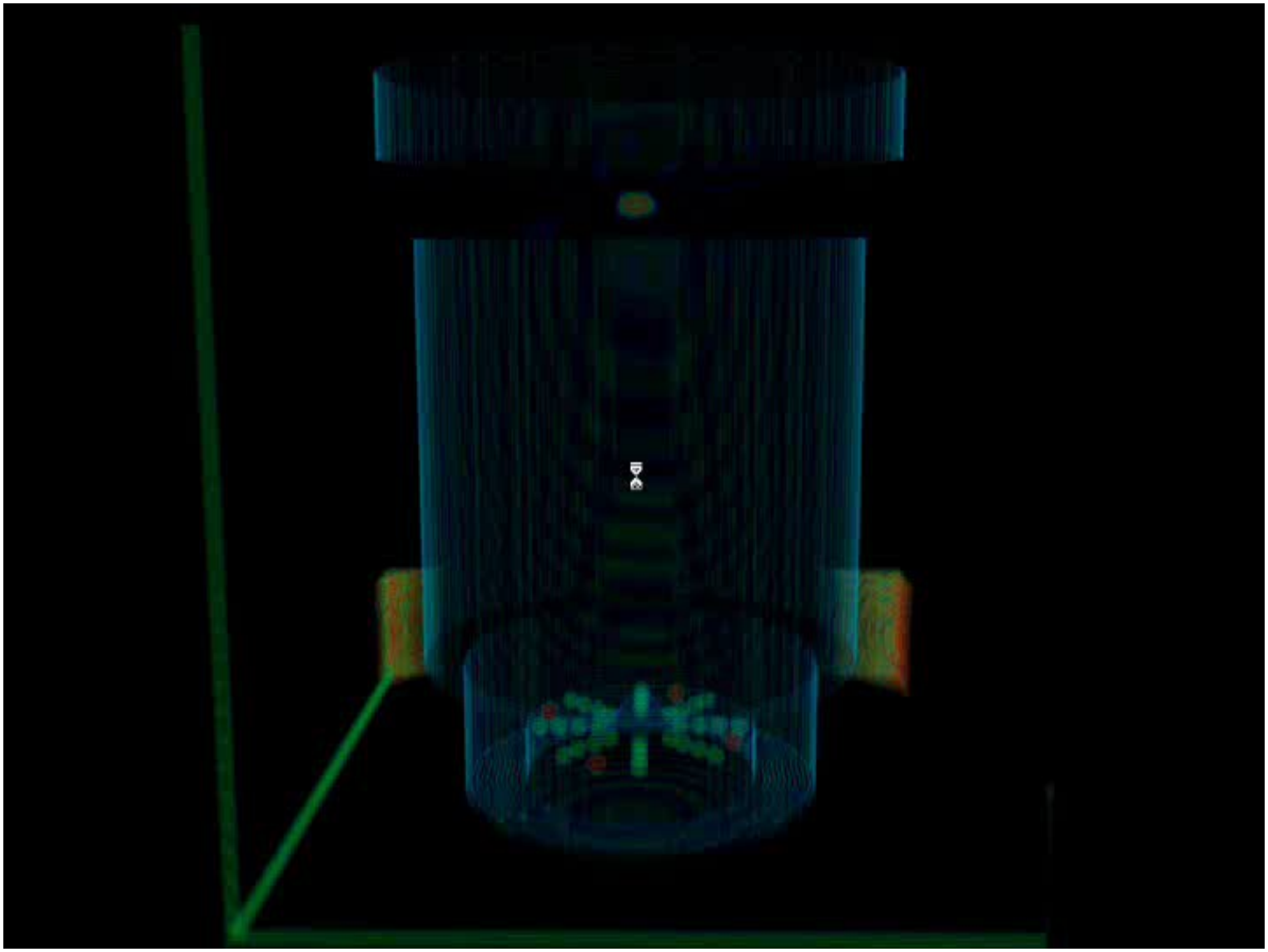
ACOUSTICS: Product Orientation

TECHNOLOGIES 2012: Migration Array System for 3D Real-Time High-Resolution Inspections
2013: Sparse Array Transducer Design & Manufacturing
2013: UT – Robotics

INSTRUMENTS 2012: End-Face 3D Inspection Device

SERVICES 2013: Nonstandard Inspections; Compliance and Cohesion with International Codes and Regulations; Fracture Mechanic Flaw Evaluation QUT;

Laboratory Structure



Laboratory Structure

TOLMI OUTSTANDING RESULTS

Electro-Magnetics: Product Orientation

- 3D GMR for Leakage Detection
- EC COIL Design Shop
- SensorFlux Systems
- EC Inspection Systems
- Fatigue State Analyzer

X – Ray: Product Orientation

- High Energy Betatron Radio- and Tomography
- X – ray Microanalyzer
- ANTIBETATRON with Positron Injector

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TOLMI

TOLMI BUSINESS

p.€$ One new company per year $€p.

SHAREHOLDER:	**SUPPORT**
• Market Knowledge • Financing • New Products • Young Energy	• Public Innovation Programs • University: Know-How & Technology • TOLMI Network & Advice

Laboratory Structure

EACH LABORATORY IS SPECIFIC

HOWEVER - WE HAVE IN COMMON:

Our responsibility
Our commitment
Our partnership
Our objectives

We are part of the international NDT community

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TOLMI

Method	Main Application	Relevance	Remarks
Pulse-Echo	Flaw Detection Geometry Measurement	★★★★★	Standard
Guided Waves	Long Range Inspection	★★	Pipe Systems
Continuous Waves	Elastic Properties; Distance Measurement	★ (Research)	Specific Use (Time Reversal)
Velocity	Stress State Material Characterization	★ (Research)	Specific Use
Frequency Response	Adhesive Strength Material Degradation	★ (Research)	Specific Use (Aerospace Materials)
Ultrasonic Microscopy	Microscopy; SAW Micro Structure Characterization	★ (Laboratory)	Specific Use (Electronic Structures)

ULTRASONIC TESTING

UT, μ-NDT, NDT Systems

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TOLMI

Day 2:	Organization and Networks	Speaker
9.00	Welcome Address with Minutes of Last Day	NN
9.30	Recommended Laboratory Structure of Activities	Kröning
10.00	Human Resources – Ethics, Responsibilities, Education, Training and Certification	Klimenov
10.30	Coffee Break	
11.00	Methods I - ET, MT, PT, TT, VT	Vavilov
11.30	X-ray, Betatron	Klimenov
12.00	UT, µ-NDT, NDT Systems	Kröning
12.30	Open Round Discussion (Questions)	all
13.00	Lunch Break	
14.00	Applied Technologies and Capability Networks	Kröning
14.30	Knowledge Strategies and Education	Klimenov
15.00	Coffee Break	
15.30	Added Value Chain in Applied Science	Vavilov
16.00	R&D Driven by Demand – a Project Analysis	Kröning
16.30	Concluding Minutes	to be appointed
17.00	End of Second Day	

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TOLMI

Day 3:	CASE STUDIES & NEXT STEPS	Speaker
9.00	Welcome Address with Minutes of Last Day	NN
9.30	Case Studies: Betatron for NDT	Klimenov
10.00	Advanced UT and New Instruments	Kröning
10.30	Coffee Break	
11.00	Thermography for Surface Characterization	Vavilov
11.30	NDT System for In-line NDT	Kröning
12.00	International Cooperation Practice	Klimenov
12.30	Open Round Discussion (Questions)	all
		NN
13.00	Lunch Break	
14.00	Next Steps and Seminar Evaluation	
16.00	End of Third Day	