



Joint Workshop COST Actions FP1101 WG2 and FP1004

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COST Action FP1101

Assessment, Reinforcement and Monitoring of Timber Structures

- WG1 Assessment of timber structures
- WG2 Reinforcement of timber structures
- WG3 Monitoring of timber structures

Reinforcement of Timber Structures -what does the MOU say?

- Motivation
 - Change of use
 - Deterioration due to lack of monitoring and maintenance, exceptional damage
 - Changes in regulatory specifications
 - To increase seismic resistance

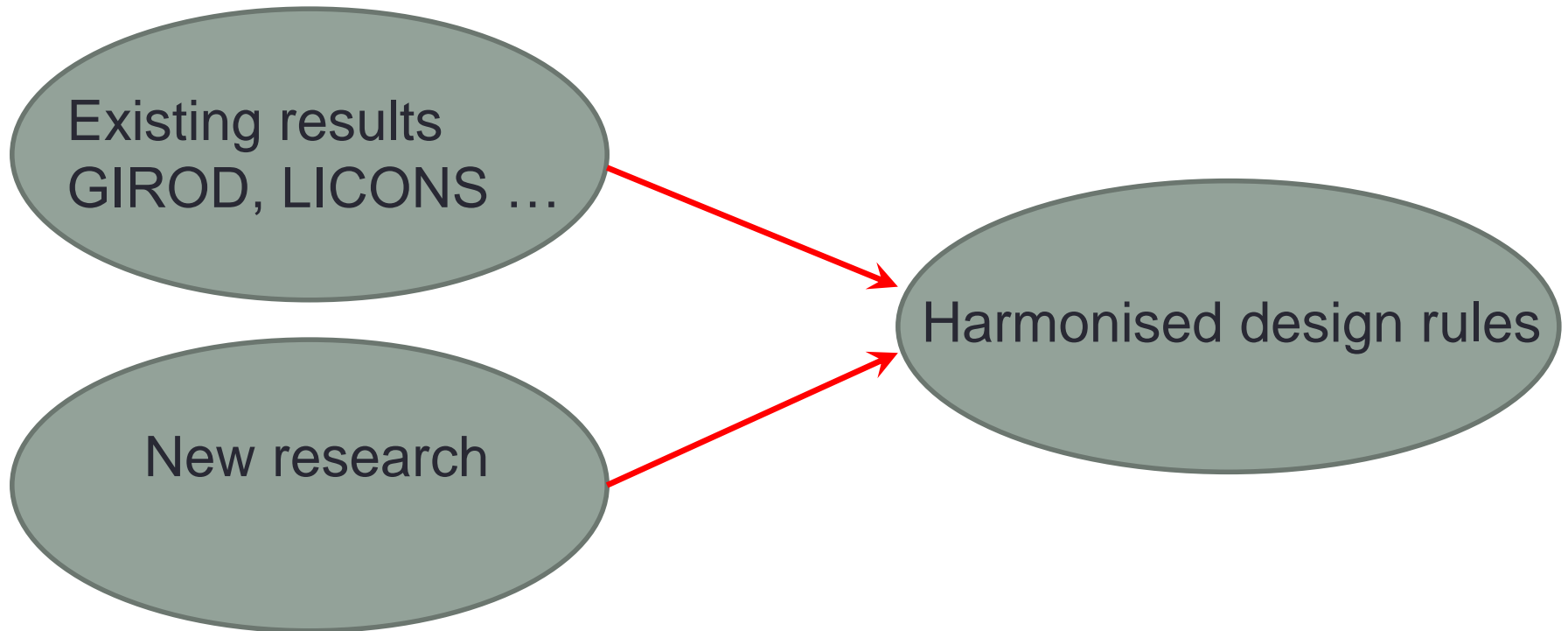
Reinforcement approaches

- Addition of new structural systems
- Composite systems
 - timber/concrete, timber/steel, timber/timber
- Incorporation of reinforcing elements
 - **glued-in rods/plates of steel/FRP**, self-tapping screws, adhesive systems, steel straps, nanotechnology ...

Scientific activities to focus on:

- Identification and *categorisation of types of deterioration*
- Creation of *handbook of reinforcement solutions* for each category
- Analysis of relationship between reinforcement technique and *protection technologies*
- *Evaluation of solutions* vis-a-vis seismic performance, suitability for cultural heritage projects
- *Tools for design* of reinforcement measures

Bonded-in rods



Workshop Programme - Day 1

Session 1 – The state of practise in the reinforcement of timber structures –the industry perspective

09:15-09:45 Germany: Philipp Dietsch - Overview from US/German perspective

09.45-10.15 UK: Dave Smedley – FRP, adhesives, standards, installation

10:15-10:45 Switzerland – Christian Lehringer - Adhesives (PUR), bond line thickness

Workshop Programme - Day1

Session 2 – Design methods and their background

11.30-12.00 Sweden: Carl-Johan Johansson – GIROD project

12.00-12.30 Switzerland: Robert Widmann – Reinforcement. Swiss Rules

12.30-13.00 Italy: Roberto Tomasi – Research into glued-in rods at University of Trento

Workshop Programme – Day 1

Session 3 – Use in conservation

14.00-14.30 Portugal: Joao Custodio/Helena Cruz –
Durability and temperature effects on bondline

14.30-15.00 Italy: Sara Porello/Clara Bertolini –
Conservation applications

15.00-15.30 Italy: Benedetto Pizzo – Design repairing
intervention based on both EC5 and Italian design
approach

Workshop Programme – Day 1

Session 4 – Design methods

16.00-16.30 Sweden: Erik Serrano – FE analyses of glued-in rods

16.30-17.00 Norway: Harald Liven – The use of bonded-in rods in Norway

17.00-17.30 Canada: Thomas Tannert – Reinforcement of timber elements – international perspective

17.30-18.00 Extended discussion