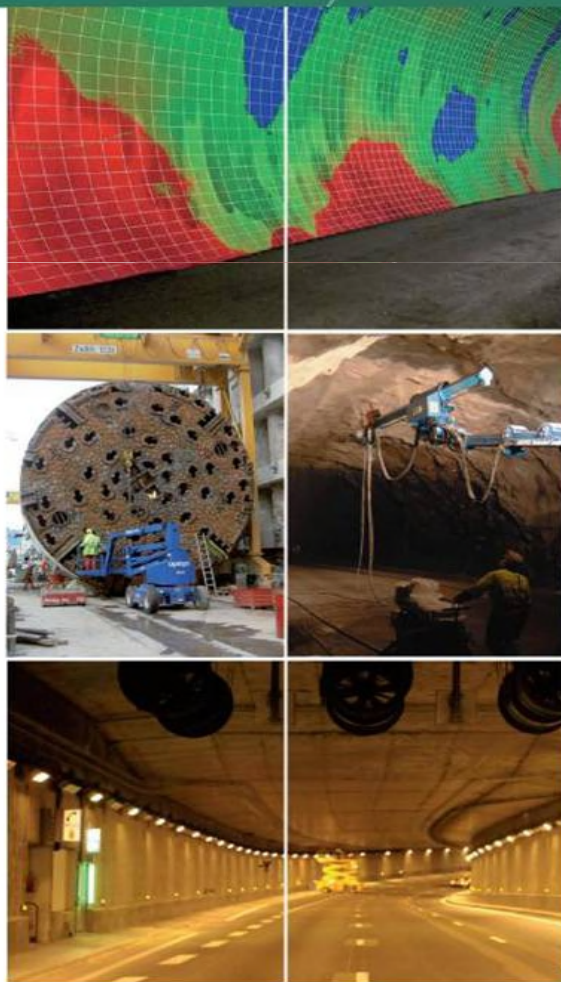


ITAttech

PROGRAM INNOVATION SESSION



General meeting + Innovation forum:

Tuesday 3rd June from 14: 15 to 18:00 PM

14:15 – 14:45

Presentation of SB members, promotion of ITAttech
(AG, topics of activities – including AG that has not started yet)

14:45 – 17:45

Presentation of status of works from all AG

14:45 – 15:15

Rehabilitation

15:15 – 15:45

Excavation

15:45 – 16:15

L&W

16:15 – 16:45

Support

16:45 – 17:15

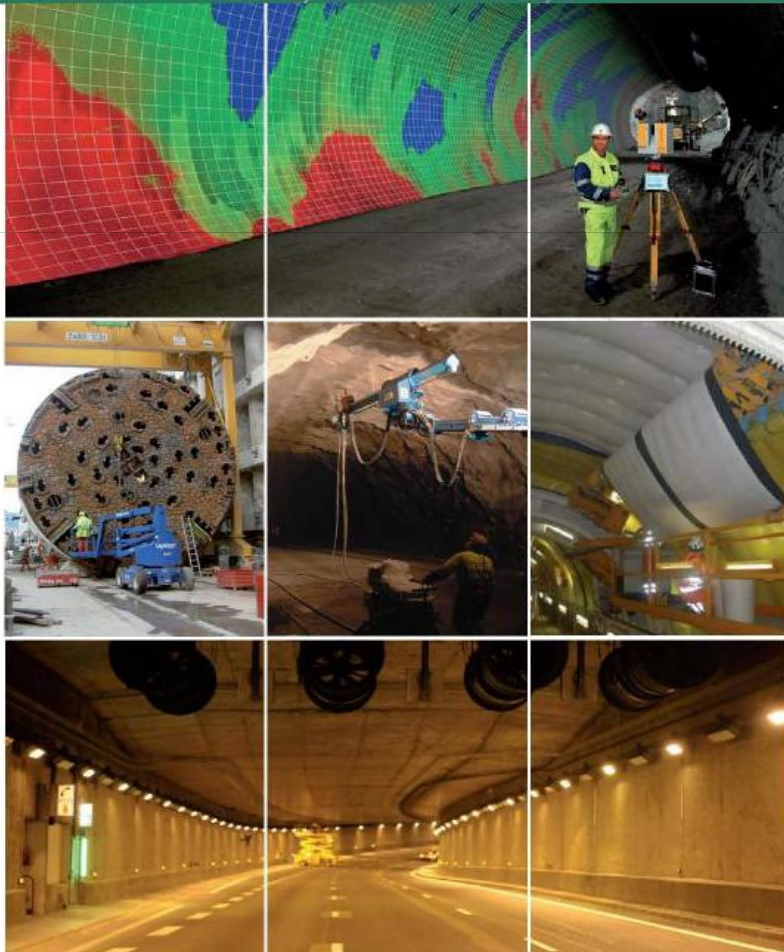
Monitoring

17:15 – 17:45

Design

17:45 - 18:00

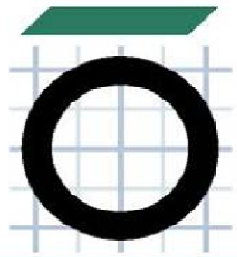
Conclusion



The goal of this committee is to promote new and state of the art construction technologies and methods for the sustainable development of underground space.

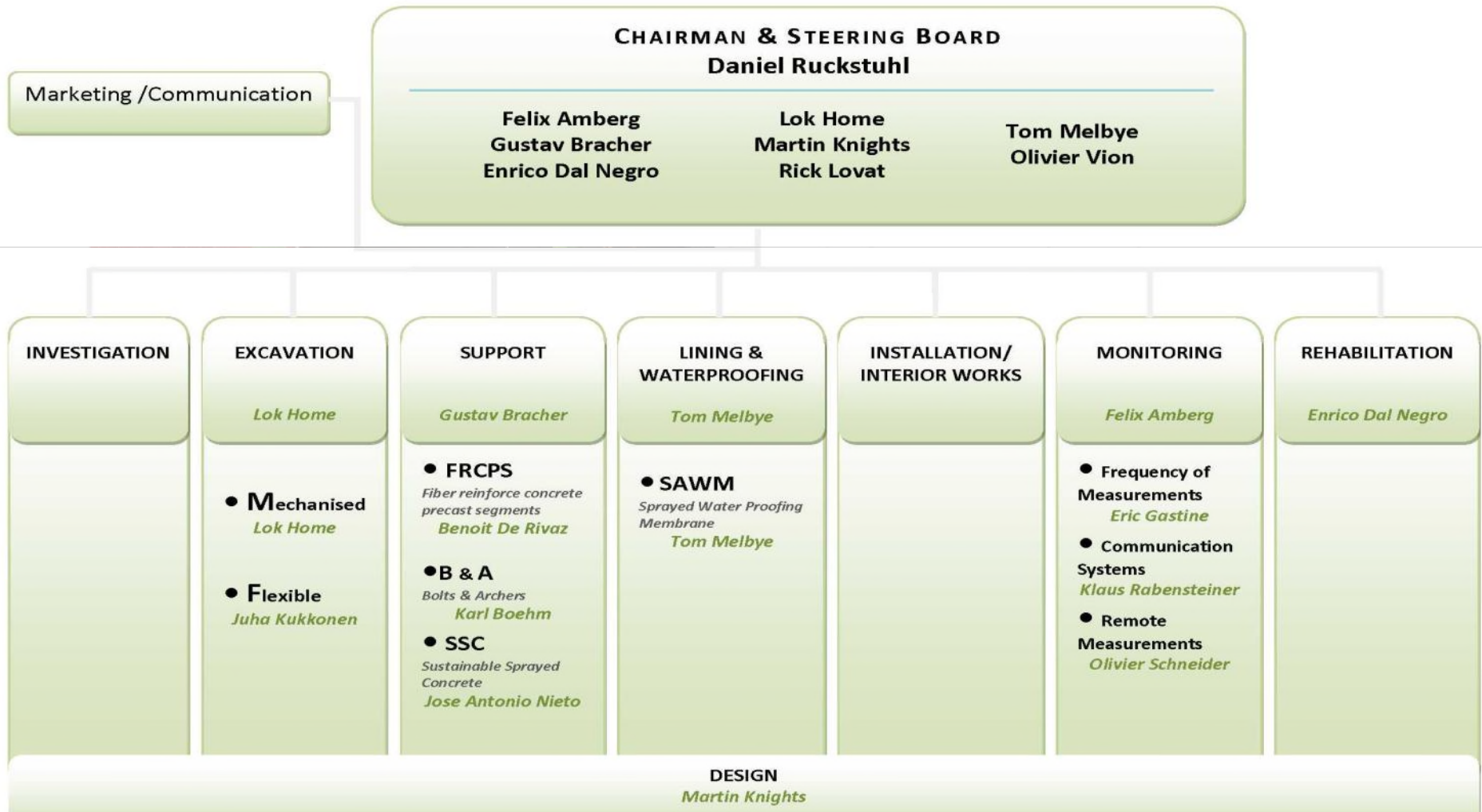
The ITAttech activity groups include all processes related to underground construction such as Investigation, Excavation, Support, Lining and Waterproofing, Installation and Interior works, Monitoring, Rehabilitation, Design.

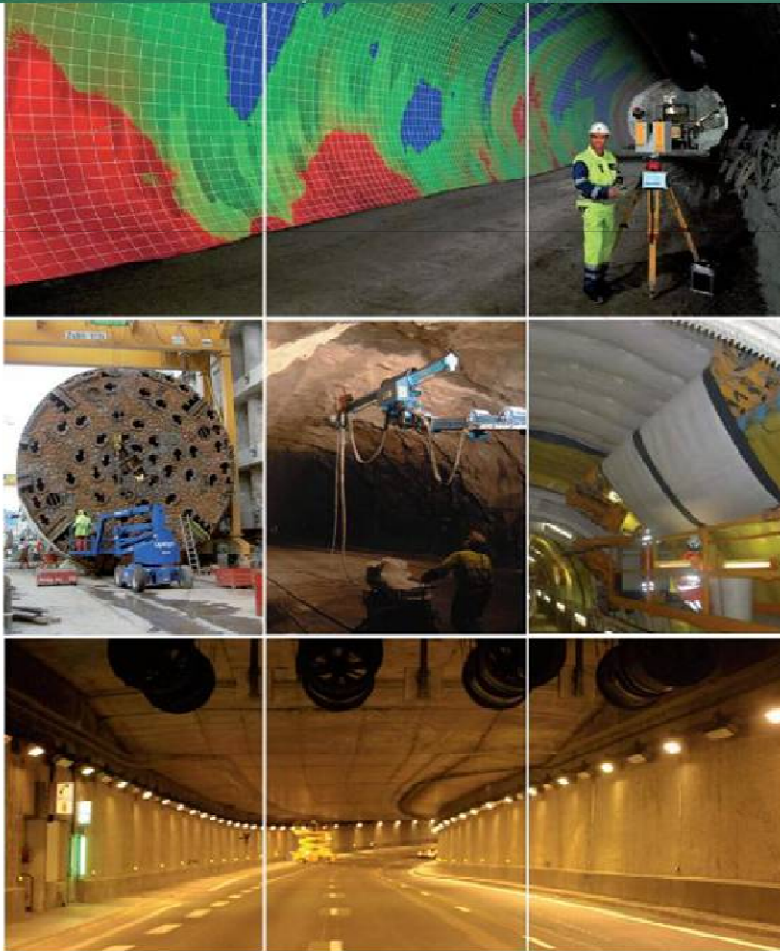
Participation in ITAttech Activity Groups is open to ITA Corporate Members (in principal, Prime Sponsors and Supporters) willing to involve themselves in the development of new technologies. ITAttech Activity leaders are designated by ITA Prime Sponsors.



ITAttech

STEERING BOARD MEMBERS





The ITAttech Activity Groups include all processes related to underground construction. They consist of seven + one sub-groups organized within relevant activities.

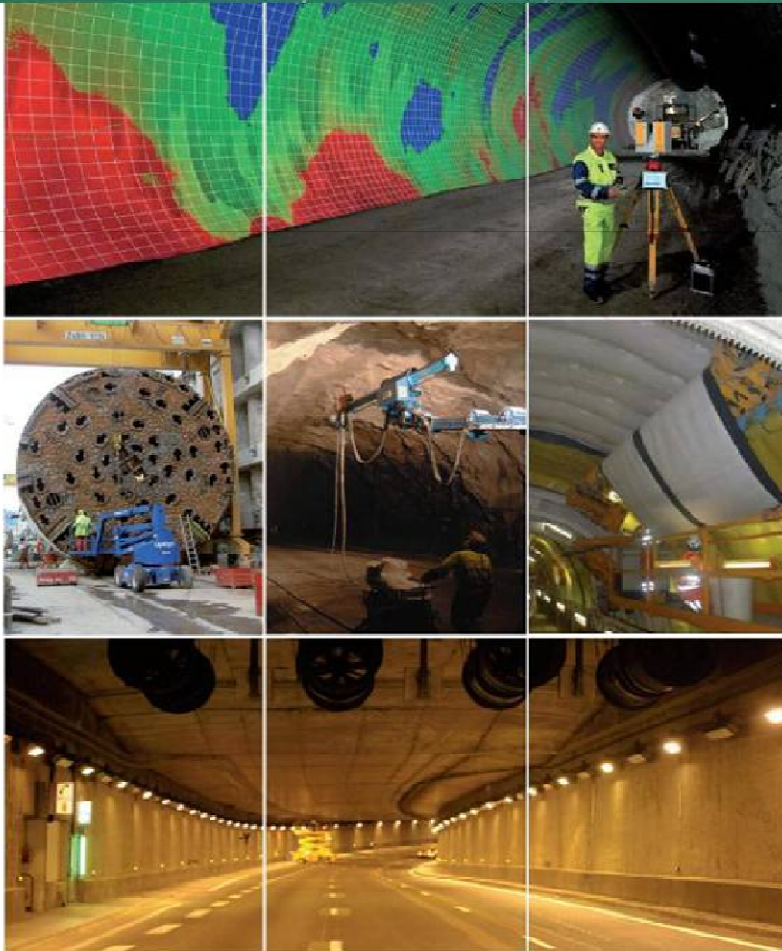
Committee on technologies :

Develop technical ideas and concepts based on emerging technologies for the future underground industry.

Establish technical guidelines and recommendations as a basis for safe and future standards.

Recognize early market and industry trends and needs that will influence business.

Create common understanding and acceptance of technologies as a basis for market uptake.



Activity Groups are organized along processes:

- Investigation
- Excavation
- Support
- Lining & Waterproofing
- Installation & Interior works
- Monitoring
- Rehabilitation
- Design (covering all processes)



**Determination of Main
Bearing Life on a TBM**

- Standardized method of indicating main bearing load assumptions
- L10 bearing lives offered by various TBM manufacturers
- Provides guidance for evaluation
- TBM types discussed:
 - Gripper
 - Single shield and double shield (SS, DS)
 - Earth pressure balance (EPB)
 - Slurry (STBM)

BASIC CONCEPTS



①

**Sub Activity Group
Segments**



②

**Sub Activity Group
Sprayed Concrete**



③

**Sub Activity Group
Bolting**

① Proper design method, durability, avoid damages, fire resistance: **Fibre reinforced segments**

② Sustainability (cement and rebound reduction), Mechanisation, Fibre Reinforcement, Early strength development, change from temporary support to permanent support

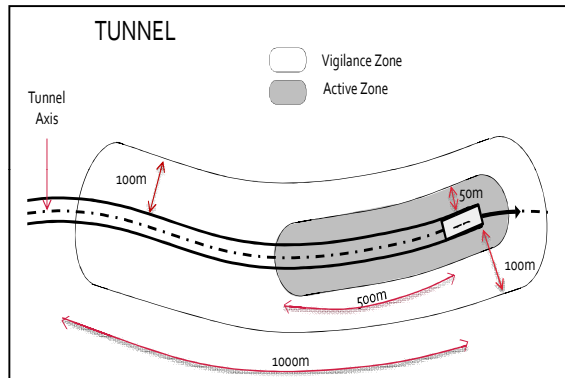
③ Higher safety and efficiency to decrease General Project Costs



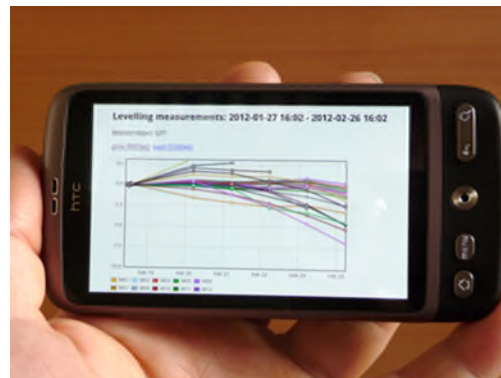
- The first topic this AG tackled has been best practice guidance on the use of spray applied waterproofing membranes
- Spray membranes are a relatively new technology and there are no international standards or specifications
- The AG formed a team of cross-industry experts and suppliers of membrane technologies
- During 2012 and 2013 the team has produced, through regular meetings, and design review, an harmonised guidance document for the tunnelling industry

- The spray waterproof membrane design guidance document contains:
 - Design guidance
 - Provides a model specification
 - A route to accreditation and training
 - Quality control records and appropriate test methods
 - Example detail drawings
 - Reference projects
- The document is available at the WTC and can be downloaded from the ITA website





Sub Activity Group 1
Measurement Frequencies



Sub Activity Group 2
Communication Systems



Sub Activity Group 3
Remote Measurements

- 1 Draft of Guideline on: **Soil-Structure Interaction and Measurement Frequencies**
- 2 Report on State of the Art of Communication Systems
- 3 Guideline on Remote Measurements: Technology, application and perspective



The industry knowledge is enhancing

The **ART** of tunnel Rehabilitation

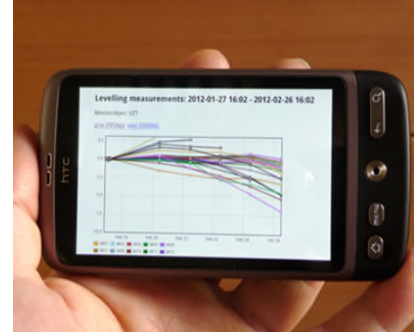


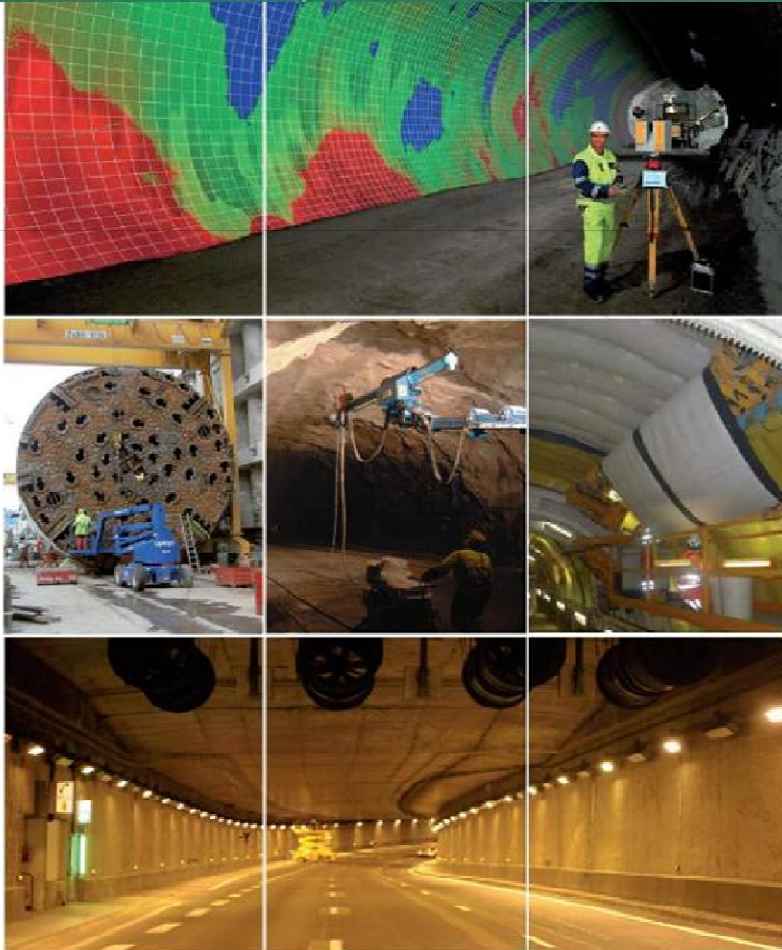
Industry Forum for tunnel designers

Working with other Activity Groups to ensure that generic design processes/issues are addressed in ITAttech Guidelines

To date Sprayed Waterproofing Membranes and Monitoring for Tunnels have been reviewed

Review and benchmark best tunnel Design processes.
Much of tunnel work is related to constructability, production and methodologies .So design has to be aligned to this influence. A task force will benchmark best practice and provide guidance.





Improved information exchange on technologies and development between suppliers, contractors and consultants.

One voice policy for the underground industry; clarity for stakeholders

A *best practice* source for designers and specifying engineers.

Fast and secure technology transfer into the market

**BE PART OF THE DEVELOPMENT OF NEW TECHNOLOGIES. JOIN
ITATECH**

For more information, visit ITA website at www.ita-aites.org