



TRCFORUM

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TRC FORUM 2017

MADRID, SPAIN

Interoperability within Knowledge-Centric Systems Engineering

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TRCF17-T01: How to manage high-quality requirements

Goals

- Mastering the requirements management processes
- Defining the basic environment for requirements development
- Understand the evolution of requirements during the entire lifecycle of the system
- Definition of the requirements management main characteristics
- Understanding a framework to develop high quality requirements

Description

When creating requirements, we must focus on how good they are, however this is partially the full process. Requirements need to be managed and comprehensible by the involved people that is going to read, understand and work with them. To do so, a clear understanding of the process around requirements (and specifications) management is the primary task, to finish with requirements and specifications quality. Therefore, we will end up with high quality requirement specifications that ease the validation and verification of our system. The course outline has been designed based on the IREB certification guidelines for the requirements management.

Pre-Requirements / Who should attend

- Business analysts
- Functional analysts
- Project managers
- Quality managers
- Procurement manager

Outline

1. Why Requirements Management makes sense?
2. The requirements management process
3. Requirements attributes throughout the system lifecycle
4. Tracing requirements
5. Requirements versions and baselines
6. Requirements change management
7. Managing requirements quality

Schedule

Duration: 1 day

When: Tuesday, 28th of November

Timetable: from 9am to 6pm (a break for lunch and two more coffee breaks)

Teachers

Simon Wright. Senior systems engineering consultant.

TRCF17-T02: How to write high-quality specifications

Goals

- Understand the impact of low quality in a requirements specification
- How different standards describe quality characteristics for requirements, and why it's not sufficient
- How different guidelines cope with the identification of rules
- The different dimensions: Correctness, Consistency and Completeness
- Templates and patterns
- Tools to automate the requirements verification process

Description

After the revision of different standards that try to address the enormous impact of low quality in requirements specifications, a hands-on session will identify the most common rules followed in the industry to write high quality specifications. The attendees will write their own specification, ensuring the conformance to the quality rules described during the course.

Pre-Requirements / Who should attend

- Business analysts
- Functional analysts
- Project managers
- Quality managers
- Procurement manager

Outline

1. The impact of poor quality in a requirements specification
2. Quality characteristics: for documents and for individual requirements
3. The 3 quality dimensions for requirements: Correctness, Consistency and Completeness
4. Revision of requirement quality rules
5. Requirements templates for requirements documents
6. Requirements patterns to write consistent requirements
7. The quality inspection process for requirements specifications
8. Tools to automate the requirements verification process
9. Practice and hands-on case

Schedule

Duration: 1 day

When: Monday, 27th of November

Timetable: from 9am to 6pm (a break for lunch and two more coffee breaks)

Teachers

José Fuentes. Chief Operating Manager at The REUSE Company and Member of the board of AEIS (the Spanish chapter of INCOSE).

TRCF17-T03: Modelling the System Knowledge: Processes and Methods

Goals

- Mastering the definition of the system ontology (Knowledge Processes)
- Transform the out-of-the-box ontology to your business ontology
- Sharing and reuse the system and organizational knowledge

Description

When we decide to take advantage of the valuable information generated during projects for having better requirements specifications, we need to think about the goal we would like to achieve (mainly regarding the quality priorities for the project) and how is it going to be implemented into the current processes of the organization. When we have a goal for quality, it is possible to design a progressive plan to achieve the desired quality by continuous improvement milestones. Then, the System Knowledge should be modelled according to these milestones to ensure the proper integration of the technology within the organization processes and people, without jeopardizing the achievement of the quality goals.

The main objective of this course is to analyze the main processes to model the System Knowledge by applying the RQS Technology, analyze the main roles involved in such processes and discuss about advantages and risks from the management perspective.

Pre-Requirements / Who should attend

- Quality managers
- Knowledge managers
- Ontology managers

Outline

1. Smart assets development: using the knowledge
 - a. What is an ontology
 - b. Why do we need the system knowledge to develop requirements?
 - c. Knowledge capitalization to improve the requirements
2. Modeling the system knowledge: the process
 - a. How do we introduce the approach in the current processes?
 - b. Knowledge management: the concept of libraries
 - c. Knowledge sharing and reuse
3. Practical exercise
 - a. How to build an ontology

Schedule

Duration: 1 day

When: Monday, 27th of November

Timetable: from 9am to 6pm (a break for lunch and two more coffee breaks)

Teachers

Elena Gallego. Leading Consultant at The REUSE Company

TRCF17-T04: A framework to define and measure Knowledge-Based Requirements

Goals

- Designing the quality priorities framework for the project (Quality Processes)
- Definition of the complete process to create high quality assets
- Mastering the concept of Knowledge-Based requirements
- Quality certification of requirements

Description

Once we have set the scope and goals for the System Knowledge development, it is time to analyze it from the practical point of view.

Different case studies designed for several domains as Aerospace and Defense, Automotive, Railway and Energy will show us how to identify the main sort of information from the system that we should model into the System Knowledge Base, for the sake of writing and measuring Knowledge-Based Requirements.

Pre-Requirements / Who should attend

- Quality managers
- Knowledge managers
- Ontology managers

Outline

1. Defining the organizational quality priorities
 - a. Why do we need quality analysis?
 - b. How to measure requirements quality
2. How to design the requirements quality framework
 - a. The continuous improvement process for requirements quality
 - b. How do engineers feel quality evolution
 - c. Design the process to improve requirements quality
3. Evolving quality: Certificate your results
4. Practical exercise

Schedule

Duration: 1 day

When: Tuesday, 28th of November

Timetable: from 9am to 6pm (a break for lunch and two more coffee breaks)

Teachers

Elena Gallego. Leading Consultant at The REUSE Company

TRCF17-T05: Introducción a la Ingeniería de requisitos

Objetivos

- Entender la importancia del requisito en los grandes proyectos
- Conceptos básicos
- Revisión de los procesos principales
- Técnicas de elicitación y captura de requisitos
- Técnicas de redacción de requisitos y medición de su calidad
- Técnicas de gestión de requisitos

Descripción

A través de un caso práctico guiado por el profesor, el alumno se familiarizará con los conceptos, procesos y tareas relacionados con esta disciplina. Cada alumno deberá realizar un pequeño caso práctico donde llegará a redactar documentos de requisitos y a revisar la calidad de los mismos mediante las técnicas explicadas en el curso.

Quién debería asistir

Este curso está orientado a:

- Jefes de proyecto/programa
- Jefes de producto
- Ingenieros de sistemas
- Analistas de negocio
- Analistas funcionales
- Responsables de calidad
- Responsables de contratación
- Ingenieros de software

El único prerrequisito es haber participado en alguna ocasión en un proyecto de desarrollo de sistemas o desarrollo de software.

Contenidos

1. Introducción y conceptos básicos
2. Identificación y gestión de los interesados
3. Captación de requisitos
4. Documentación de requisitos
5. Análisis de requisitos
6. Validación y negociación de requisitos
7. Gestión de requisitos
8. Características de las herramientas para la ingeniería de requisitos

Planificación

Duración: 1 Jornada

Día: martes 28 de noviembre

Horario: de 9 a 18 horas (con una pausa para la comida y 2 pausas más para café)

Profesores

José Fuentes. Responsable de operaciones en The REUSE Company y Miembro del consejo del capítulo español de INCOSE (AEIS).

TRCF17-T06: Los interesados y las entrevistas en la investigación de requisitos

Objetivos

- El descubrimiento de las actitudes necesarias en la relación cliente-proveedor y su entrenamiento mediante Role Play
- Una visión de equipo entre cliente y proveedor que conduzca al éxito del proyecto
- Una metodología para la identificación y gestión de los interesados (stakeholders)
- El entrenamiento de las habilidades para la comunicación efectiva
- La práctica de las técnicas de la entrevista y de las preguntas en la investigación de requisitos

Descripción

Después de muchos años de evolución de las Tecnologías de Información y las Comunicaciones, se constata que una gran parte de los fracasos de los proyectos que generan servicios de TIC (del orden del 50%) tienen su origen en la identificación y gestión de los requisitos. Si bien las dificultades de gestión han quedado razonablemente resueltas por las herramientas de ingeniería de requisitos, las dificultades de identificación persisten. La razón radica en que, según nos indica la experiencia, para identificar fielmente las necesidades del negocio y las expectativas de los clientes, se requiere una combinación de metodología, técnicas y habilidades de relación. Este curso muestra cómo aplicar habilidades y técnicas al descubrimiento de la visión estratégica del sistema a desarrollar como primer paso de la investigación de requisitos.

Quién debería asistir

Este curso está orientado a:

- Analistas funcionales
- Analistas de negocio y Consultores
- Jefes de proyecto
- Directores de departamento
- Clientes internos (Usuarios)
- Participantes en el desarrollo de proyectos
- Interlocutores en las áreas cliente

Contenidos

1. Introducción y conceptos básicos
2. La gestión de los interesados (Stakeholders)
3. Modelo de procesos
4. Habilidades
5. La entrevista de requisitos y la técnica de preguntas
6. La visión estratégica del sistema como primer paso

Planificación

Duración: 1 Jornada

Día: miércoles 29 de noviembre

Horario: de 9 a 18 horas (con una pausa para la comida y 2 pausas más para café)

TRCF17-T07: Análisis de requisitos mediante la técnica de casos de uso

Objetivos

- Determinar cómo la técnica de casos de uso encaja en el proceso de ingeniería de requisitos
- Describir los conceptos clave
- Mostrar el concepto de modelado de casos de uso en UML/SysML
- Repasar el contenido de una plantilla típica de diseño de casos de uso: escenarios, condiciones...

Descripción

Este curso cubre los aspectos teóricos y prácticos que permiten el empleo de la técnica de casos de uso para apoyar las etapas de descubrimiento y análisis de requisitos.

Quién debería asistir

Este curso está orientado a:

- Analistas funcionales
- Analistas de negocio y Consultores
- Participantes en el desarrollo de proyectos
- Integrantes de equipos de prueba

Contenidos

1. Introducción
 - a. Contexto: dónde encajan los casos de uso en el proceso de ingeniería de requisitos
 - b. Historia de los casos de uso
2. UML y los diagramas de casos de uso
 - a. Contenido de un diagrama: Sistema, Actores, Casos de uso y Relaciones
 - b. Realización de un diagrama de casos de uso mediante otros diagramas
3. La plantilla de diseño de casos de uso
 - a. Estructura de un documento de casos de uso
 - b. Casos de uso a diferentes niveles
 - c. Los escenarios: escenario principal, escenarios alternativos, escenarios excepcionales
 - d. Disparadores de un caso de uso
 - e. Precondiciones y postcondiciones
4. Ejemplos prácticos
5. Relación entre casos de uso y otros activos generados durante el proyecto
6. Otras variantes:
 - a. Casos de abuso para requisitos de seguridad
 - b. Casos de uso 2.0

Planificación

Duración: 1 Jornada

Día: miércoles 29 de noviembre

Horario: de 9 a 18 horas (con una pausa para la comida y 2 pausas más para café)

Profesores

José Fuentes. Responsable de operaciones en The REUSE Company y Miembro del consejo del capítulo español de INCOSE (AEIS).

TRCF17-P01: How to ensure correctness in your requirements specifications using the Requirements Quality Analyzer (RQA)

Goals

- Review of the common quality rules for individual requirements
- RQA Connectors
- Quality Analysis with RQA (correctness)
- Quality Reporting with RQA (correctness)
- RQA for collaborative tasks
- Quality configuration with RQA (correctness)
- Correctness parameterized metrics with RQA

Description

The attendees will use the latest version of Requirements Quality Suite so that they can analyze the quality level for a provided specification, and customize several rules.

Pre-Requirements / Who should attend

- Business analysts
- Functional analysts
- Project managers
- Quality managers
- Procurement manager

Outline

1. Requirements quality guidelines
2. Connection screen and the connection to external requirements management tools
3. The analysis screen in RQA (correctness)
4. The reporting mechanisms in RQA (correctness)
5. Collaboration mechanisms in RQA
6. Configuration of correctness metrics in RQA
7. Configuration of parameterized correctness metrics in RQA

Schedule

Duration: 1 day

When: Monday, 27th of November

Timetable: from 9am to 6pm (a break for lunch and two more coffee breaks)

Teachers

Luis Alonso: Chief Architect of the Requirements Quality Suite

TRCF17-P02: How to ensure completeness and consistency in your requirements specifications using the Requirements Quality Analyzer (RQA)

Goals

- Review of the common quality rules for set of requirements
- Quality Analysis with RQA (consistency & completeness)
- Quality Reporting with RQA (consistency & completeness)
- Quality configuration with RQA (consistency & completeness)

Description

The attendees will use the latest version of Requirements Quality Suite so that they can analyze the quality level for a provided specification, and customize several rules.

Pre-Requirements / Who should attend

- Business analysts
- Functional analysts
- Project managers
- Quality managers
- Procurement manager

Basic knowledge about RQA (correctness analysis) or the previous course: *TRCF17-P01: How to ensure correctness in your requirements specifications using the Requirements Quality Analyzer (RQA)*.

Outline

1. Quality guidelines for sets of requirements
2. The analysis screen in RQA (consistency & completeness)
3. The reporting mechanisms in RQA (consistency & completeness)
4. Configuration of consistency and completeness metrics in RQA

Schedule

Duration: 1/2 day

When: Tuesday, 28th of November

Timetable: from 9am to 1pm (including a coffee break)

Teachers

Luis Alonso: Chief Architect of the Requirements Quality Suite

TRCF17-P03: Converting the Requirements Quality Analyzer into a System Quality Management tool

Goals

- Understand the evolutions in RQA
- Review the new features of the tool

Description

RQA, the flagship of our RQS Suite, is now longer just focused on the quality of requirements. Now System Quality Analyzer can measure the quality of other work products and has implemented plenty of new features. All these new features are shown in this training session.

Pre-Requirements / Who should attend

- Business analysts
- Functional analysts
- Project managers
- Quality managers
- Procurement manager

Outline

1. Connecting to external sources
2. Basic features of SQA
3. The concept of quality project:
 - a. Defining a complete quality project
 - b. Quality scoreboard
 - c. Quality snapshot
 - d. Quality evolution
4. Quality along the supply chain:
 - a. The quality certificate: generation, exporting and importing
 - b. Quality evolution tracking

Schedule

Duration: 1/2 day

When: Tuesday, 28th of November

Timetable: from 2.30pm to 6.30pm (including a coffee break)

Teachers

Luis Alonso: Chief Architect of the Requirements Quality Suite

TRCF17-P04: How to program your own quality rules on Universal Quality Manager tool

Goals

Customize RQA to perform any quality analysis based on calculations or mechanisms not available in the existing metrics and, what is more, analyze the quality of whatever other work products (not only requirements) based on custom metrics.

Description

The course will focus on creating new metrics based on ideas that are not available on RQA. These ideas can be found on the three different dimensions: correctness, consistency and completeness. In addition to this, now RQA lets you create rules for other types of artifacts (models, test cases...), custom rules for these other types of artifacts will be also addressed in this course.

Examples of different custom metrics will be implemented.

Pre-Requirements / Who should attend

The attendee must have knowledge of the possibilities regarding Correctness, Completeness and Consistency in RQS. See the previous two courses described above.

The attendee must have programming skills and be familiar with .NET technology.

Outline

1. Connecting to other types of work products
2. Formalization of work products
3. Custom code metrics for other types of work products
4. Custom-code correctness metric
 - a. Evaluation
5. Custom-code completeness metric
 - a. Configuration
 - b. Evaluation
 - c. Displaying the results
6. Custom-code consistency metric
 - a. Configuration
 - b. Evaluation
 - c. Displaying the results

Schedule

Duration: 1/2 day

When: Wednesday, 29th of November

Timetable: from 9am to 1pm (including a coffee break)

Teachers

Luis Pérez. Member of the RQS development team.

TRCF17-P05: Mastering the Requirements Authoring Tool – RAT

Goals

- Understand the concept: on-the-fly quality analysis
- On-the-fly correctness checking
- On-the-fly consistency checking
- Other quality information
- Communication with other requirement quality roles
- Pattern-based requirements writing

Description

Using the tool RAT, we'll cover the concept of *on-the-fly* quality analysis. By writing different requirements in RAT, the attendees will understand the relationship between RAT and the quality rules described in RQA, and proceed with the three dimensions (correctness, consistency and completeness) on-the-fly; including the collaboration with other roles and RQS tools. Finally, the use of patterns to improve the authoring process will also be demonstrated with several practical examples.

Pre-Requirements / Who should attend

- Business analysts
- Functional analysts
- Project managers
- Quality managers
- Procurement manager

The attendee must have knowledge of Requirement Quality Management and be familiar with Requirements Quality Analyzer

Outline

1. Connection of RAT with RQA metric baselines
2. RAT Client vs RAT plugin
3. RAT for Correctness
4. RAT for Consistency and Completeness
5. Collaboration mechanisms
6. Pattern-based authoring

Schedule

Duration: 1/2 day

When: Wednesday, 29th of November

Timetable: from 2.30pm to 6.30pm (including a coffee break)

Teachers

Borja López. Requirements Authoring Tool architect.

TRC Forum Courses 2017 – Useful Information

Program

COURSE ID	COURSE	LANGUAGE	MONDAY	TUESDAY	WEDNESDAY
			Nov. 27th	Nov. 28th	Nov. 29th
TRCF17-T01	How to manage high quality requirements	EN		✓	
TRCF17-T02	How to write high quality specifications	EN	✓		
TRCF17-T03	Modelling the System Knowledge: Processes and Methods	EN	✓		
TRCF17-T04	A framework to define and measure Knowledge-Based Requirements	EN		✓	
TRCF17-T05	Introducción a la Ingeniería de requisitos	ES		✓	
TRCF17-T06	Los interesados y las entrevistas en la investigación de requisitos	ES			✓
TRCF17-T07	Análisis de requisitos mediante la técnica de casos de uso	ES			✓
TRCF17-P01	How to ensure correctness in your requirements specifications using the Requirements Quality Analyzer (RQA)	EN	✓		
TRCF17-P02	How to ensure completeness and consistency in your requirements specifications using the Requirements Quality Analyzer (RQA)	EN		✓	
TRCF17-P03	Converting the Requirements Quality Analyzer into a Universal Quality Management tool	EN		✓	
TRCF17-P04	How to program your own quality rules on Universal Quality Management tool	EN			✓
TRCF17-P05	Mastering the Requirements Authoring Tool - RAT	EN			✓

Course Fees and Discounts

COURSE FEES	Price
1 course for one participant	350.00 €
2 courses for one participant	550.00 €
3 courses for one participant	750.00 €
RQA, RAT and KM courses (TRCF17-P01, TRCF17-P02, TRCF17-P03, TRCF17-P04, TRCF17-P05)	Free

COURSE FEE DISCOUNTS	Price/Participant	Participants	Total cost	Discount	Final price
1 course for four participants (one participant free)	350.00 €	4	1,400.00 €	25.00%	1,050.00 €
2 courses for four participants (one participant free)	550.00 €	4	2,200.00 €	25.00%	1,650.00 €
3 courses for one participant (one participant free)	750.00 €	4	3,000.00 €	25.00%	2,250.00 €

Should you be interested in any of the courses, or have any question, please contact:

elena.gallego@reusecompany.com