# List of Key Performance Indicators proposed for the measurement of operational performance of OSH management systems

Preliminary results of KPI-OSH Tool project achieved within Task 2.1:

**Prioritisation of PPIs for OSH MS components**

**February 2015**

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# 1. Introduction

The aim of the report is to present preliminary results of the KPI-OSH-Tool research project: ***Development and validation of a KPI-based method and a user-friendly software tool for resilience-focused measurement of OSH management system performance***, which is carried out by the consortium made up of three partner organisations:

- CIOP-PIB (Central Institute for Labour Protection - National Research Institute), Poland: Daniel Podgórski, Anna Skład, Zofia Pawłowska, Małgorzata Pęciłło;
- FIOH (Finnish Institute of Occupational Health): Jarmo Vorme and Riikka Ruotsala, and
- TECNALIA Research & Development, Spain: Jesús Lopez De Ipiña Peña and Julien Negre.

The results, achieved in particular within the Task 2.1: ***Prioritization of PPIs for OSH MS components*** (Task Leader: CIOP-PIB), include the list and draft detailed descriptions of 27 Key Performance Indicators (KPIs) proposed for the measurement of operational performance of OSH management systems.

The 27 KPIs were selected on the basis of prioritisation of Positive Performance Indicators (PPIs) that was made by means of the Analytic Hierarchy Process. Out of this number 20 KPIs can be regarded as main ones and 7 serve as alternative indicators to be applied for measuring performance of individual OSH management system components.


**DISCLAIMER:**

**The KPIs proposed in this report should not be, under any circumstances, regarded as the final KPIs ready for use in enterprises for the measurement of operational performance of OSH management systems.**

**In the next phase of the KPI-OSH Tool project the proposed KPIs will be the subject of pilot testing in several enterprises, so the final list and definitions of KPIs accepted by enterprises can be different.**


The KPI-OSH Tool project ([www.oshkpitool.eu](www.oshkpitool.eu)) is the outcome of the call for proposals published in 2013 by SAF€RA. SAF€RA (Coordination of European Research on Industrial Safety towards Smart and Sustainable Growth) is an FP7 ERA-NET project carried out by an international consortium of 20 institutions. The objective of SAF€RA is to coordinate European research programmes in the field of industrial safety as well as to raise awareness on the importance of research in this area as a crucial factor for dynamic knowledge-based economy (see more at [http://www.safera.industrialsafety-tp.org](http://www.safera.industrialsafety-tp.org)).

# 2. List of selected KPIs

| OSH MS area | | No. | Acronym | | KPI definition | OSH MS component[1] | Meas. frequency |
|---|---|---|---|---|---|---|---|
| **Leadership** | | 1. | AR | **AudRevd** | Percentage of internal audit reports reviewed by senior managers (against the number of audits conducted in a given reporting period) | *Leadership and commitment* <br> *Internal process audit* | Yearly |
| | | 2 | **LP1** | **LeadPerc(1) (alternative)[2]** | 1. Workers' perception of management leadership and commitment to OSH (rating resulting from the survey) | *Leadership and commitment* | Yearly |
| | | 3. | **LP2** | **LeadPerc(2)[2] (alternative)** | 2. Percentage of workers positively evaluating management leadership and commitment to OSH (against total number of workers, rating resulting from the survey) | | |
| | | 4. | **JA** | **JobsAssd** | Percentage of job descriptions reviewed and updated in a given reporting period for their compliance with OSH management system requirements (against the total number of jobs planned to be reviewed) | *Organizational roles, responsibilities, accountabilities and authorities* | Quarterly |
| **Planning** | **Risk management** | 5. | **HC** | **HazCntrl** | Percentage of hazards with control measures applied (against the total number of new hazards identified in a given reporting period) | *Hazard identification* | Quarterly |
| | | 6. | **HR** | **HazRevd (alternative)[2]** | Percentage of hazard investigations reviewed according to schedule in a given reporting period (against the total number of identified hazards) | | Quarterly |
| | | 7. | **RA** | **RiskAssd** | Percentage of OSH risk assessments completed or reviewed in a given reporting period (against the total number of OSH risk assessments planned) | *Assessment of OSH risks* | Quarterly |
| | | 8. | **RC** | **RiskCntrl** | Percentage of OSH risk control measures successfully completed in a given reporting period (against the total number of risk control measures planned for implementation) | *Planning to take action* <br> *Operational planning and control* | Monthly or weekly |
| | **OSH plans** | 9. | **OA** | **ObjAchvd** | Percentage of OSH objectives achieved according to the plans in a given reporting period (against the total number of OSH objectives) | *Planning to achieve OSH objectives* | Yearly |

| OSH MS area | No. | Acronym | | KPI definition | OSH MS component | Meas. frequency |
|---|---|---|---|---|---|---|
| Support | 10. | TC | TrainCmpld | Percentage of OSH training courses completed according to the plan in a given reporting period | *Competence (Training effectiveness)* | Quarterly |
| | 11. | TE | TrainEffctv (alternative)[2] | OSH training effectiveness and appropriateness (based on findings from surveys conducted among the workers) | | Quarterly |
| | 12. | PR | PermRevd | Percentage of permits to work reviewed and positively assessed with regard to OSH requirements in a given reporting period (against the total number of work permits subject to periodic reviews) | *Competence (Monitoring workers' competences)* | Quarterly or Monthly |
| | 13. | WT | WrksTraind (alternative)[2] | Percentage of workers trained in accordance with OSH training plan (against the total number of workers to be trained in a given reporting period) | | Quarterly |
| | 14. | NM | NearMiss | Number of near-misses reported by workers (per 10 workers) in a given reporting period | *Awareness Participation, consultation and representation Incident, nonconformity and corrective action* | Quarterly |
| | 15. | SM | SmgrMtgs | Number of meetings between senior managers and workers in a given reporting period, at which senior managers presented to and discussed with workers information on OSH issues | *Information and communication Leadership and commitment* | Every 6 months |
| | 16. | WP | WrkrPart | Percentage of workers involved in making proposals for OSH improvements in a given reporting period (against total number of workers) | *Participation, consultation and representation* | Every 6 months |

| OSH MS area | No. | Acronym | | KPI definition | OSH MS component | Meas. frequency |
|---|---|---|---|---|---|---|
| **Operations** | 17. | **EC** | **EqpmtCost** | Cost of failures of the equipment related to ensuring safety conditions at the workplace against the number of equipment items subject to repair or a replacement | *Operational planning and control* | **Monthly** |
| | 18. | **PM** | **PrevMaint (alternative)[2]** | Percentage of preventive maintenance activities performed in a given reporting period against the total number of activities planned in this period | | **Monthly** |
| | 19. | **PS** | **ProcSpec** | Percentage of specifications with reference to OSH requirements when purchasing new equipment or contracting services (against the total number of specifications applied in a given reporting period) | *Procurement* | **Every 6 months** |
| | 20. | **CM** | **ContrMtgs** | Number of joint meetings with contractors on OSH issues (against the total number of contractors providing services to an organisation in a given reporting period) | *Contractors* | **Every 6 months** |
| | 21. | **ER** | **EmrgResp** | Percentage of workers trained in emergency preparedness, response and coordination per unit (against total number of workers in a given reporting period) | *Emergency preparedness and response* *Competence* | **Every 6 months** |
| **Performance evaluation** | 22. | **MC** | **MntrgCmpld** | Percentage of monitoring and measurement activities completed according to schedule in a given reporting period | *Monitoring, measurement, analysis and evaluation* | **Monthly** |
| | 23. | **AN** | **AudNocnf** | Number of non-conformities and areas for potential improvement identified as a result of OSH management system internal audits in a given reporting period (against the total number of internal audits) | *Internal audit process* | **Every 6 months** |
| | 24. | **AC** | **AudCndct (alternative)[2]** | Percentage of internal audits conducted according to a schedule in a given reporting period | | **Quarterly** |
| | 25. | **MR** | **MsysRevd** | Percentage of OSH management system issues reviewed by top management according to schedule in a given reporting period | *Management review* | **Yearly** |

| OSH MS area | No. | Acronym | | KPI definition | OSH MS component | Meas. frequency |
|---|---|---|---|---|---|---|
| **Improvement** | 26. | **CA** | **CrctvActn** | Percentage of corrective/preventive actions completed according to a schedule in a given reporting period | *Incident, nonconformity and corrective action* | **Quarterly** |
| | 27. | **IM** | **ImpMntrg** | Percentage of monitoring and measurement activities that produced results positively exceeding target values (against the total number of monitoring and measurement activities performed in a given reporting period) | *Continual improvement* | **Monthly** |

[1] OSH MS components listed in this Table comply with the model of the OSH MS proposed in the draft standard ISO CD 45001 (version of 10 June 2014) that is being developed by the ISO/PC 283.

[2] The KPIs have been treated as alternative ones in the case where the AHP-based prioritisation of PPIs assigned to certain OSH MS component revealed negligible difference between the evaluation scores of two best PPIs. In such cases those two best PPIs were proposed as the KPIs (the main and the alternative) for this component.

# 3. An example description of a selected KPI

| 5. HC<br><br>**HazCntrl**<br><br>[1] Acronym: | [2] KPI name:<br><br>**Percentage of hazards with control measures applied (against the total number of new hazards identified in a given reporting period)** | KPI-OSH Tool |
|---|---|---|

| [3] OSH MS component: **6.1.2. Hazard Identification** |
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| [4] **Necessary data to calculate the KPI:**<br><br>$X_i$ - No. of newly identified hazards[1] in $i$-th unit, in respect to which appropriate control measures have been implemented according to schedule[2] within a given reporting period;<br><br>$Y_i$ - Total no. of newly identified hazards in $i$-th unit, in respect to which appropriate control measures should have been implemented within a given reporting period;<br><br>$N$ - No. of units conducting hazard identification and collecting data on newly identified hazards. | [5] **Calculation formula:**<br><br>$$HC_i = X_i\ /\ Y_i \cdot 100\%$$<br><br>$$HC = \frac{\sum_{i=1}^{N} X_i}{\sum_{i=1}^{N} Y_i} \cdot 100\%$$ |
|---|---|

[1] Hazards identified at new workstations, in new processes/machines, or hazards identified as new ones at existing workstations/processes. The number of newly identified hazard may refer to hazards identified prior or within a reporting period.

[2] The length of the period required for planning and the implementation of control measures after the identification of a hazard can be specified (e.g. no. of days) or unlimited.

| [6] **Source of data:** Internal reports or records resulting from risk assessment/management processes, which include the identification of hazards in individual units of the enterprise (maintained by heads of the units and/or by the safety manager/OSH department). |
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| [7] **Measurement frequency:**<br><br>**Quarterly** | [8] **Graphical representation:**<br><br>**HC** current value: semicircular speedometer (with colour policy)<br><br>**HC$_i$** current values: vertical bars (one for each unit)<br><br>**HC** historical values: vertical bars for X past reporting periods | [9] **Colour policy:**<br><br>**Red: HC < 70%**<br><br>**Yellow: 70% ≤ HC ≤ 90%**<br><br>**Green: HC > 90%** |
|---|---|---|

| [10] **The method of the KPI implementation in the enterprise:**<br><br>- Reviewing procedures, reports and other OSH MS documents related to hazard identification, risk assessment and implementation of control measures aimed at elimination/reduction of risks;<br><br>- Identification of units/positions which are responsible for conducting and documenting results of hazard identification and risk management procedures;<br><br>- Modification of respective procedures to ensure ongoing identification and regular reporting a number and types of newly identified hazards to a responsible OSH unit. |
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