

Working Document WD-05

Date: November 2013

Terms for Standardization Glossary

Introduction

One objective of the civil SHM standardization initiative is to offer a glossary of terms and expressions to be used in our sector. For this purpose a number of relevant glossaries have been collected and listed in a separate .xls file.

The task will be to nominate the most relevant description for the terms and subsequently provide translations into individual languages.

This working document contains only the terms that have been addressed so far. The various descriptions can be seen in the separate .xls file.

The International Civil SHM Glossary was compiled from the following sources:

1. IRIS - GLOSSARY OF RISK RELATED TERMS (AUTH). Contact: wenzel@vce.at
2. SAMCO MONITORING GLOSSARY
STRUCTURAL DYNAMICS FOR VBHM OF BRIDGES (VCE). Contact: wenzel@vce.at
3. Structural health monitoring glossary (IBS-Glisc). Contact: bglisic@Princeton.EDU
4. CEN - Ageing Behaviour of Structural Components for Integrated Lifetime Assessment and Asset Management (VCE). Contact: veit-egeberer@vce.at
5. ISO 31 000
6. ISO 55 000
7. IAEA Safety Glossary. Contact: Klaus.Kerkhof@mpa.uni-stuttgart.de
8. Wikipedia

The following terms have been defined:

Term

A

Absolute error (of a measurement)
Acceleration
Accelerometer
Acceptable risk
Accessories
Accidental error (of a measurement)
Accounted Truth
Accuracy (of a monitoring system)
Acoustic Emission (AE)
Acoustic emission (AE) sensor

Acute exposure
Added risk
Advanced Composite Materials (ACM)
Adverse effect
Aerodynamic Admittance Function
Aerodynamic Instability
Ageing
Alignment
Allowable Stress Design
All-risks policy
Ambient vibration
Ambient Vibration Survey (AVS)
Ambient vibration test
Analytic risk modeling method
ARIMA Model
Artificial Intelligence (AI)
Assessment
Asset
Asset life
Asset life cycle
Asset life cycle stage
Asset management
Asset portfolio
Asset risk
Asset system
Asset type
Attributable risk
Attribute
Audit
Averaged Normal Power Spectral Density (ANPSD)

B

Bayesian Statistics
Beating
Beaufort Scale
Below-target-risk
Bias
Blended finite risk
Boundary Layer Wind Tunnel
Bridge Management
Buckling
Buffeting
Bulk Modulus of Elasticity
Business risk

C

Cable
Capability
Capacity
Capital at risk
Cash flow risk
Causal analysis
Cepstral Analysis
Channel commutator
Channel switch
Charpy Test
Chief risk officer
Chronic exposure
Comfort
Communication and consultation
Comparative risk
Competence
Computer-aided design (CAD)
Condition; Health
Confidence interval
Conformity
Consequence
Consequence analysis
Contingency
Contingency plan
Contingency planning
Continual improvement
Contractual risk transfer
Control
Control (risk) self-assessment
Convolution
Corporate risk management
Correction
Corrective action
Corrective disaster risk management
Correlation
Corrosion
Cost Benefit analysis
Cost-Effective alternative
Cost-effectiveness analysis
Cost of pure risk
Cost of risk
Coulomb Damping
Counter party risk
Credit risk

Creep
Criteria of risk
Criterion
Critical asset
Critical Damping
Critical effect
Critical element
Critical Reynolds Number
Currency risk

D

Damage
Damage characterization
Damage Detection
Damage identification
Damage sensitive feature
Damping
Data Acquisition (DAQ)
Data acquisition hardware
Data acquisition software
Data acquisition system
Data analysis
Data cleansing
Data filtering
Data interpretation
Data management hardware
Data management software
Data Mining
Decision Support System (DSS)
Define
Degradation
Degrees-of-freedom (DOF)
Demand
Design
Design life
Deterioration
Determine
Digital image correlation (DIC)
Disaster risk
Disaster risk management
Discrete Fourier Transform (DFT)
Discrete sensor
Distributed sensor
Divided risk endorsement
Documented information

Dose
Dose-effect
Dose–effect relationship
Dose-related effect
Dose-response assessment
Drift
Ductility
Durability
Dynamic Excitation
Dynamic monitoring
Dynamic range (of a monitoring system)
Dynamic risk
Dynamic risk assessment

E

Earnings risk
Earthquakes
Effect
Effectiveness
Efficiency
Efficient level of risk
Eigen-frequency
Eigen-mode
Elastic Hysteresis
Elasticity
Electrical resistance strain gauge
Element
Elongation
Encoding parameter
Environmental Noise
Error limits (of a monitoring system)
Establishing the context
Event
Excess per risk reinsurance
Expected service life
Expert System
Exposure
Exposure assessment
Exposure duration
Exposure frequency
Exposure indicator
Exposure level
Exposure route
Exposure scenario
Extensive risk

Extensometer
External context
External risk
Extreme Value Distributions

F

Factor-based risk assessments
Failure
Failure mode
Failure modes and effects analysis
False negative (damage detection)
False positive (damage detection)
Fast Fourier Transform (FFT)
Fatigue
Fibre Optic Sensors
Fibre Stress
Filter
Financial risk
Financial risk management
Finite Element Method
Finite risk insurance
Firmware
Force Balance Accelerometer
Forced vibration
Forced vibration test
Fourier Series
Fourier Transform
Fracture Toughness
Fragility
Framework
Frequency
Frequency Domain Analysis (FDA)
Frequency Response Function (FRF)
Froude Number
Functionality
Fundamental risk
Fuzzy Logic

G

Gauge length
Global Positioning System (GPS)
Ground Penetrating Radar (GPR)
Gust Factor

H

Hardness
Harm
Hazard
Hazard analysis
Hazard assessment
Hazard identification
Hazard mapping
Hazard scenario
Health
Health Monitoring
Heuristics
Highly protected risk element
Human health risk

I

Identify
Idiosyncratic risk
Impact
Impact Energy
Impact matrix
Impact statement
Impaired risk
Impulse Response Function (IRF)
Indicial Response Function
Individual risk
Information
Infrastructure
Inherent risk
Inspection
Instability
Insurable risk
Insurance risk management
Integrated risk
Integrated risk management
Integrity
Integrity monitoring
Intended service life
Intensity
Intensive risk
Interest rate risk
Internal context
Interrogating (of a sensor)
Interrogator
Inverse Problem
Investigation

Investment risk

J

Jensen Number

K

Kalman Filter

Kármán Vortices

L

Laser Doppler Vibrometer (LDV)

Laser scanning

Laser total station

Latency period

Leadership

Least-Square Method

Legal risk

Level of risk

Level of service

Life Cycle

Lifecycle cost (LCC)

Life-cycle monitoring

Lifeline

Lifespan monitoring

Lifetime monitoring

Likelihood

Limit State

Linear Variable Differential Transformer (LVDT)

Load

Load Testing

Long-gauge sensors

Long-term monitoring

M

Maintenance

Management system

Man-made hazard

Market risk

Markov Process

Mass Parameter

Material Properties

MATLAB

Maximum Likelihood Method

Mean/variance/ covariance (MVC) risk modeling method

Measurand

Measurement
Measurement session
Melting Point
Miner's Rule
Modal Mass
Modal Parameters
Model risk
Modified Mercalli Intensity Scale
Moment Magnitude Scale
Monitoring
Monitoring system
Monte Carlo Method

N

Natural frequency
Natural hazard
Neural Network
Noise
Nonconformity
Non-insurable risk
Noninsurance risk transfer
Nonlinear Vibration
Nyquist Frequency
Nyquist rate

O

Objective
Objective risk
Off-balance-sheet risk
Offset
Operability; Functionality
Operational risk
Operational risk management
Optimum level of risk retention
Organization
Organizational risk
Organizational strategic plan
Outcome
Outsource

P

Parameter Estimation
Parameter risk
Parametric Excitation
Participating Mass

Pattern Recognition
Peak Counting
Peak Factor
Performance
Peripherals
Personnel risk
Perspective
Piezoelectric Accelerometer
Piezoelectric material
Place-based risk assessments
Plan
Plasticity
Point sensor
Poisson's ratio
Policy
Population at risk
Portfolio risk
Power Spectral Density (PSD)
Precision (of a monitoring system)
Predictive action
Predictive Estimation
Preferred risk
Preventive action
Principle
Probabilistic risk analysis
Probability
Probability Distribution
Process
Prognosis
Programme
Proper Orthogonal Decomposition (POD)
Proportional Limit
Prospective disaster risk management
Pseudo-dynamic testing
Pure risk
Purpose

Q

Qualitative risk analysis
Qualitative sensor
Quantitative risk analysis
Quasi-dynamic monitoring
Quasi-static monitoring

R

Rainfall Analysis
Random Decrement (RD) Technique
Random error (of a measurement)
Random Process
Random Vibrations
Rating
Reading (of a sensor)
Reading of multiple sensors
Reading unit
Readout (of a sensor)
Readout unit
Reduced Frequency
Reduced Velocity
Reference dose
Reference Period
Regular inspection
Rehabilitation
Relative error (of measurement)
Relative risk
Relative risk analysis
Reliability
Reliability (of a monitoring system)
Reliability (of a structure)
Reliability index
Remaining Working Life
Repair
Repeatability (of a monitoring system)
Replacement
Reproducibility (of a monitoring system)
Reputational risk
Requirement
Residual risk
Residual Stresses
Resilience
Resistance
Resolution (of a monitoring system)
Response
Retrofit
Review
Reynolds Number
Richter Scale
Risk
Risk acceptance
Risk-adjusted capital ratio
Risk adjusted return

Risk-adjusted return on capital
Risk-adjustment investment
Risk analysis
Risk analyst
Risk appetite
Risk assessment
Risk attitude
Risk attribute
Risk audit
Risk averse
Risk aversion
Risk avoidance
Risk-based decision making
Risk behavior
Risk characterization
Risk committee
Risk communication
Risk component
Risk concentration
Risk consequence
Risk contribution
Risk control systems
Risk criteria
Risk custodian
Risk dashboard
Risk diary
Risk evaluation
Risk event
Risk factor
Risk financing
Risk identification
Risk index
Risk-informed decision making
Risk-informed regulation
Risk limit
Risk management
Risk management framework
Risk management plan
Risk management policy
Risk management process
Risk manager
Risk map
Risk mapping
Risk matrix
Risk measure

Risk measurement
Risk mechanism
Risk metric(s)
Risk mitigation
Risk monitoring
Risk neutral
Risk optimization
Risk owner
Risk perception
Risk pool
Risk pooling arrangement
Risk profile
Risk quantification
Risk ranking
Risk Rating
Risk reduction
Risk register/log
Risk response plan
Risk return profile
Risk review
Risk/Reward Ratio
Risk seeking
Risk sharing
Risk significance
Risk-significant
Risk smoothing
Risk source
Risk Specific Dose
Risk tolerance
Risk transfer
Risk treatment
Risk types
Risk vector
Risk volatility
Robustness

S

Safety
Safety Plan
Scenario
Scenario planning
Scruton Number
Seasonal risk
Securitization of risk
Seismic Waves

Sensing cable
Sensing element
Sensitivity (of a monitoring system)
Sensor
Serviceability
Service Life
Service life prediction
Severity
Shear Modulus
Shortfall risk
Short-gauge sensors
Short-term monitoring
Signal Processing
Similitude Requirements
Simulation
SI Units
Smart Materials
Smart Structure
S-N Curve
Source
Special risk insurance
Specifications (of a monitoring system)
Specific risk
Spectral Analysis
Spectral Windows
Spread (of) risk
Stability (of a monitoring system)
Stakeholder
Static monitoring
Static test
Stationary Process
Steady State Exposure
Stochastic Subspace Identification
Strain Energy
Strain gauge
Strain sensor
Stress Concentration
Stressor
Strouhal Number
Structural health monitoring (SHM)
Structural identification
Structural member
Structural risk modeling methods
Subchronic exposure
Suitable and sufficient risk assessment

Symmetry
Synergistic effects
Systematic
Systematic error (of a measurement)
Systemic
System Identification

T

Target Reliability Level
Thermal expansion
Third-party risk
Threshold
Threshold Dose
Time Domain Analysis (TDA)
Time Series
Timing risk
Tolerable risk
Top management
Toughness
Tradable risk
Treatment
Trend removal
Type

U

Ultimate Strength
Uncertainty
Uncertainty analysis
Underwriting risk
Unit Risk
Unusual structural behavior
Upgrading
Utilization Plan

V

Value at risk
Variability
Verification
Vibrating wire (VW)
Vibrating wire strain sensor
Vibration
Vibration monitoring
Volumetric Risk
Vortex Shedding Excitation
Vulnerability

W

War risk clause

Wave

Wavelet Transform

Weighted-average risk factor

Wind Power Input

Wind Tunnel

Windows

Wöhler Curve

Y

Yield

Yield Point

Young's Modulus

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Vienna, November 2013