Working Group 1: Survey and characterization of performance indicators

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Survey and characterization of performance indicators

- **Performance indicator or key performance indicator (KPI)** for the assessment of new and existing structures or structural components.

- Various KPIs and associated techniques are available, an appropriate usage and selection requires understanding and experience.

- KPIs for the assessment of existing structures are partly defined on national and international level - Codes, MC2010 etc.

- Structuring according to usefulness, importance, ... general harmonized framework
Working Group 1: Survey and characterization of performance indicators

- **TG 1.1:** KPIs for Load-bearing Capacity and Serviceability
- **TG 1.2:** KPIs for System Behaviour and Inspection
- **TG 1.3:** KPIs for Conservation of Structures
- **TG 1.4:** Environmental and Other Sustainable KPIs

**National expert panels** for identification and definition of KPIs

**International research panels** for identification and definition of KPIs

**Database for performance indicators or key performance indicator** as basis input for WG 2, WG 3
TG1.1: Load-bearing capacity and serviceability of structures

Performance indicators/criteria associated with

- Serviceability limit states (SLS)
- Ultimate limit states (ULS)
- Durability limit states (DLS)
- Reliability based methods
- Robustness

**Targets:**

- PI will be characterized using (a) national and international codes, (b) committee and expert findings e.g. IABSE, fib, etc.
- Definition of methods for the survey and assessment of the characterized PI e.g. direct measurement, using monitoring equipment or suitable inspections techniques or indirectly methods, ...Creation of a database to provide an overview on PIs

**Benefits:**

- Reduction of KPIs fragmentation - Harmonization of KPIs, stimulating research....

**Interaction:**

- The performance indicators characterized/defined in Working Group 1 will be provided to Working Group 2 for the definition of performance goals, and Working Group 3 for the Establishment of a Quality Control plan
TG1.2: System behaviour and inspection of structures

Performance indicators/criteria associated with

Condition survey  
Monitoring activities  
Proof loading and testing  
Robustness  
Numerical verifications – model uncertainties

| Targets as in TG1.1: | PI will be characterized using (a) national and international codes, (b) committee and expert findings e.g. Shmii, fib, IABMAS, etc.  
Definition of methods for the survey and assessment of the characterized PI e.g. direct measurement, using monitoring equipment or suitable inspections techniques or indirectly methods, ...Creation of a database  
Benefits as in TG1.1: | Reduction of KPIs fragmentation - Harmonization of KPIs, stimulating research....  
Interact. as in TG1.1: | The performance indicators characterized/defined in Working Group 1 will be provided to Working Group 2 for the definition of performance goals, and Working Group 3 for the Establishment of a Quality Control plan |
TG1.3: Conservation of structures

Performance indicators/criteria associated with

- Deterioration mechanisms & levels
- Damage predictions
- Maintenance interventions & management
- Preventative interventions & management
- Strengthening or upgrading interventions & management
- Execution of interventions

**Targets as in TG1.1&1.2:**

PI will be characterized using (a) national and international codes, (b) committee and expert findings e.g. Shmii, fib, IABMAS, IASSAR, ACI etc.

Definition of methods for the survey and assessment of the characterized PI e.g. direct measurement, using monitoring equipment or suitable inspections techniques or indirectly methods, ...Creation of a database

**Benefits as in TG1.1&1.2:**

Reduction of KPIs fragmentation - Harmonization of KPIs, stimulating research...

**Interact. as in TG1.1&1.2:**

The performance indicators characterized/defined in Working Group 1 will be provided to Working Group 2 for the definition of performance goals, and Working Group 3 for the Establishment of a Quality Control plan
Performance indicators/criteria associated with

- Environmental quality
  - GWP - Global Warming Potential; ODP - Ozone Depletion Potential
- Economical quality
- Social quality
- Level of service
- Traffic allowance, Traveling Time

**Targets as in TG1.1.1.3:**
PI will be characterized using (a) national and international codes, (b) committee and expert findings e.g. Shmii, fib, IABMAS, IASSAR, ACI etc.

Definition of methods for the survey and assessment of the characterized PI e.g. direct measurement, using monitoring equipment or suitable inspections techniques or indirectly methods, ...Creation of a database

**Benefits as in TG1.1.1.3:** Reduction of KPIs fragmentation - Harmonization of KPIs, stimulating research....

**Interact. as in TG1.1.1.3:** The performance indicators characterized/defined in Working Group 1 will be provided to Working Group 2 for the definition of performance goals, and Working Group 3 for the Establishment of a Quality Control plan

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Quality Specifications for Roadway Bridges – Standardization at a European Level
Urgent measures

Nomination of the heads of the task groups
Assignment of experts to task groups TG1.1 to TG1.4
Definition of an efficient interaction to WG2 and WG3
Characterization of performance indicators in each TG based...
  on the national and international code provisions
  on committee and expert findings
Definition of the survey type of PI, e.g., characterization by direct measurement, using monitoring equipment, etc.
Hierarchical structuring of KPIs
Creation and structuring of the KPI database

TG1.1: Load-bearing capacity and serviceability of structures (LS-KIPs) Leader:
TG1.2: System behaviour and inspection of structures (SI-KIPs) Leader:
TG1.3: Preservation/Conservation and of structures (PC-KIPs) Leader:
TG1.4: Environmental and Other Sustainable indicators (ES-KPIs) Leader:
Working methodology - main objectives

Characterization of performance indicators in each TG based on the national and international code provisions on committee and expert findings

Definition of the survey type of PI, e.g., characterization by direct measurement, using monitoring equipment, etc.

Hierarchical structuring of KPIs

Creation and structuring of the KPI database

Integration of the KPIs into the database + background information

Critical reflection of PI and database with international expert panel and Work Group leaders

Reports

Milestones / Deliverables

• State of the art document of each TG about hierarchical structured performance indicators
• Structured performance indicator database
• Auxiliary document for the Working Group 2 and 3
## Proposed working plan

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<tr>
<th>Target</th>
<th>Subtargets-Description</th>
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| **TG1.1** Load-bearing Capacity and Serviceability | Nomination of National and International Expert Panels  
Survey, Evaluation and Combination of KPIs from different sources, e.g. EC, Model Code, National formats, etc  
Structuring of respective KPIs database  
Dissimination: Report+Publications - Deliverables due dates  
first WG meeting in Genève, Sept. 2015  
Workshop + second WG meeting, ………, March 2015 |
| **TG1.2** System Behaviour and Inspection    | Nomination of National and International Expert Panels  
Survey, Evaluation and Combination of KPIs from different sources, e.g. EC, Model Code, National formats, etc  
Structuring of respective KPIs database  
Dissimination: Report+Publications - Deliverables due dates  
first WG meeting in Genève, Sept. 2015  
Workshop + second WG meeting, ………, March 2015 |
| **TG1.3** Conservation of Structures         | Nomination of National and International Expert Panels  
Survey, Evaluation and Combination of KPIs from different sources, e.g. EC, Model Code, National formats, etc  
Structuring of respective KPIs database  
Dissimination: Report+Publications  
first WG meeting in Genève, Sept. 2015  
Workshop + second WG meeting, ………, March 2015 |
| **TG1.4** Environmental and Other Sustainable KPIs | National and International Expert Panels  
Survey, Evaluation and Combination of KPIs from different sources, e.g. EC, Model Code, National formats, etc  
Finalizing the overall KPIs Database  
Dissimination: Report+Publications - Deliverables due dates  
first WG meeting in Genève, Sept. 2015  
Workshop + second WG meeting, ………, March 2015 |