SYSTEM OF TECHNICAL REGULATION AND STANDARDIZATION AS OBJECT FOR RISK MANAGEMENT

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SYSTEM OF TECHNICAL REGULATION – SOURCE OF SYSTEMS RISK FOR SPECIFIC KINDS OF ACTIVITY

- Designing and manufacturing of products meeting requirements
  - Resources for products manufacturing
  - Resources of enterprise
  - Preproduction implementation
    - Material and technical resources
    - Plan of material and technical preproduction
  - Materials Components
  - Resources
    - Information
  - Industrial program
    - Normative support to be developed
    - Laws
      - Technical regulations and standards for products and/or activity

- Laws
- Information
Technical regulation and standardization – particular typical risk in integrated risk of the result of specific kind of activity

- machine building
- energy saving
- banking
- ..... 

Necessity to develop unified mechanism for

- identification
- assessment
- processing and acceptance of risks, stipulated by technical regulation

On basis of risk management system

Management system for specific kind of activity

- Financial management
- Quality management
- Risk management

ISO 31000

Main subsystem - risk management system

Ordering of relations between all interested parties

Methodology of risk management in sphere of technical regulation

Structure Algorithm Methods and means
Scope, objects and interested parties in standardization

Authorities

Requirements

Standard
as a document, which requirements satisfy all parties
(consensus)
including:
• safety
• consumer protection
• environment protection
• compatibility, etc.

Suppliers

Requirements

Developer

Manufacturers

Seller

Requirements

Requirements

Consumers

Public organizations, associations, others

Requirements
RISK – INDICATOR OF EFFECTIVENESS OF TECHNICAL REGULATION AND STANDARDIZATION

ACTIVITY WHICH REQUIRES SYSTEMS APPROACH

result

Optimization of relations

Requirements of interested parties

Technical regulations and standards

from disorder (conflict of parties) to ordering (harmonization of relations)

ordering of diversity is based on principles of standardization
• consensus • openness • availability
• transparency • publicity • optimality

RISK – measure for assessment of optimum balance attaining
Optimum level of requirements ordering in specific scope

- Maximal level of satisfaction of all interested parties taking part in standardization process

$$\sum_{i=1}^{n} U_{удовл.i} \rightarrow \text{max}$$

- Minimization of total losses for all interested parties taking part in standardization process

$$\sum_{i=1}^{n} P_{нomp.i} \rightarrow \text{min}$$

Requirements not included in standard

Requirements don’t comply to expected values

Acceptable level of risk

Residual disorder in specific scope

$$P_{нomp.i} = T_{треб.станд.i} - S_{треб.станд.}$$
COMPLICATED ORGANIZATIONAL AND TECHNICAL SYSTEM

- Evaluation of sources of risks in technical regulation

- Realization of process approach in detection of sources of effectiveness losses in the model of risk management in technical regulation

- Building of structure for particular risks

- Evaluation of the function of relation between resulting risk and particular risks

- Calculation and analysis of risks and decision making on risks acceptability or on necessity to implement measures to reduce risks

Concept for building a system of technical regulation in specified sphere of activities, based on principles of systems and process approach using model of risk management
Stage 1. ALGORITHM OF STANDARDIZATION PROCESSES MODELING for the purpose of integrated risk assessment and management

1. Development of a model concept:
   ✓ Type of model;
   ✓ Definition of process structure;
   ✓ Classification of processes in QMS process network;
   ✓ Rules of processes interaction within the network

2. Development of process modeling (presentation) language

3. Development of a model of QMS process network «as is» using the procedure of functional modeling

4. Analysis of model «as is» on the conformity to the requirements (criterion of correctness)

5. Development of a model of process network «as necessary»
FUNCTIONAL MODEL OF SYSTEM OF TECHNICAL REGULATION AND STANDARDIZATION

Principle of total conformity to ISO 9001 requirements

Principle of maximum usefulness of the model for the purposes of risk management

Every process, group of processes and the whole network of processes

Deming cycle P-D-C-A

Continuous improvement of system

For every process and the whole network of processes

- system of responsibility and authorities allocation
- system for structuring of risk assessment function in the whole hierarchy of processes and responsibility
- system for data collection, registration and analysis on effectiveness in the whole hierarchy of process network
- system for adoption of management decisions, relate to the structure of process network

Functional model of the system for particular object of technical regulation and standardization

Criterion of specified risk level $Rs$
Functional model for standard development – basis for a model of risk management
Stage 2. PRESENTATION of a model for support decision making

Model for assessment of integrated risk of standardization

- Principle of process approach
- Principle of necessity and sufficiency
- Principle of hierarchy of indicator system
- Principle of quantitative and qualitative information coexistence
- Principle of module approach

Direct problem
- Planning
- Definition of objectives
- Evaluation
- Analysis
- Forecasting

Inverse problem

Stage 2. PRESENTATION of a model for support decision making
Function of effectiveness losses for complex process in technical regulation – indices of particular risks, identified at the outputs of all processes.

Model of function Y structure for risks assessment as a function of effectiveness assessment of complex process.
Stage 3. Presentation of a model for support decision making

Purpose: Criterion of specified risk level $R_s$

- Building of the model for support decision making
- Assessment and decomposition of partial estimates of integrated risk for different level processes

Information pyramid

- Structure of process network with information links

- Forming of a stack of decisions on a criterion $R_s$
- Forming of a stack of decisions on particular criteria $R_{s1.1}$, $R_{s1.2}$
- Forming of a stack of decisions on particular criteria $R_{s1.1.1}$, $R_{s1.1.2}$, ....

Process 1

- Process 1.1
- Process 1.2

1.1.1

1.1.2

1.1.3
Thank you for your attention!