5th SAMCO Workshop, Vienna, January 26. – 27. 2004

Sixth Framework Programme

SAMCO

6FP NMP Proposals

Helmut WENZEL

VCE

FP6 2. Call for Proposals

- Publication December 2003
- Deadline Stage 1 2. March 2004
- Deadline Stage 2 22. June 2004
- Expected Outcome
- 100 Projects namely
- 25 IP‘s, funding 250 mio € (av. funding 10m€)
- 50 STREP‘s, funding 80 mio € (1,6 mio €)
- 10 CA, SSA, funding 20 mio € (2 mio €)
- 15 IP‘s for SME, funding 80 mio € (5,4 mio €)

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Technical Contents 1

- 3.4.4.1 Human friendly, safe and efficient construction

  - IP's
  - Focus on new and breakthrough process re-engineering approaches to provide novel, efficient and sustainable solutions for the built environment including infrastructure and transport utilities
  - Safety against unexpected events and damage
  - Truly integrated research activities, including pre-normative research, user oriented design, maintenance to demolition
  - Full integration of stakeholders

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Technical Contents 2

- 3.4.3.3 Optimising the life cycle of industrial systems, products and services

- Support to the development of new knowledge based and sustainable processes and eco-innovation
- Jointly with area 3.4.3.1
- IP's dedicated to SME's
- Support the traditionally less RTD intensive sectors in the development of more sustainable and safer processes
- A win-win solution for business and environment

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Technical Contents 3

- 3.4.3.3 Optimising the life cycle of industrial systems, products and services

- New life cycle optimised, safety and environmental technologies for industrial production
- STREP's
- Development of breakthrough approaches for reducing initial investment and resource consumption, improving the whole life service operational costs
- Support by key industrial stakeholders required

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Technical Contents 4

- 3.4.3.2 System research and hazard control

  - Hazard reduction in production plant and storage sites
  - IP‘s
  - The objective is to support life cycle safety of industrial production systems through new breakthrough approaches
  - Safety aspects for prevention of accidents
  - Strong industrial participation
  - Synergy with national, regional and European Programs
  - Integration of the candidate countries
  - Involvement of all stakeholders

Technical Contents 5

- 3.4.3.1 Development of new processes and flexible, intelligent manufacturing systems

  - Support to the development of new knowledge-based added-value products and services in traditionally less RTD intensive industries
  - IP‘s dedicated to SME‘s
  - The objective is to promote the shift of the industrial sectors which are traditionally less RTD intensive to high-added- value sectors by 2010
  - Incorporation of emerging technologies driving new organisation paradigms in all phases of the complete/ extended value chain to allow knowledge based services

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FP6 2. Call for Proposals

Key dates

- Publication December 2003
- Deadline Stage 1 2. March 2004
- Deadline Stage 2 22. June 2004

We intend to submit

- 3 IP's, funding request 12 mio € each
- 2 IP's for SME's, funding 8 mio € each
- 2 STREP's, funding request 2 mio € each (May)
- 1 SSA, funding 2 mio € (September 2004)

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Proposal E-MASS

- European Monitoring and Assessment Support System

- 3.4.3.2 System research and hazard control
- Hazard reduction in production plant and storage sites

- IP
- 30 Partners, 30 mio € budget, 12 mio € funding

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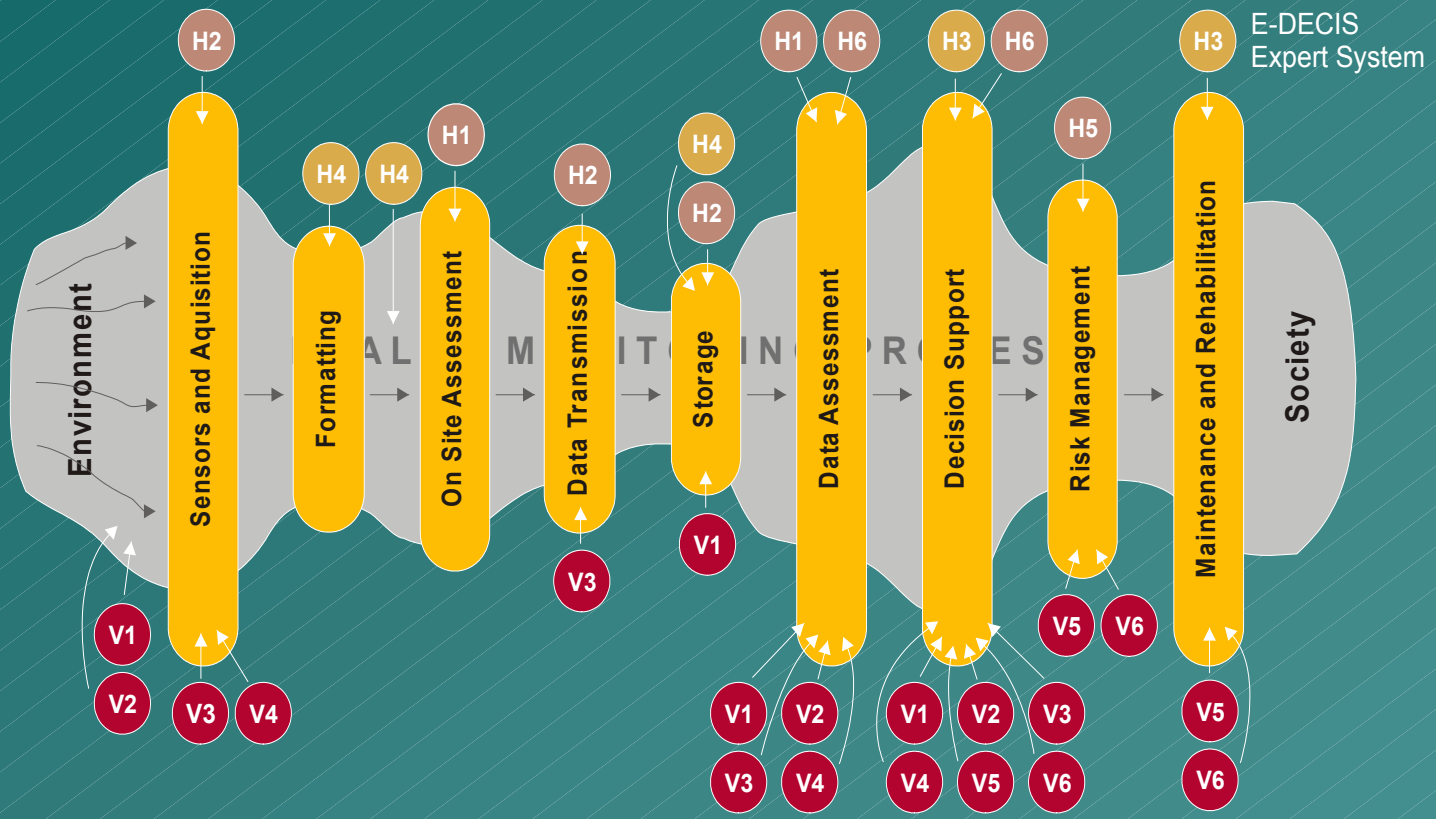
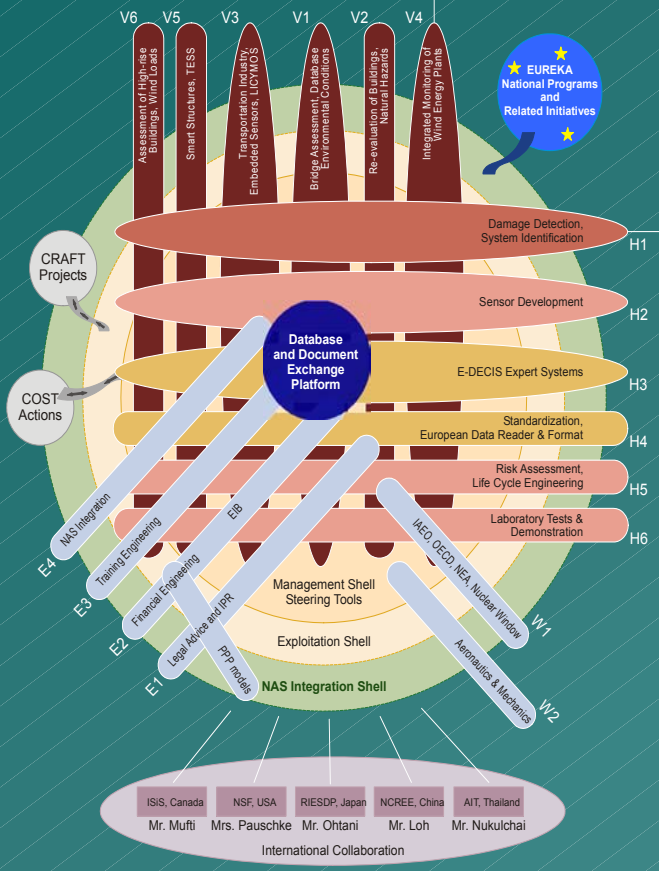
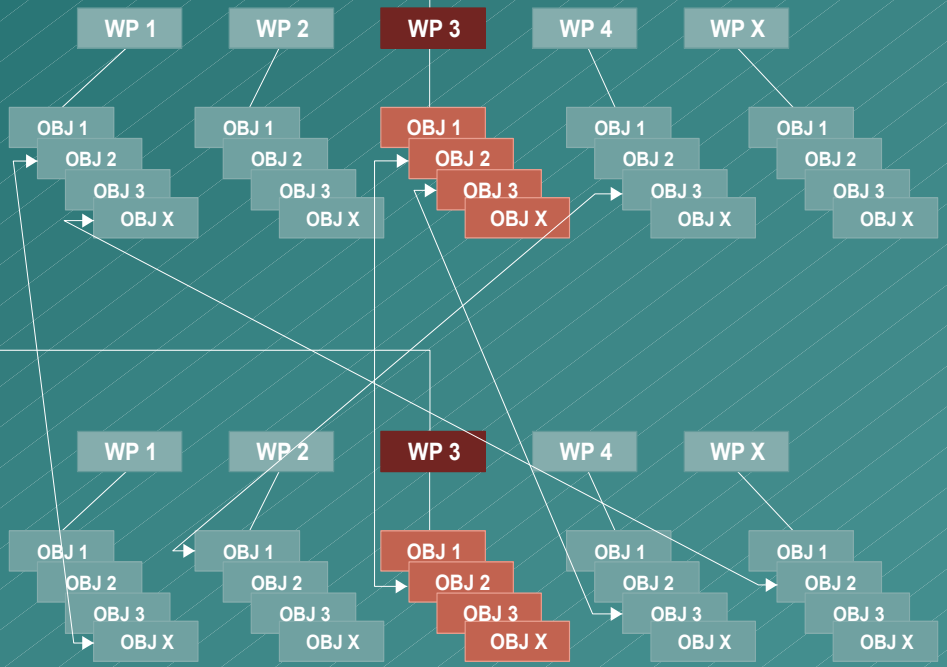
Management and assessment process



Levels of Objectives in E-MOI





SAMCO WS Vienna 2004

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Avoid drastic Experiences

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Messina Straits Bridge, 3,3km span

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Benchmark Tests with Autopsy

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Extreme Loading Conditions

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Not only focused on Bridges

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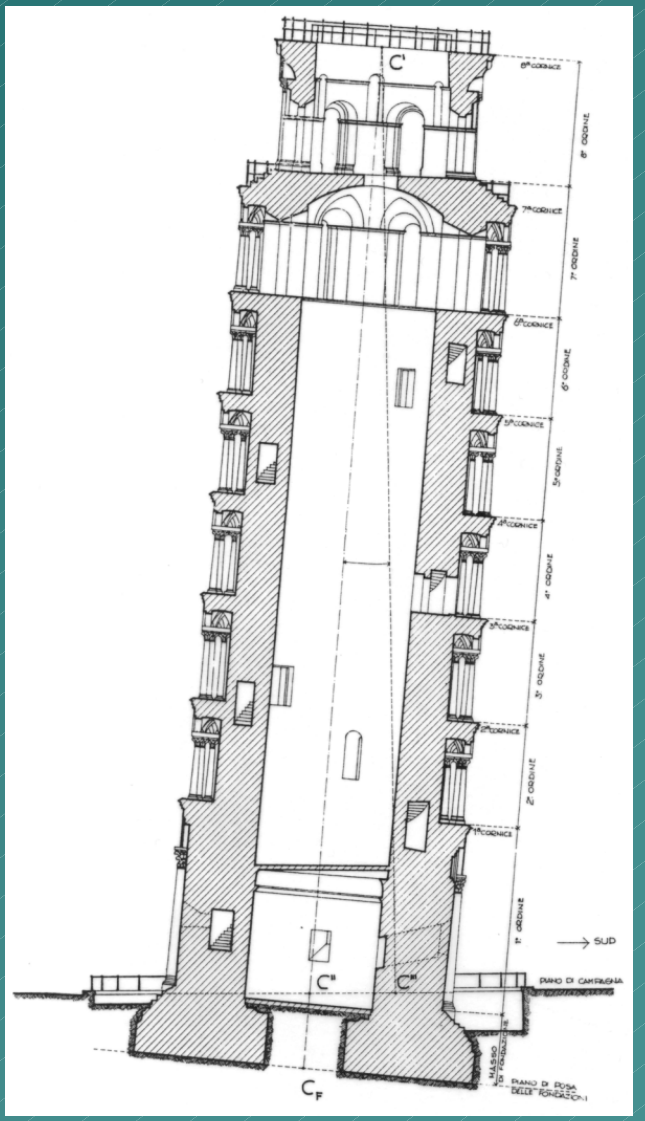
Protecting our Cultural Heritage



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Monitoring Landslides

Avoiding wrong Decisions

- proximity to the fault
- strong ground shaking
- surface fault rupture
- amplification

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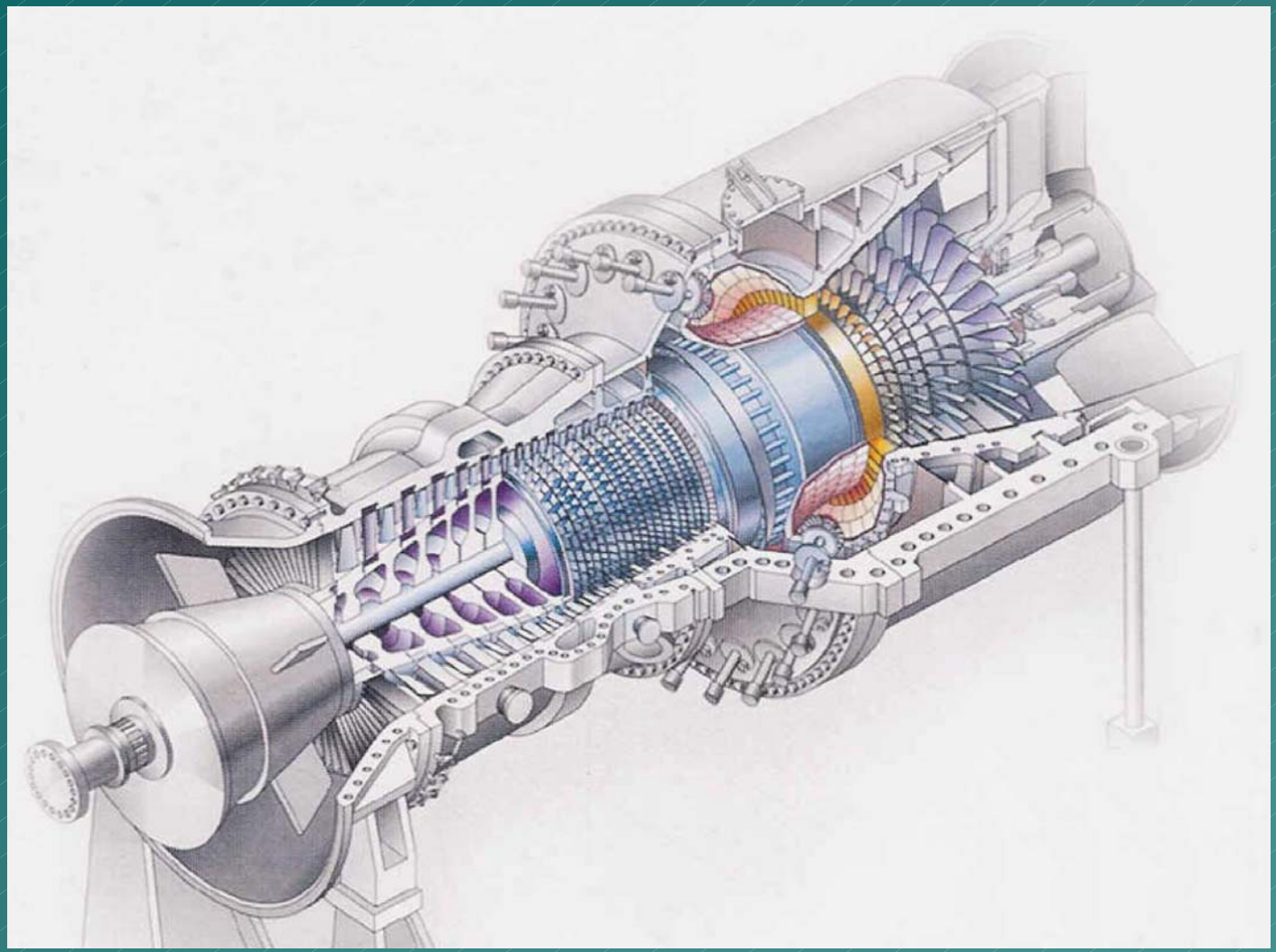
Monitoring of Machinery



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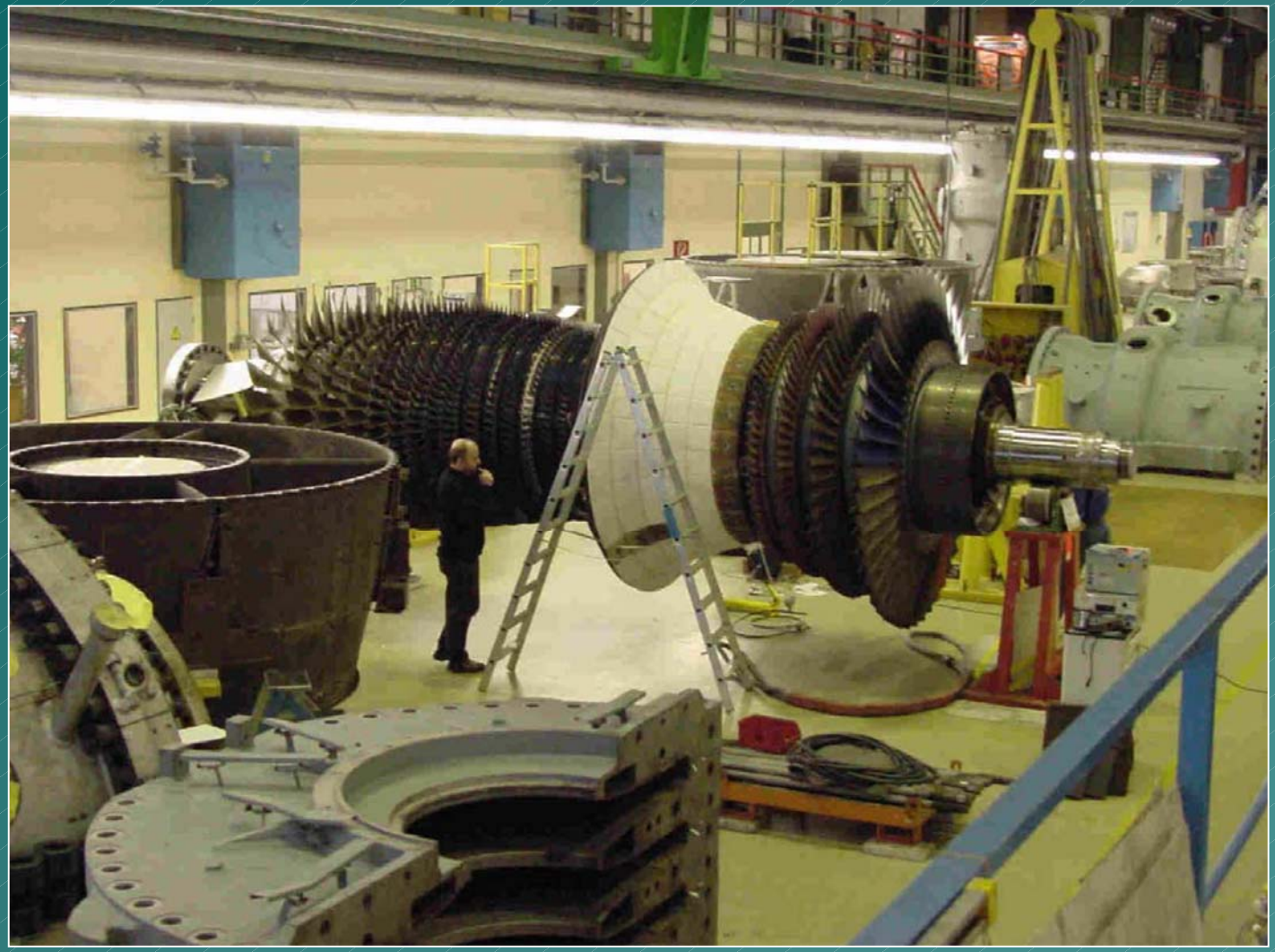
Fabrication of 400MW Turbine



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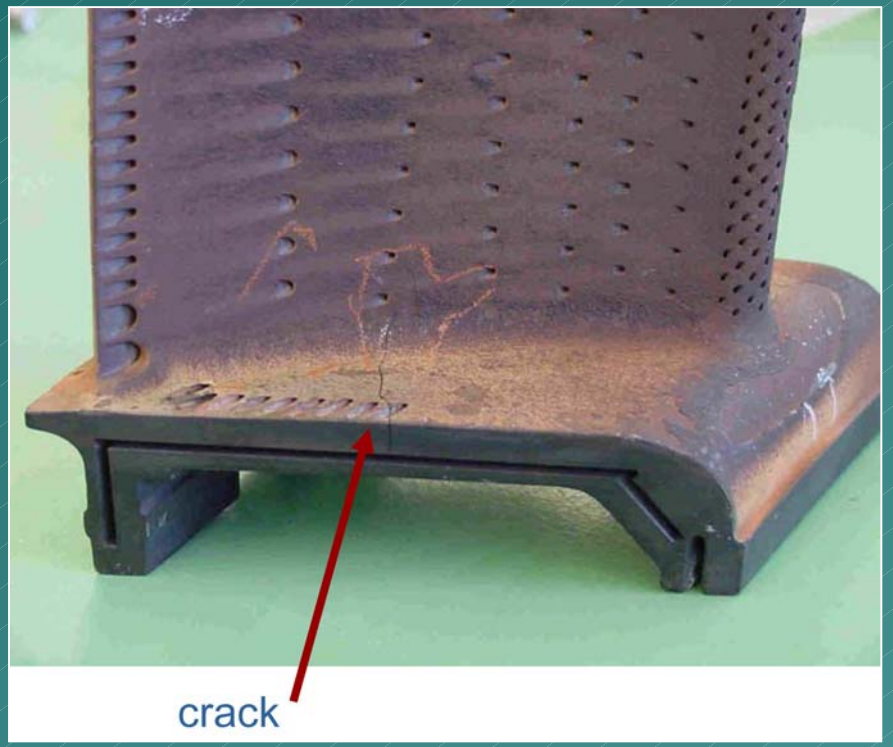
Recognise Damages in Time



Monitoring of Rolling Stock Fleet

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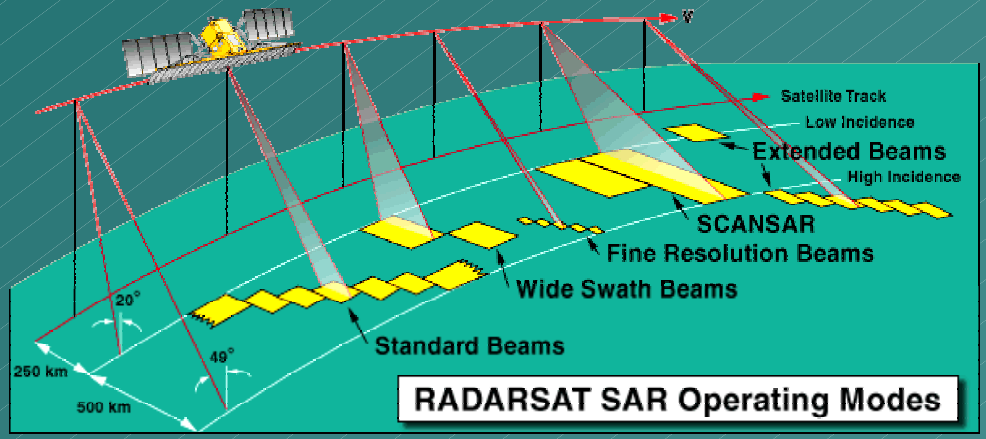
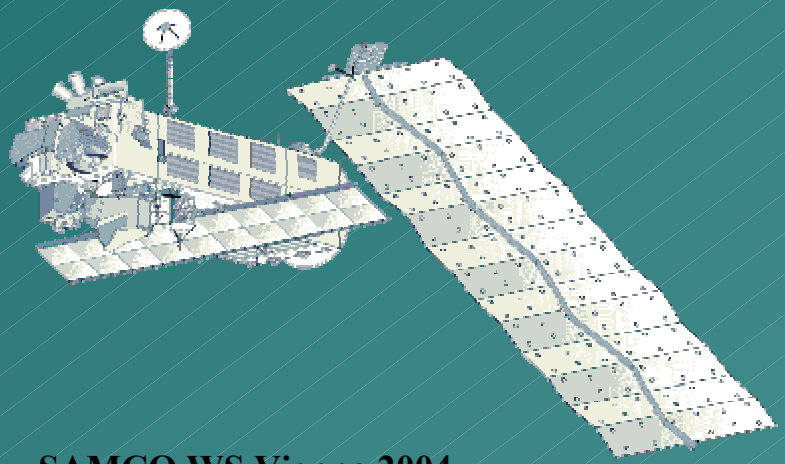
Remote sensing

- data acquisition of wide area
- weather independent
- continuous observations
- data sources back to early 1970's
- ground resolution up to 1 - 30m



- compatibility to ENVISAT

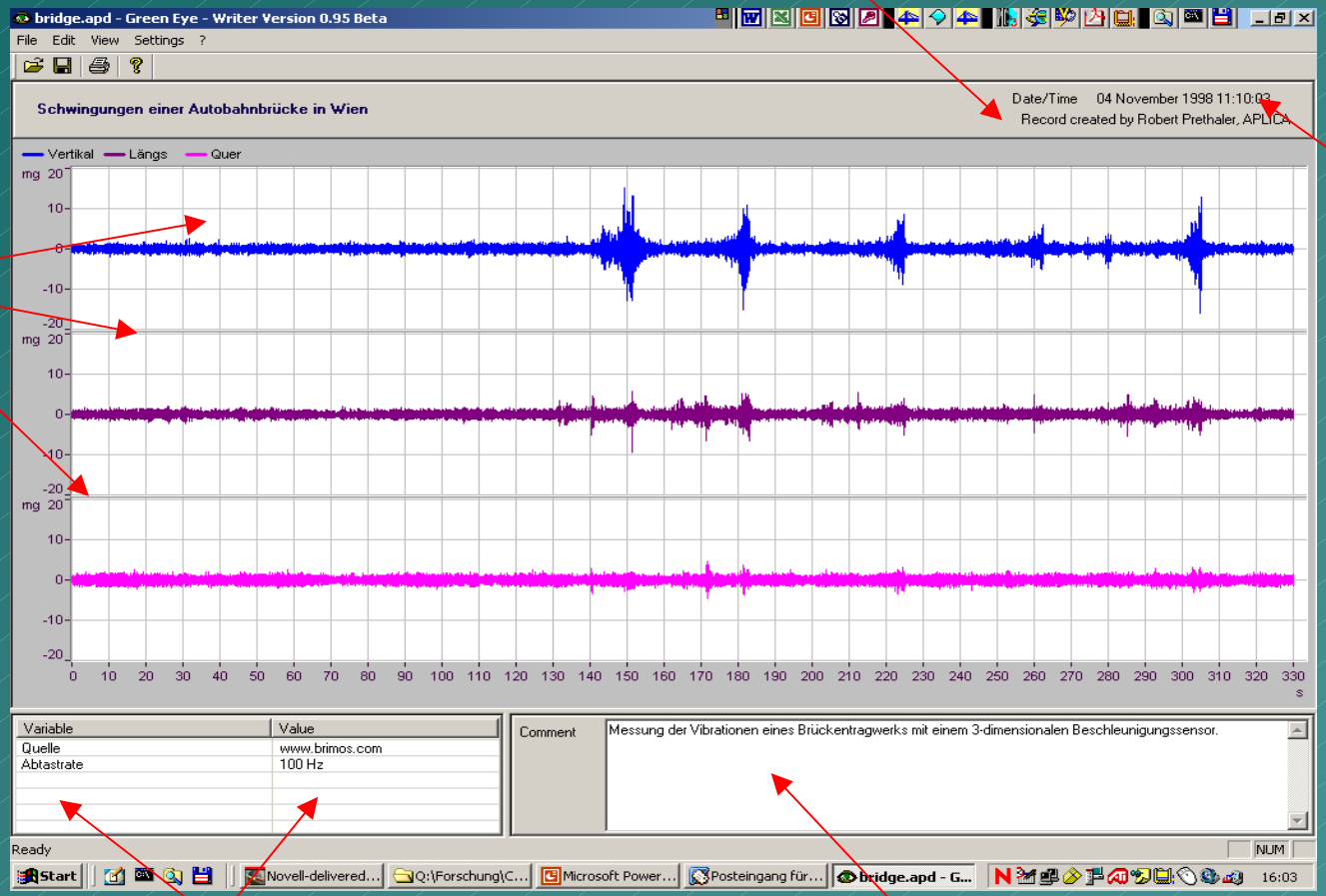


Harmonisation : Green Eye Writer

Author

Data

Date, Time



File Description

Comment

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Proposal BRIMOS

- Integrated Bridge Monitoring and Decision Support System
- 3.4.4.1 Human friendly, safe and efficient construction
- IP
- 30 Partners, 40 mio € budget, 12 mio € funding

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Condition of the Bridge ???

Demand : „Health Monitoring“

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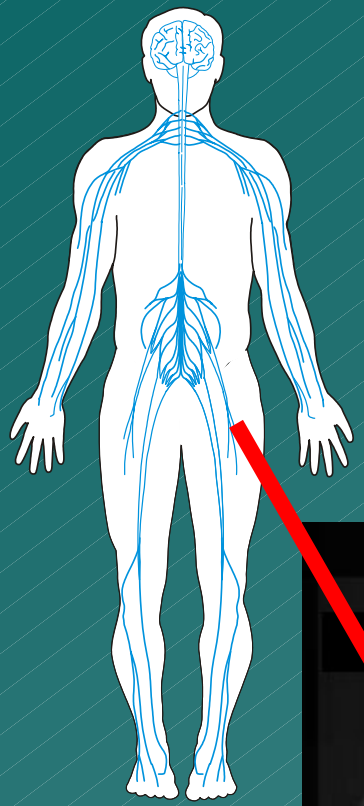
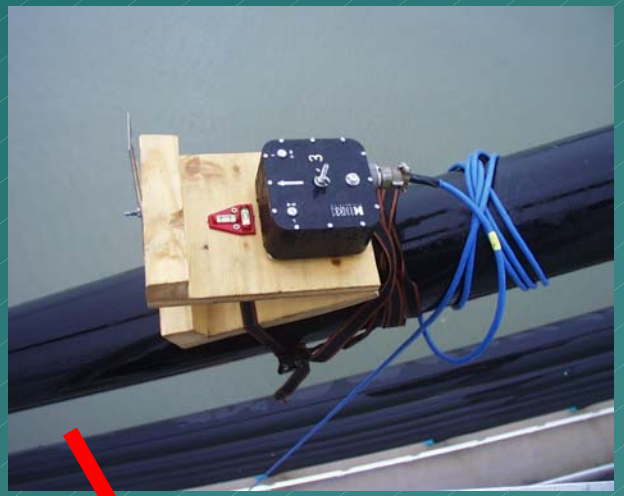
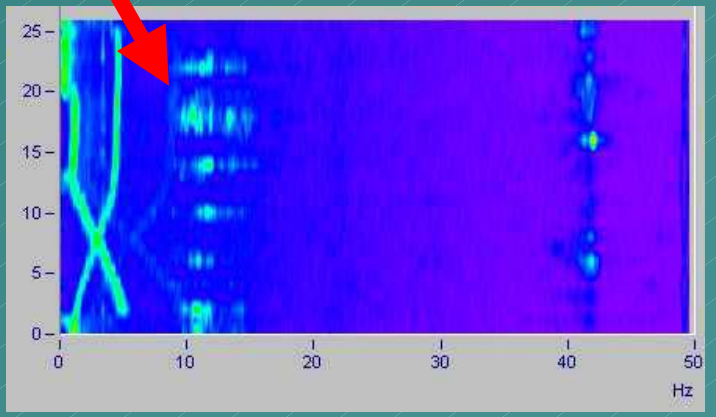
VCE Bridge Doctor



Nerves
Pain



Data
Virtual Pain



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Enable outstanding Structures

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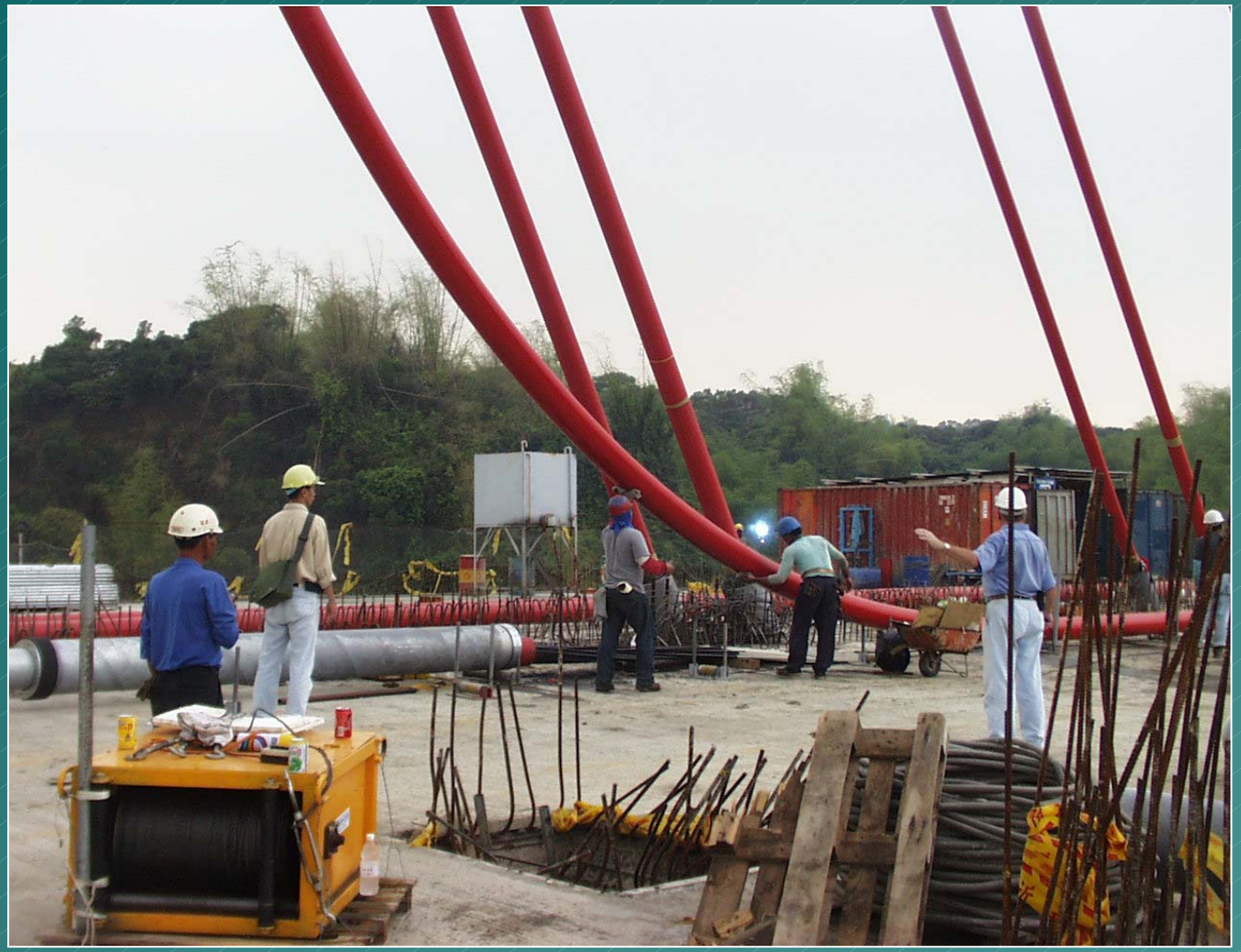
Construction Quality Monitoring



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Anti Seismic Device on a Bridge

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Improve Mega Projects

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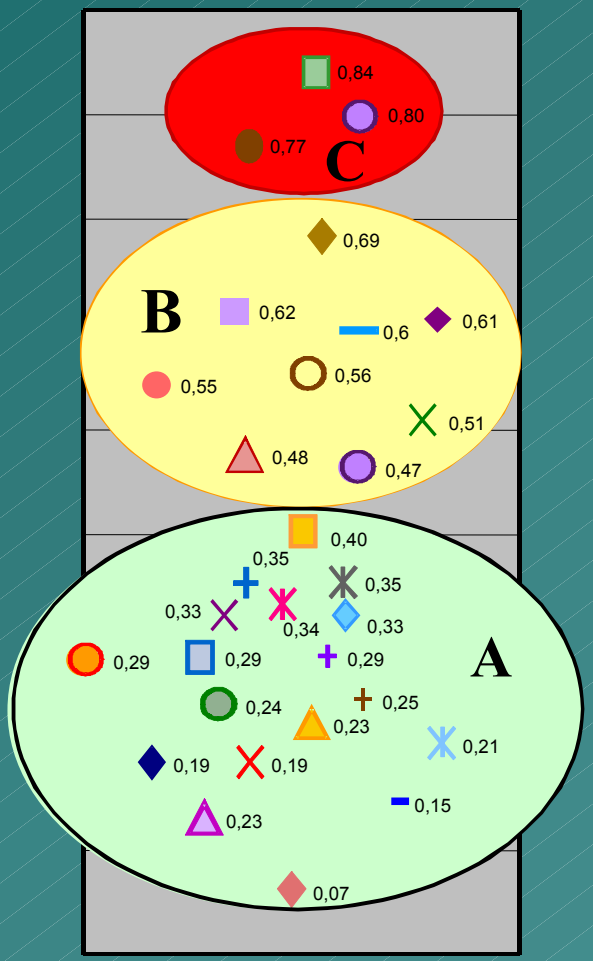
What the Owners want to know :

There is Danger

Action required

Good Condition



Fleet Strategies

- Winden
- Regau
- Gurkbrücke
- LZ13
- Pongau
- Mittersill
- Oberberg
- Regau Ost
- S 101
- Steinhäusel
- PORR Br.
- Taurach
- Innstraße 1
- Innstraße 2
- Innstraße 5
- Wartberg
- P23a
- Schwechat
- Rederbrücke
- Aschach
- Aistbrücke
- Golling
- Schmiedgr.
- Alte Donau
- Floridsdf. 1
- Floridsdf. 2
- Neutal
- Innstraße 3
- Innstraße 4

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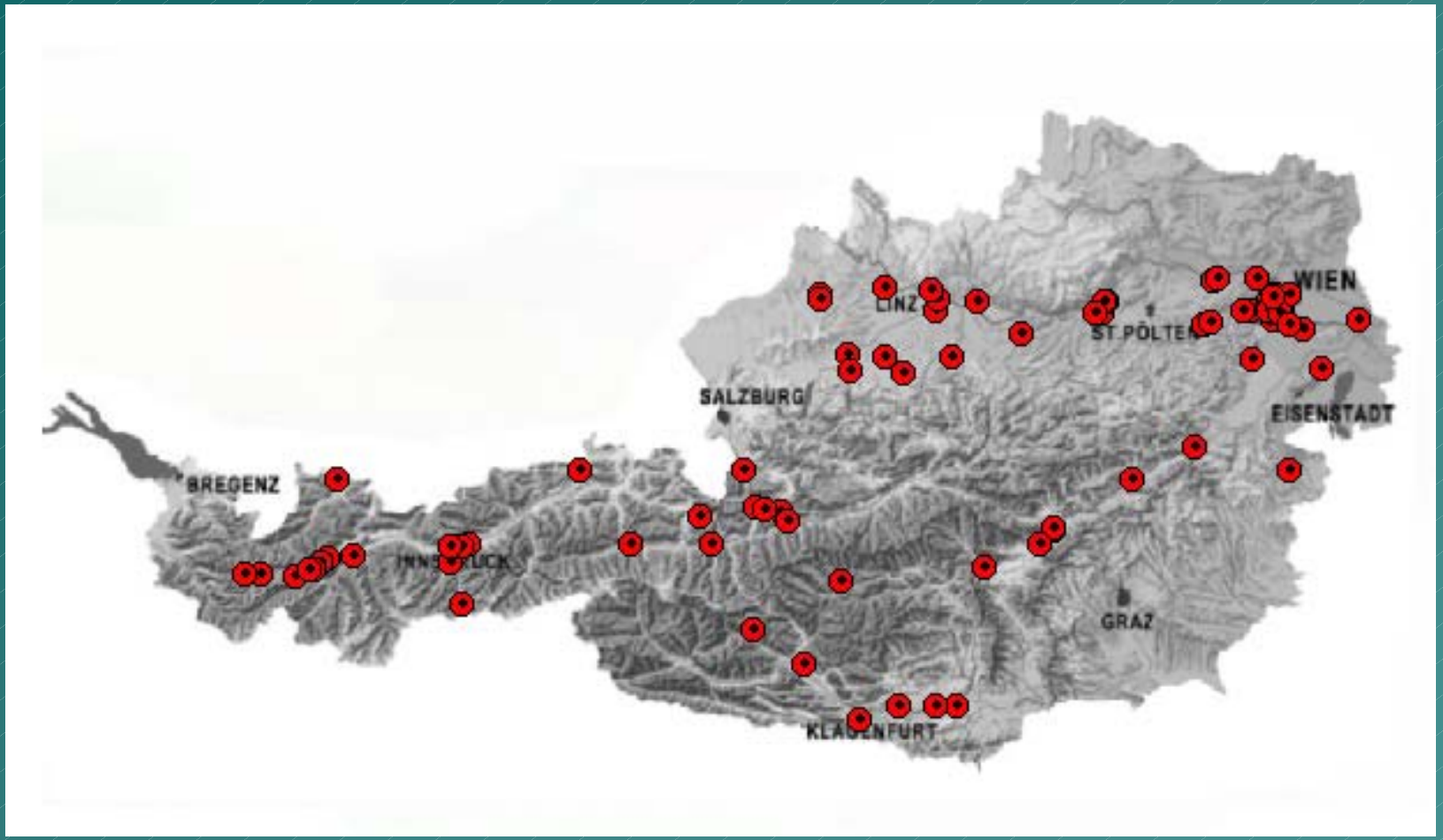
Map of monitored Post Tensioned Bridges



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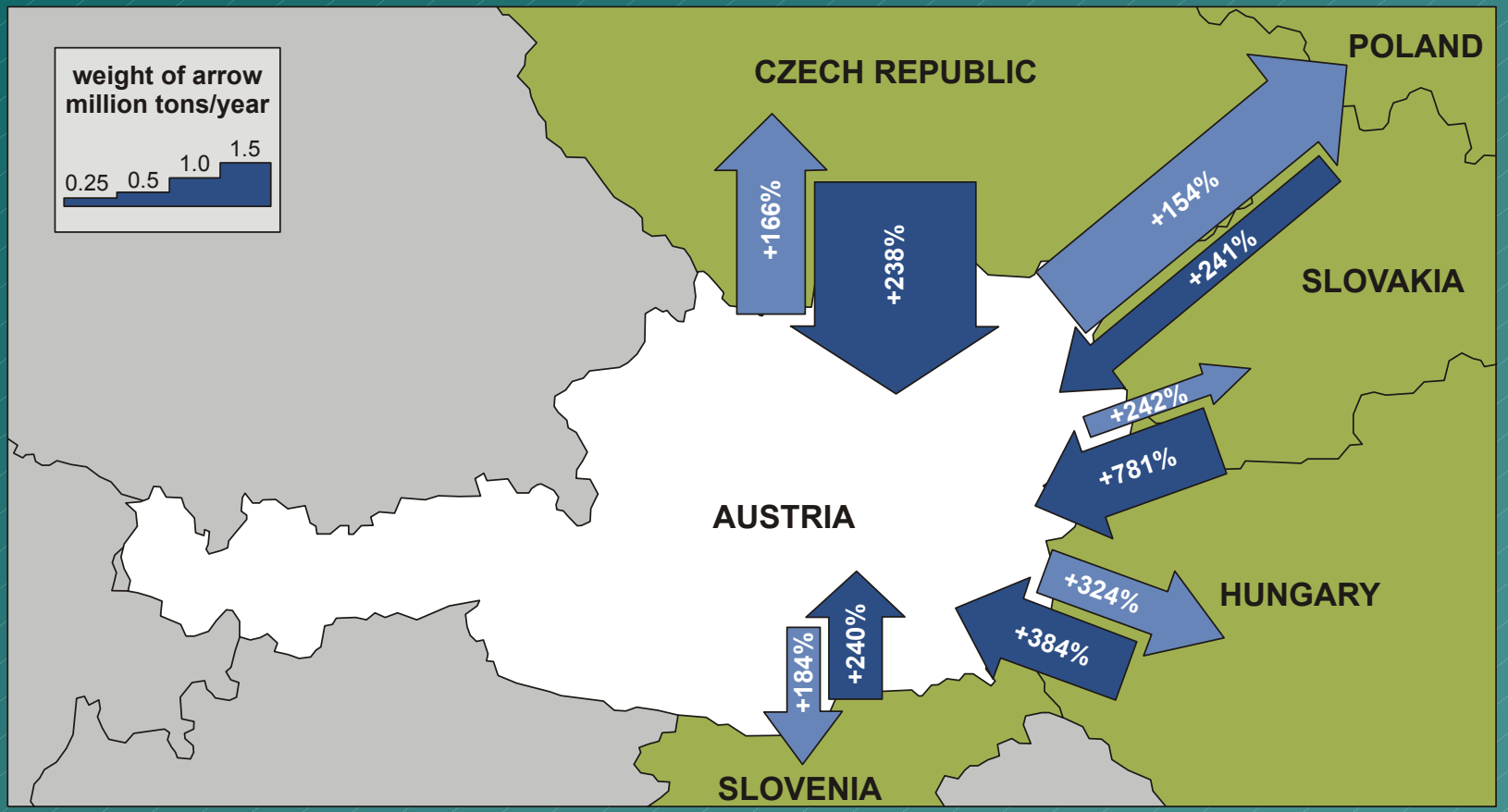
Increase of Traffic in 2015 compared to 2000



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BRIMOS Recorder, 7 years of R&D

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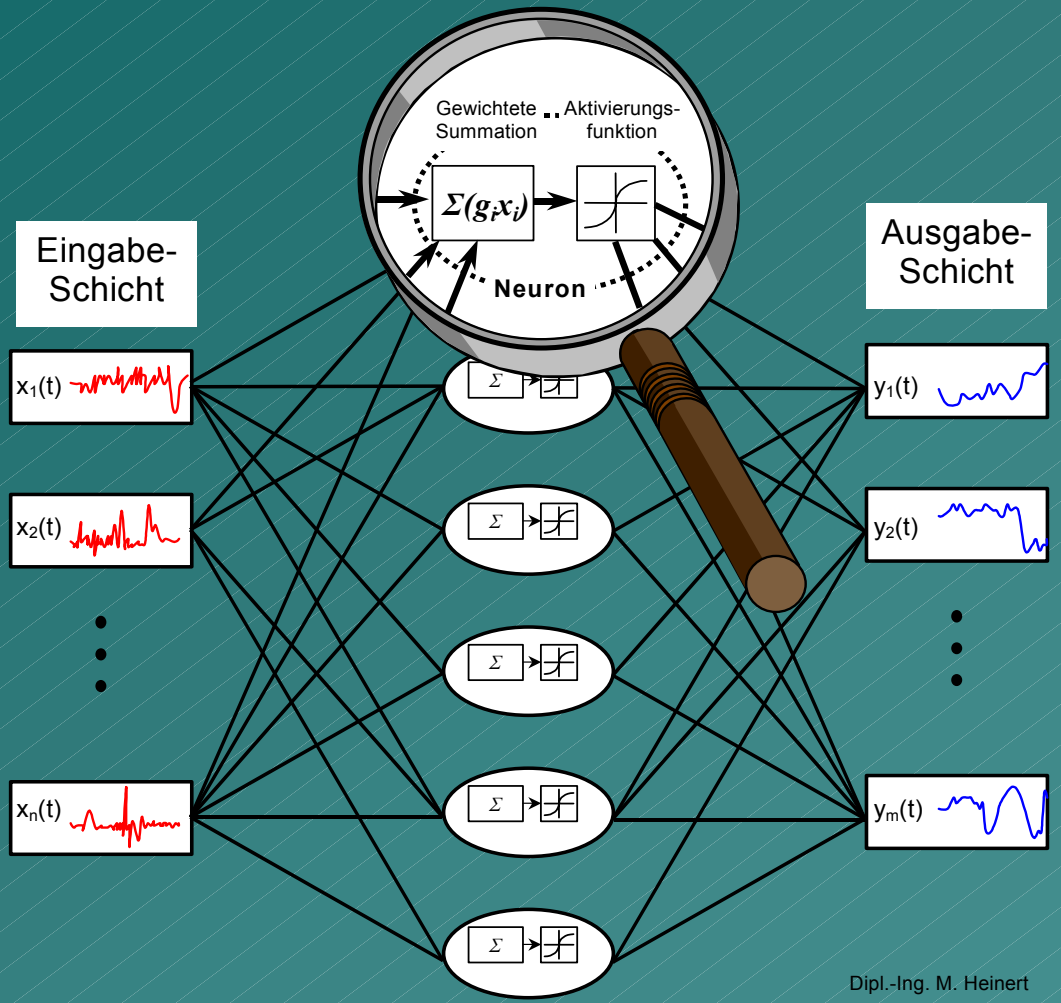
Knowledge based Systems



Dipl.-Ing. M. Heinert

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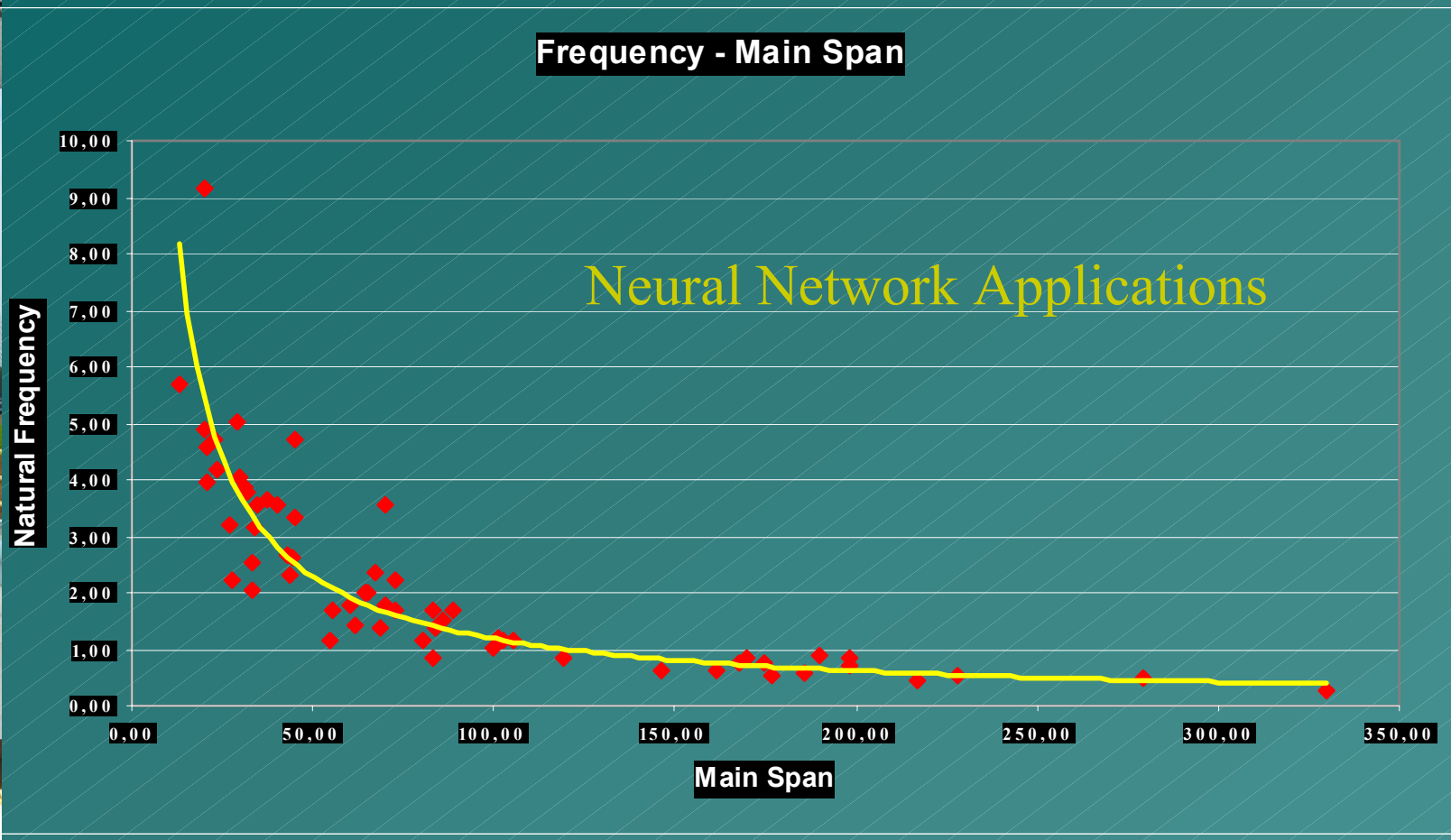
Natural Frequency – Main Span



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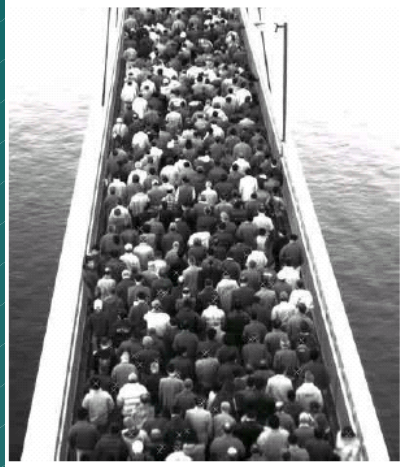
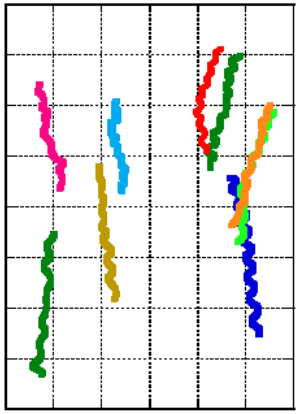
Understanding phenomena

Traced paths of human motion during walk





Paths of human walk

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Proposal SALMAPS

- Safety Assessment and Lifetime Management of Piping Systems

- 3.4.3.2 Hazard reduction in production plant and storage sites

- IP
- 20 Partner, 30 mio € budget, funding 12 mio €
- 12 Partner, 20 mio € budget, funding 8 mio €

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Proposal SALMAPS

- Safety Assessment and Lifetime Management of Piping Systems

- 3.4.3.3 Optimising the life cycle of industrial systems, products and services
- Support to the development of new knowledge based and sustainable processes and eco-innovation

- IP for SME's
- 12 Partner, 20 mio € budget, funding 8 mio €

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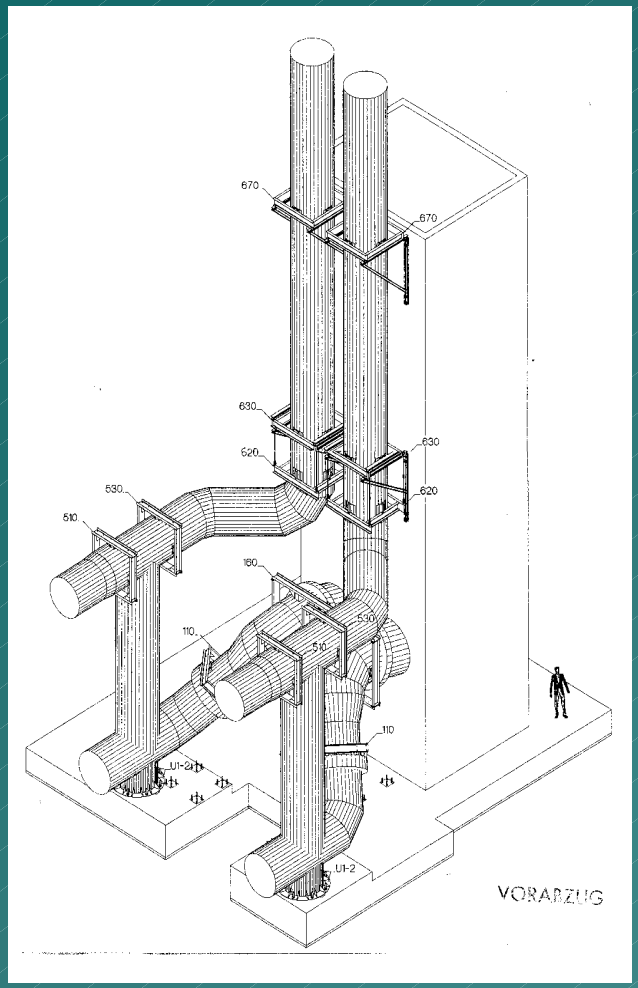
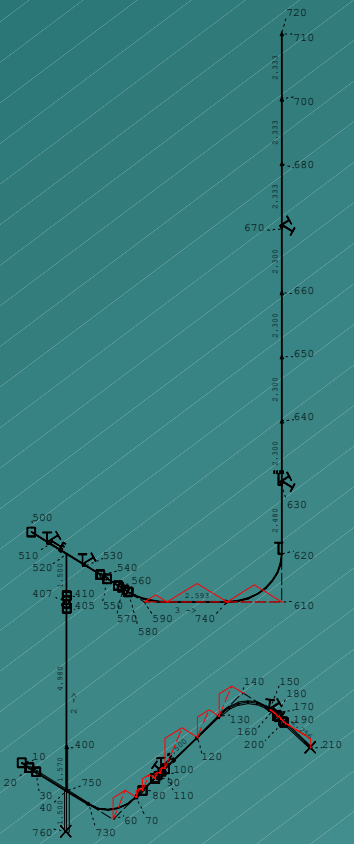
Pipelines in Nuclear Power Plants





Pipes and supporting structure: 3 -D Pipes

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Seismicity of NPP Temelin

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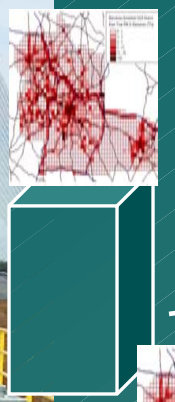
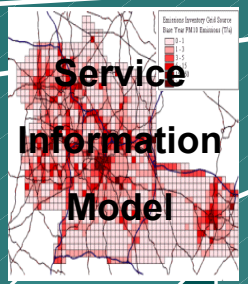
Service Catalogs

Spatial Services servers with service metadata and OpenGIS interfaces





Service Information Model

Collection of service metadata
Metadata for an online service, and a URL

Collection of service metadata

Collection of service metadata
Metadata for an online service, and a URL
Metadata for an online service, and a URL
Metadata for an online service, and a URL
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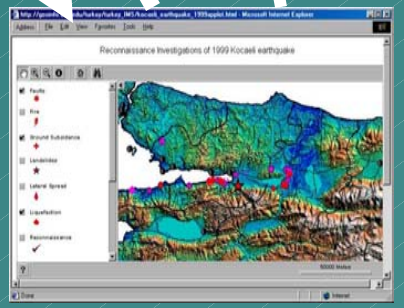
Catalog Information Model



Need a Processing Function!

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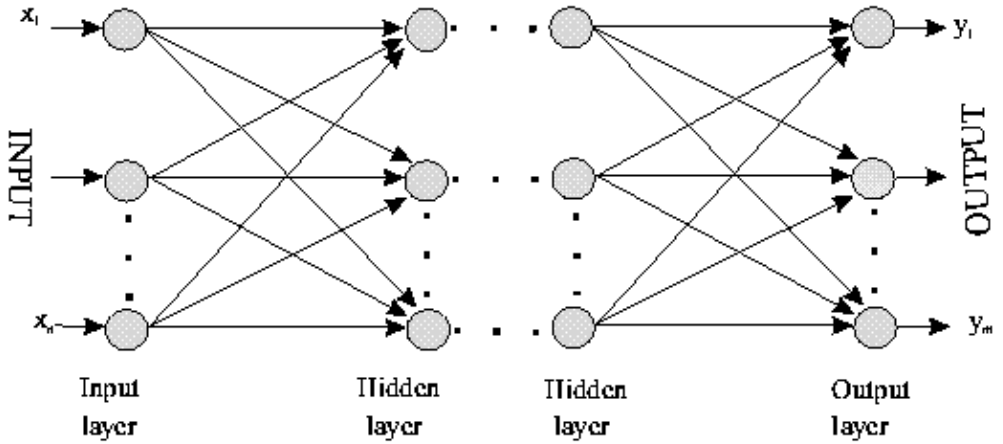
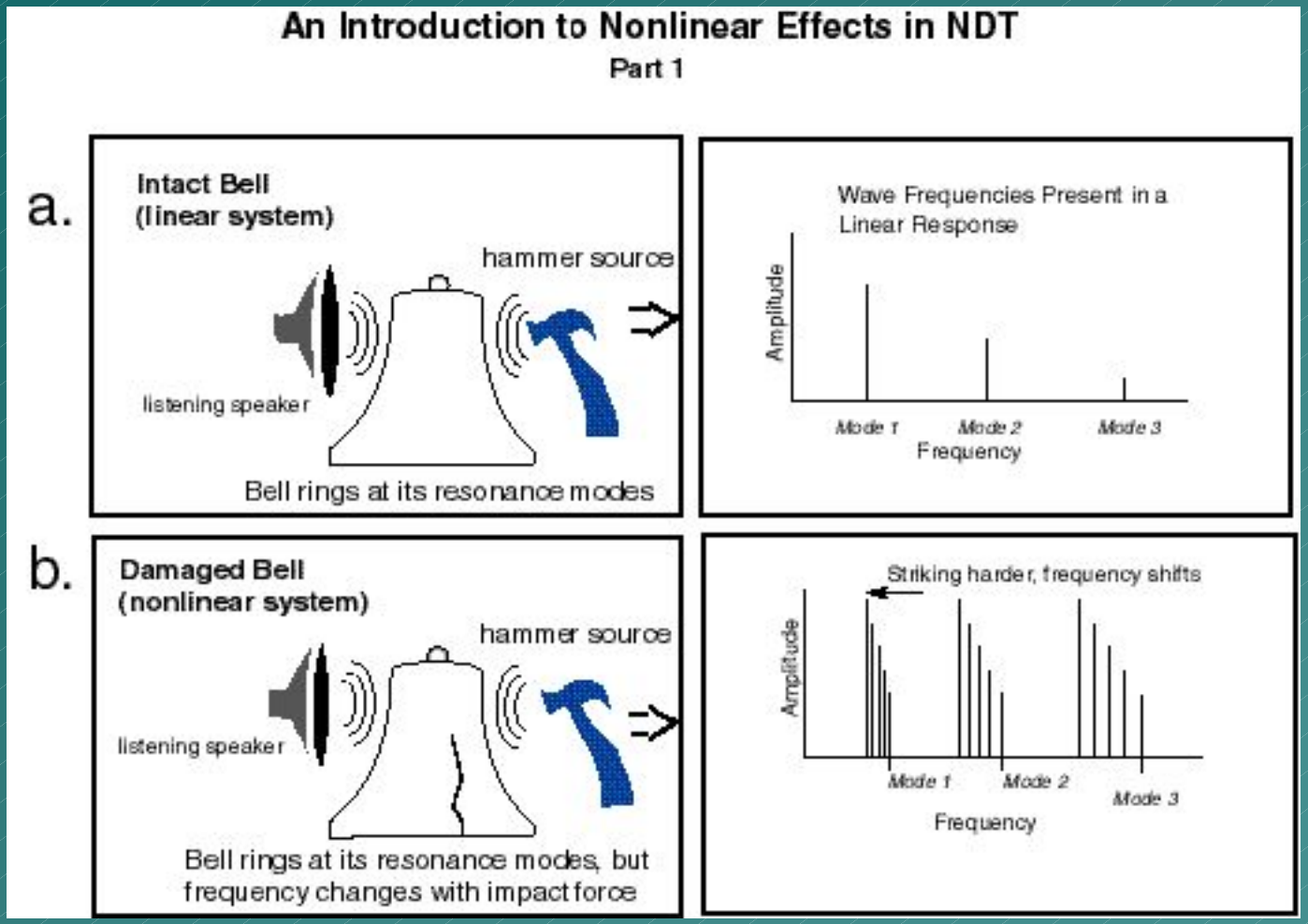
Neural Networks in use everywhere

A multi-layer feedforward neural network

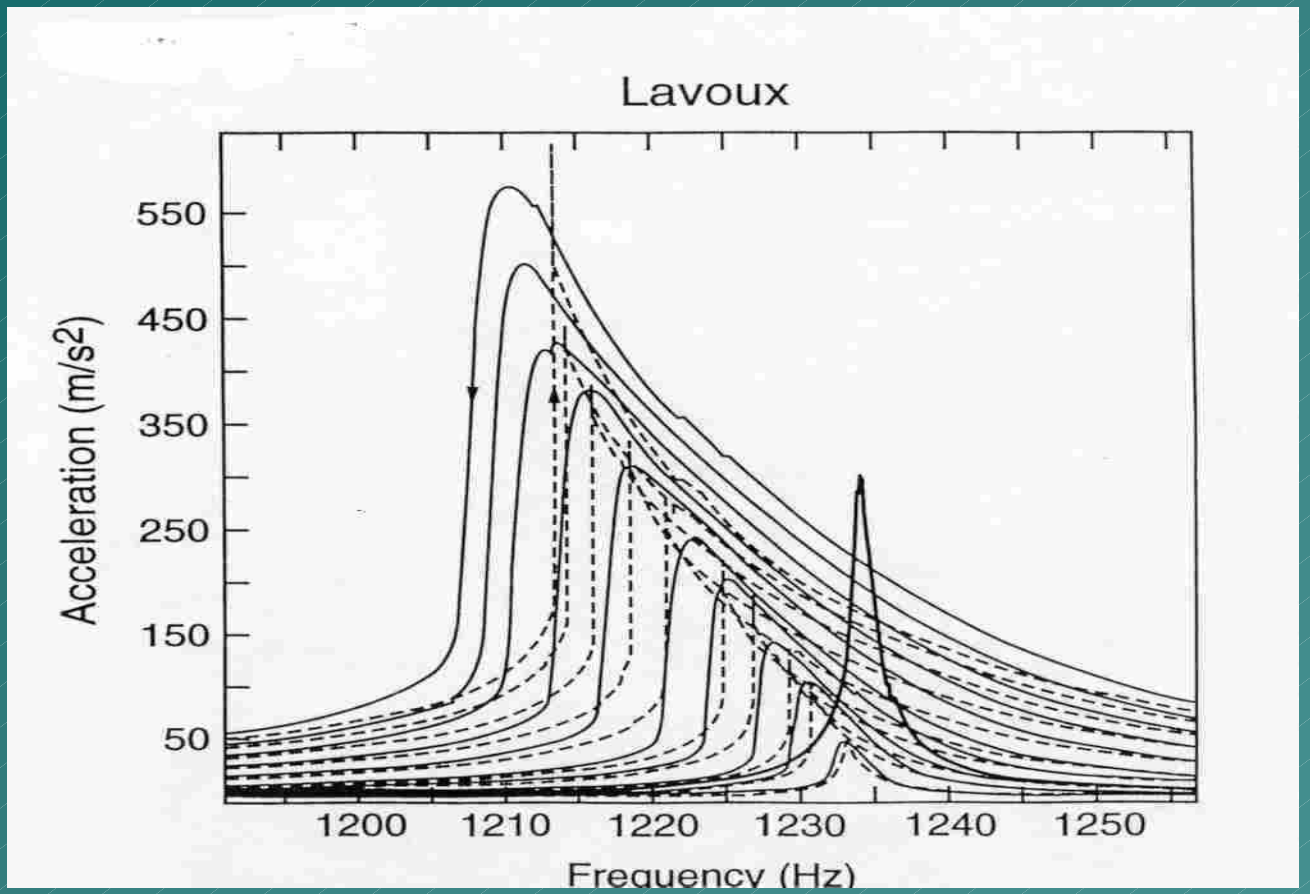


- Inputs pass from one set of neurons in one layer to another
- Parallel process
- Its power and memory comes from the multi-layers and the adjustable connection weights

Basis of NASDAM :ring the bell

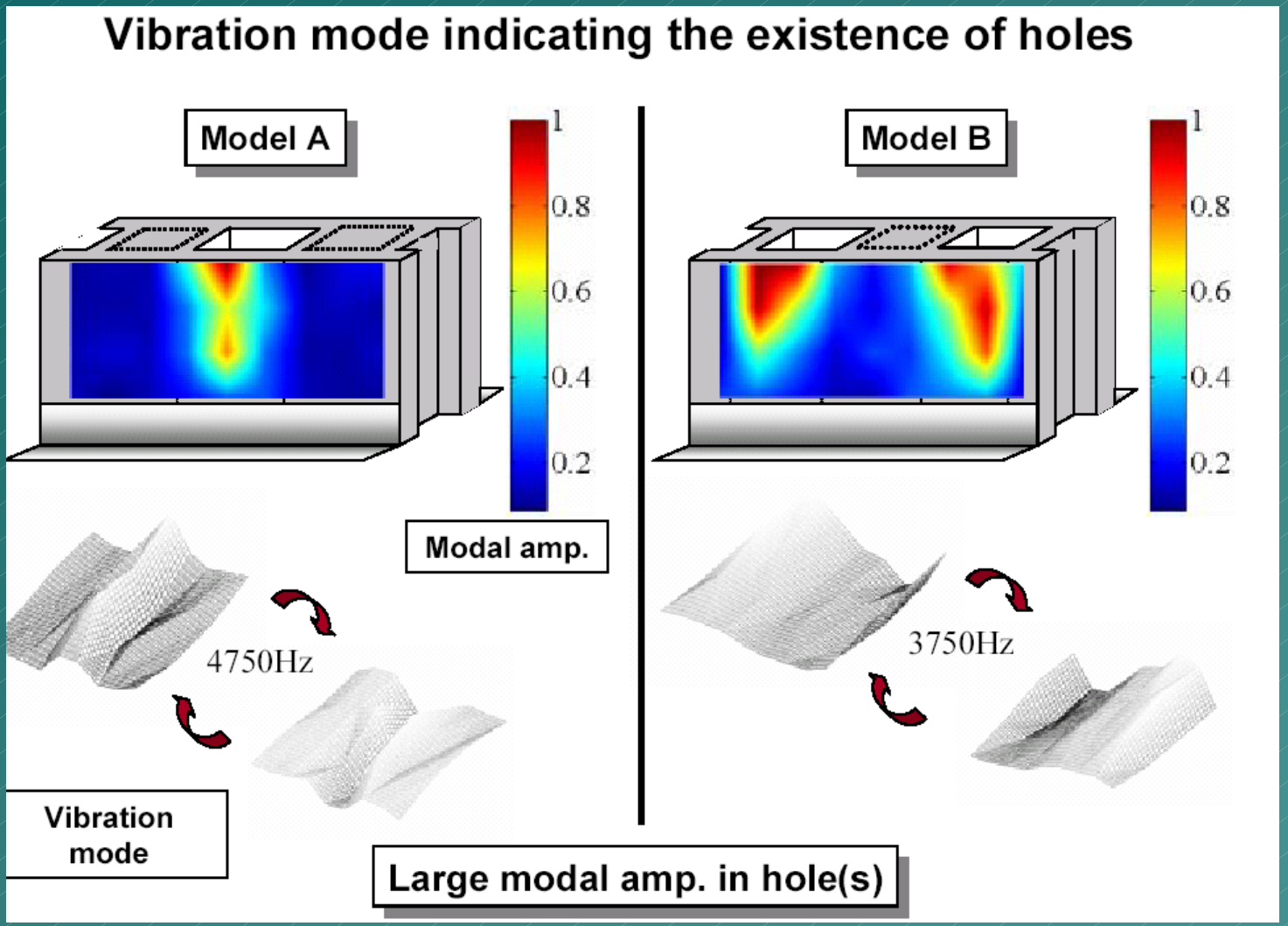


Basis of NASDAM :hysteresis in resonant bar





Examples simple structures



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International Relations essential

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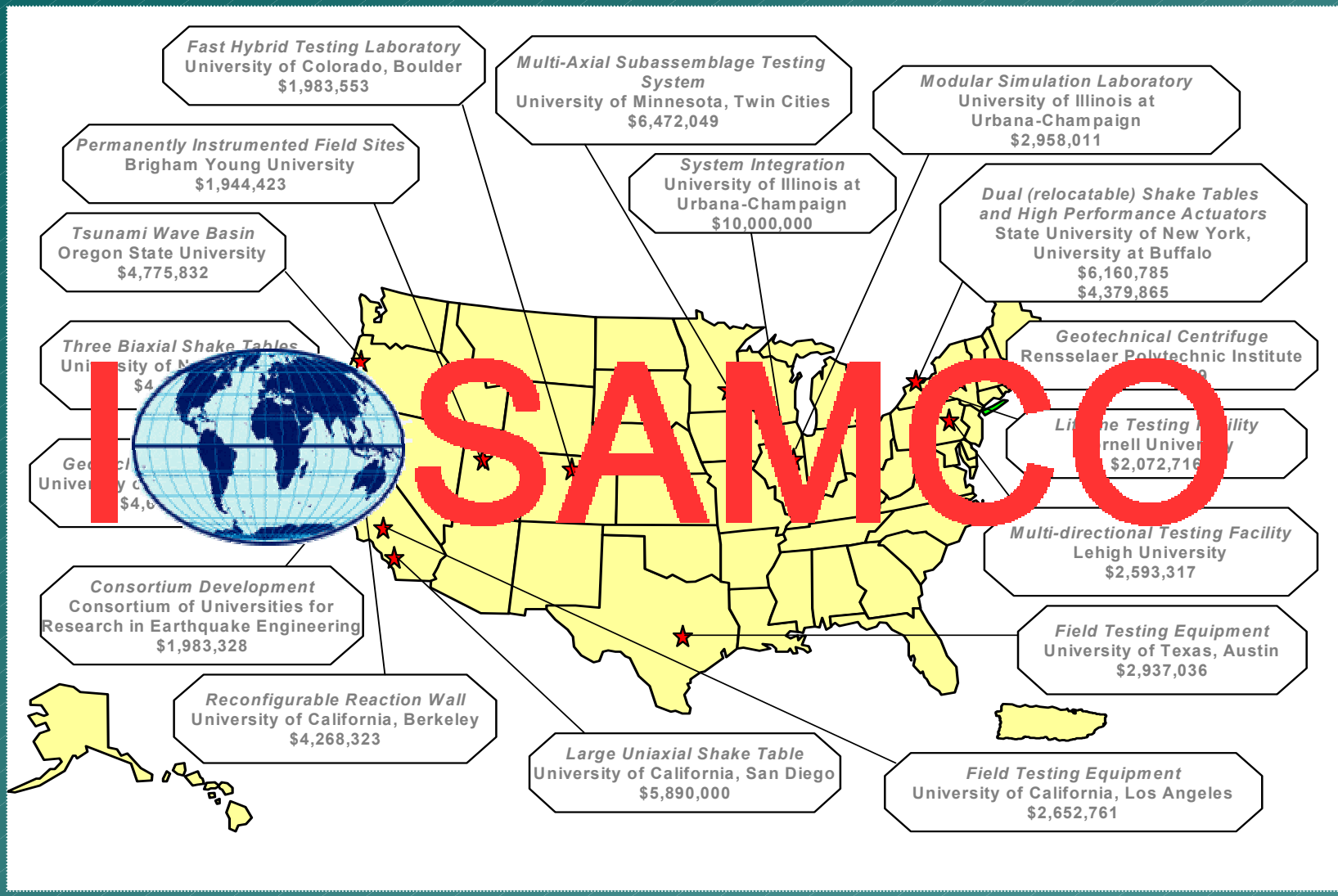
NEES Construction Award Portfolio

US$82 million



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1200t mit 10m/s bewegen

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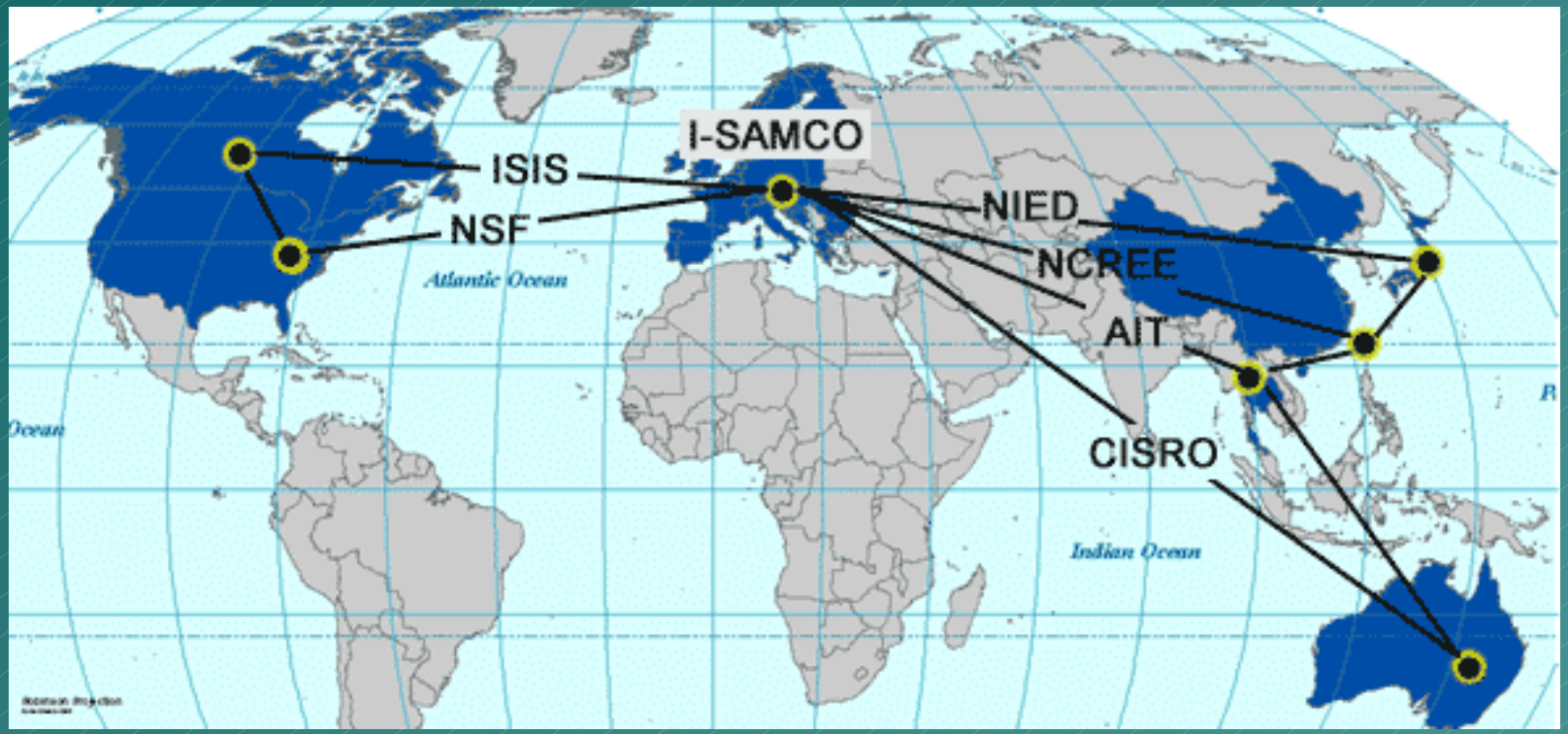
Challenge I-SAMCO

New Partnership through I-SAMCO



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Summary

- There will be 25 IP's in only 15 items of call
- Competition will be strong
- Only the best will survive
- Attention on Consortium, Critical mass
- Attention on S&T content
- Participation of Industry
- Participation of SME's
- Lisbon, Göteborg, Barcelona, ERA criteria
- International collaboration
- Keep European competence and industry here
- We have to be convincing in our proposal
- Only a joint effort of all of us will bring us success !

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