

INCOSE Guide to Writing Requirements

Meet our new digital assistant!



Ilyes Yousfi

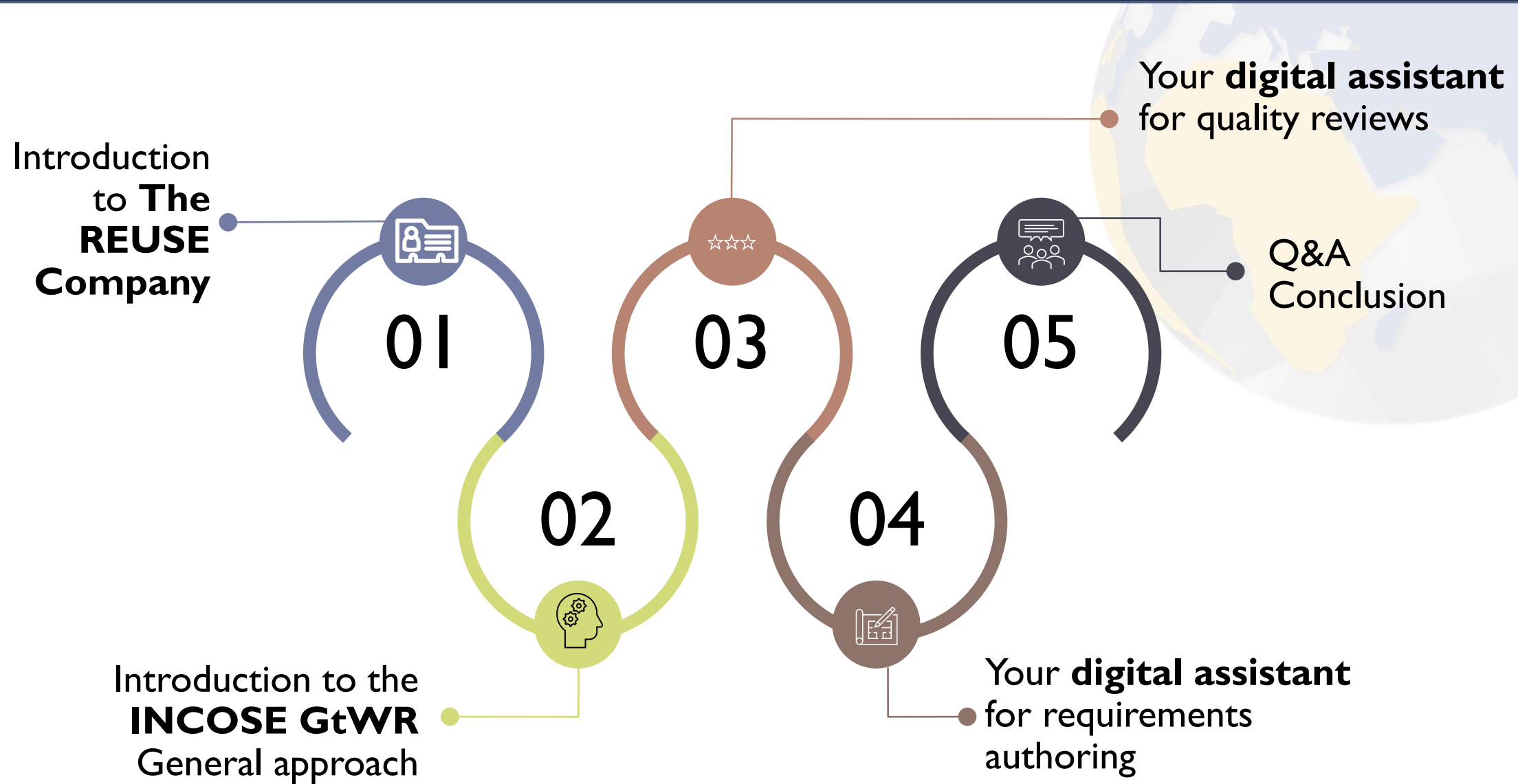
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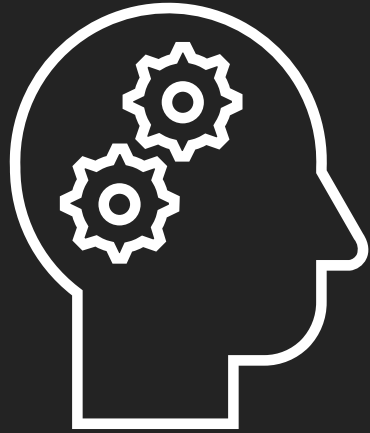


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The REUSE Company is a solutions provider specialized in the application of **semantic technologies** and artificial intelligence to improve the **digitalization of the Systems Engineering** processes.



**Introduction
to the INCOSE GtWR
General approach**



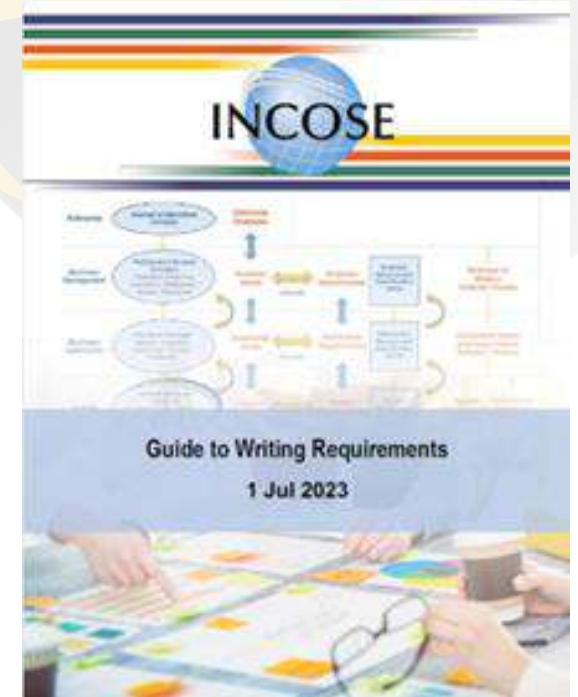
The INCOSE RWG (**Requirements Working Group**) in line with its goal

“Expand and promote the body of knowledge of requirements engineering and its benefits within the systems engineering community”

has developed the INCOSE GtWR (**Guide to Writing Requirements**)

The GtWR provides guidance on how to express textual needs AND requirements expressions.

The GtWR: a single, comprehensive set of **characteristics, rules and attributes** for well-formed need and requirement expressions.



42 Rules / 15 Characteristics

- **15 Characteristics** of individual and sets of needs and requirements.
- **42 Rules** to help formulate individual and sets of needs and requirements.
- **49 Attributes** are attached to need or requirement statements to form need or requirement expressions.

Type	Rule Number	Rule name	C1 - NECESSARY	C2 - APPROPRIATE	C3 - UNAMBIGUOUS	C4 - COMPLETE	C5 - SINGULAR	C6 - FEASIBLE	C7 - VERIFIABLE	C8 - CORRECT	C9 - CONFORMING	C10 - COMPLETE	C11 - CONSISTENT	C12 - FEASIBLE	C13 - COMPREHENSIBLE	C14 - ABLE TO BE VALIDATED	C15 - CORRECT	
Accuracy	R01	Sentence Structure	1	1	1	1	1	1	1	1								
	R02	Use Active Voice	1	1	1													
	R03	Subject Verb	1	1	1							1			1			
	R04	Use Defined Terms			1				1				1		1	1	1	
	R05	Use Definite Articles			1				1									
	R06	Units			1	1			1	1								
	R07	Avoid Vague Terms			1	1			1									
	R08	No Escape Clauses			1	1			1									
	R09	No Open Ended			1	1	1		1									
Concision	R10	Superfluous Infinitives			1				1									
	R11	Separate Clauses			1	1			1	1								
Non Ambiguity	R12	Correct Grammar			1				1	1	1							
	R13	Correct Spelling			1				1									
	R14	Correct Punctuation			1				1		1							
	R15	Logical Condition			1				1									
	R16	Avoid Not			1				1	1								
	R17	Oblique			1				1									
Singularity	R18	Single Sentence			1		1		1	1					1			
	R19	Avoid Combinators			1		1											
	R20	Avoid Purpose	1				1											
Completeness	R21	Avoid Parentheses					1											
	R22	Enumeration			1		1											
	R23	Context			1	1	1											
	R24	Avoid Pronouns			1	1			1									
Realism	R25	Use Of Headings				1												
	R26	Avoid Absolutes					1	1	1				1					
Conditions	R27	Explicit				1		1	1					1				
	R28	Explicit Lists			1				1									
Uniqueness	R29	Classify										1	1					
	R30	Express Once	1								1		1					
Abstraction	R31	Solutionfree		1														
Quantifiers	R32	Universals			1				1	1								
Tolerance	R33	Value Range			1	1		1	1	1				1				
Quantification	R34	Measurable			1	1			1					1				
	R35	Temporal Indefinite			1	1			1									
Uniform Language	R36	Use Consistent Terms			1					1	1		1	1	1	1		
	R37	Define Acronyms			1					1		1	1	1	1	1		
	R38	Avoid Abbreviations								1		1	1	1	1	1		
	R39	Style Guide				1	1			1		1	1	1	1	1		
Modularity	R40	Decimal Format			1	1				1		1						
	R41	Related Requirements				1				1	1	1	1	1	1	1		
	R42	Structured									1	1		1	1	1		



Attribute	Attributes to Help Define the Requirement and its Intent	Associated with the System of Interest (SOI) Verification	Attributes to Help Maintain the Requirements	Attributes to Show Applicability and Allow Reuse
A01	Rationale*	1		
A02	SOI Primary Verification or Validation Method*	1		
A03	SOI Verification or Validation Approach	1		
A04	Trace to Parent*	1		
A05	Trace to Source*	1		
A06	Condition of Use	1		
A07	States and Modes	1		
A08	Allocation*	1		
A09	SOI Verification or Validation Level		1	
A10	SOI Verification or Validation Phase		1	
A11	SOI Verification or Validation Results		1	
A12	SOI Verification or Validation Status		1	
A13	Unique Identifier*			1
A14	Unique Name			1
A15	Originator/Author*			1
A16	Date Requirement Entered			1
A17	Owner*			1
A18	Stakeholders			1
A19	Change Board			1
A20	Change Status			1
A21	Version Number			1
A22	Approval Date			1
A23	Date of Last Change			1
A24	Stability			1
A25	Responsible Person			1
A26	Need or Requirement Verification Status*			1
A27	Need or Requirement Validation Status*			1
A28	Status (of the Need or Requirement)			1
A29	Status (of Implementation)			1
A30	Trace to Interface Definition			1
A31	Trace to Peer Requirements			1
A32	Priority*			1
A33	Criticality or Essentiality*			1
A34	Risk (of Implementation)*			1
A35	Risk (Mitigation)			1
A36	Key Driving Need or Requirement (KDN/KDR)			1
A37	Additional Comments			1
A38	Type/Category			1
A39	Applicability			1
A40	Region			1
A41	Country			1
A42	State/Province			1
A43	Application			1
A44	Market Segment			1
A45	Business Unit			1
A46	Business (Product)Line			1



i) Characteristics: New characteristic C15 – Correctness of sets of needs/requirements.

➤ Compiles the other characteristics to stress the importance of having them all :

- *C10 - COMPLETE*
- *C11 - CONSISTENT*
- *C12 - FEASIBLE*
- *C13 - COMPREHENSIBLE*
- *C14 - ABLE TO BE VALIDATED*

ii) Rules:

- Updated Rules: R06 (Units), R33 (Tolerance)
- ****New Rule**** : R40 (DecimalFormat)

iii) Requirement Patterns (Appendix C)

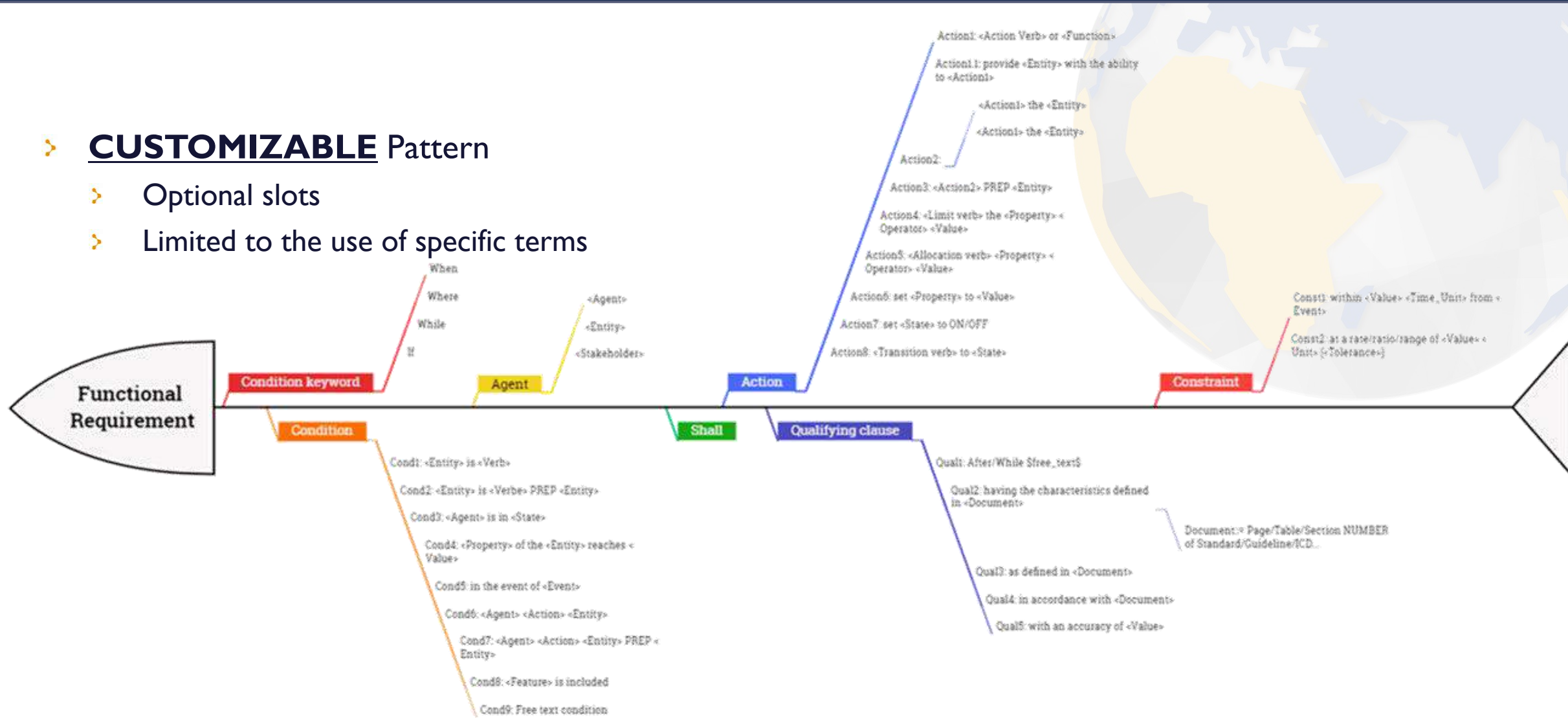
iv) Rule Applicability Matrix (Appendix D) : Needs vs. Requirements and Data Dictionaries

*****THE CHALLENGE*****

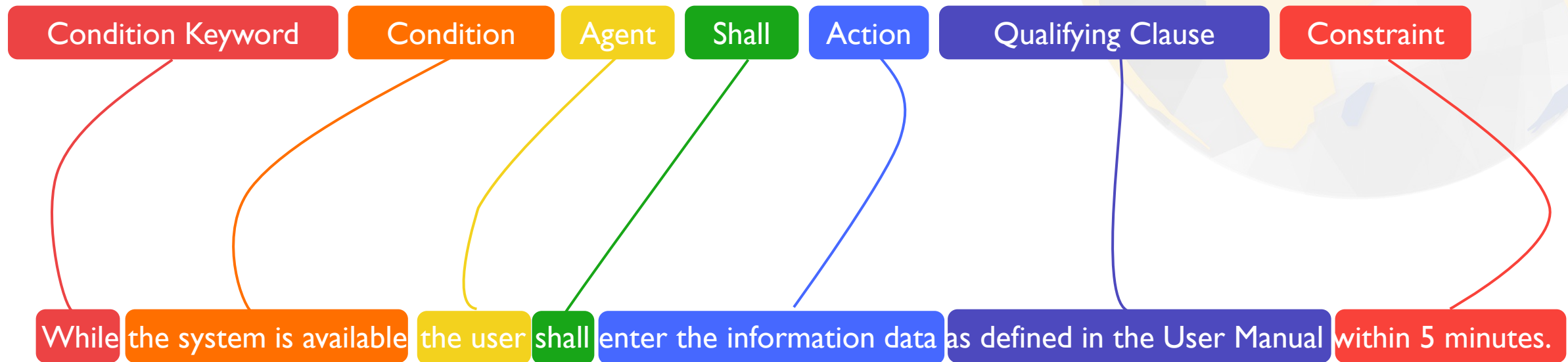
“address both need and requirement statements and understand the differences between the two”

➤ **CUSTOMIZABLE** Pattern

- Optional slots
- Limited to the use of specific terms



➤ CUSTOMIZABLE Pattern

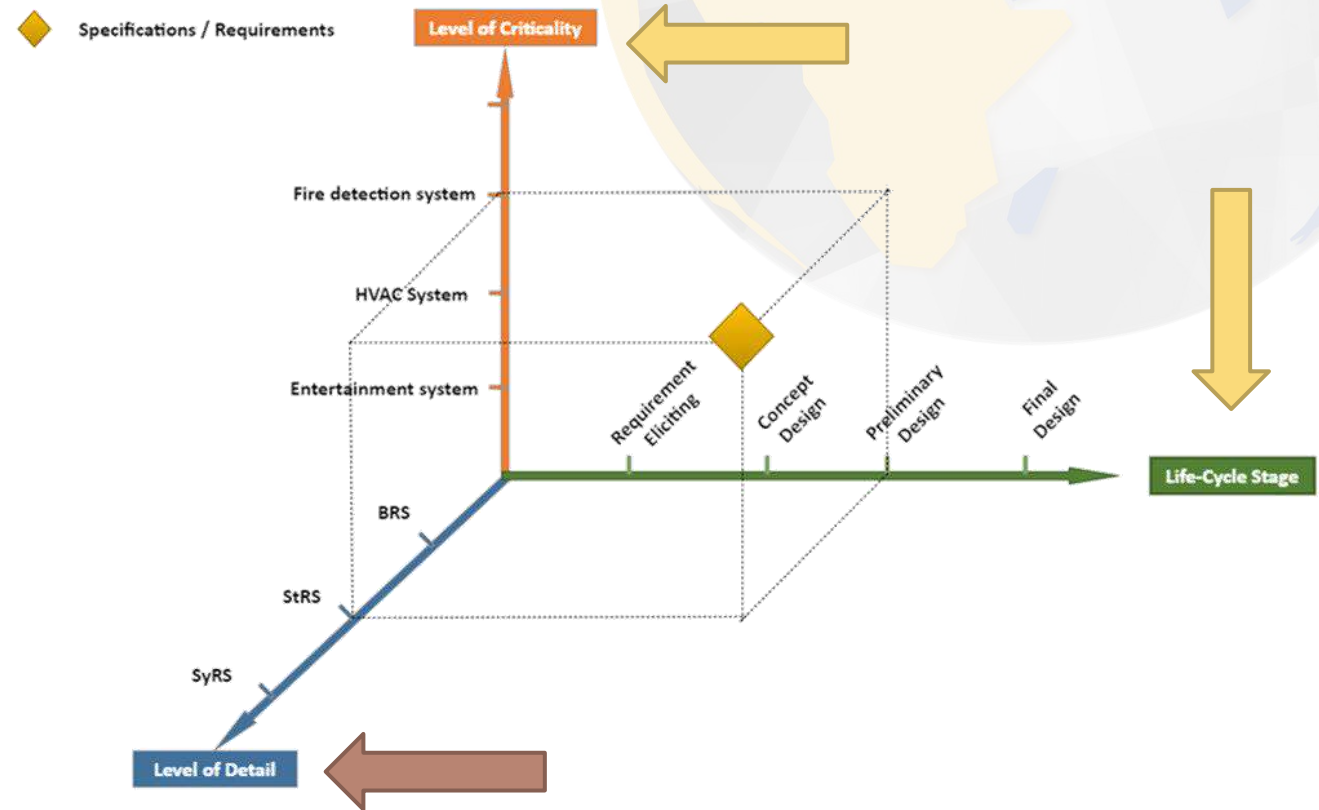


➤ Guidelines/**Recommendations** to apply a tailored set of rules to either Needs or Requirements

- *Optional / Recommended* rule for Needs
- *Compulsory* rules for Requirements

- **Tailoring** to either Needs or Reqs
- Is a **Project Data Dictionary** needed?
 - 1. check cross-domain aspects
 - 2. check domain-specific aspects

Tailoring Guide
(Link to download the book) :



RULE #	RULE NAME	RULE SHORT DESCRIPTION	RULE APPLICABILITY	APPLICABILITY COMMENTS	RULE SCOPE Requires Project Data Dictionary, Glossary, Models or Ontology? (Y/N)	SCOPE COMMENTS
R01	Sentence Structure	Use the form of a complete sentence: subject, verb, object.	CNCR		N	
R02	Use Active Voice	Use the active voice in the main sentence structure with the responsible entity clearly identified as the subject.	RNCR	Needs: The use of active voice can have a higher tolerance when considering needs, although it is recommended to avoid it in both cases.	N	

RULE APPLICABILITY

CNCR = Compulsory for Needs AND Requirements

RNCR = Recommended for Needs; Compulsory for Requirements [+Comments]

CR = Compulsory for Requirements (Optional for Needs)

RULE SCOPE : Requires Project Data Dictionary, Glossary, Models or Ontology?

Y:Yes /N: No



INCOSE GtWR 4.0
Implementation of the latest concepts
“At the crossroads between needs and requirement
strategies”



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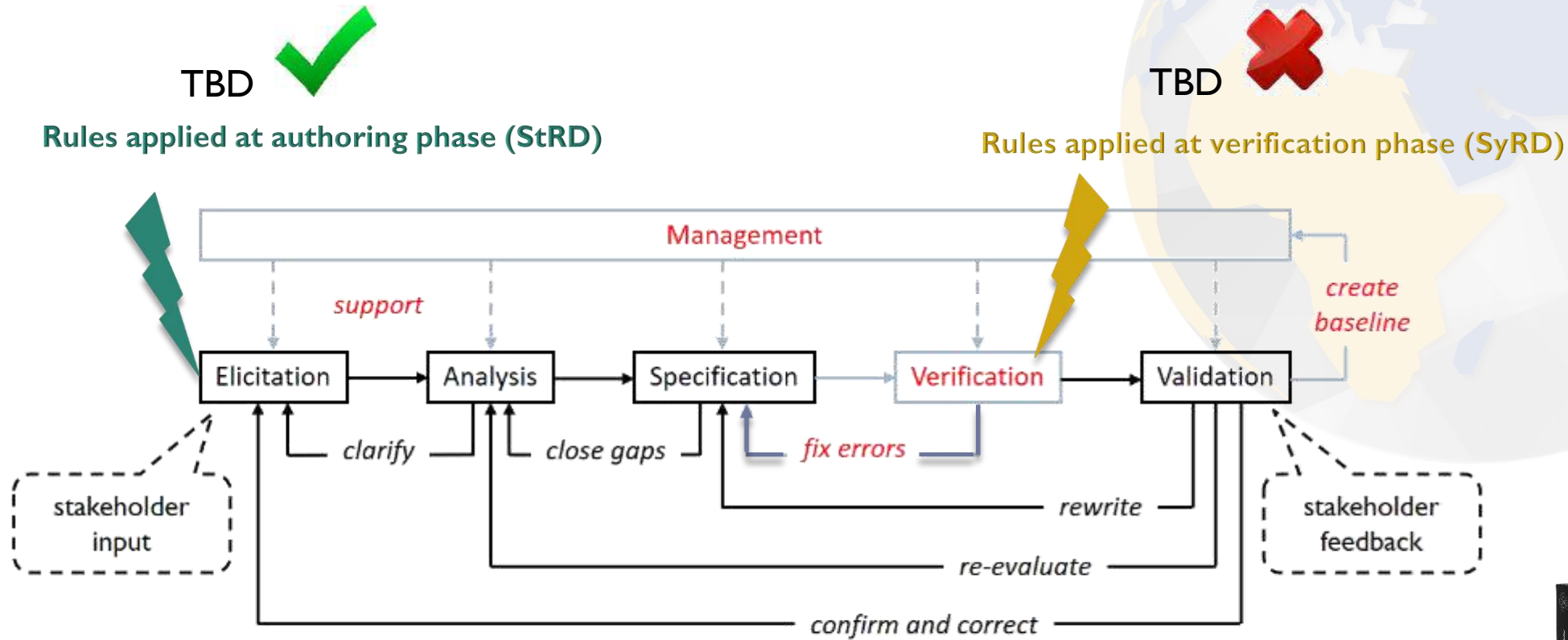


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INCOSE
International Council on Systems Engineering

September 19th, 2023



Adapted from: Karl Wiegiers



➤ **RAT – AUTHORIZING Tool**

➤ **Main Target** : requirement authors

➤ **Key features:**

- **Real-time quality** check (Correctness)
- **Autocompletion** powered by the semantic ontology's patterns.
- Available in **plug-in** version (IBM DOORS, Capella, ...) and **web extension** (Chrome, Edge, Firefox).



➤ **RQA – QUALITY Studio**

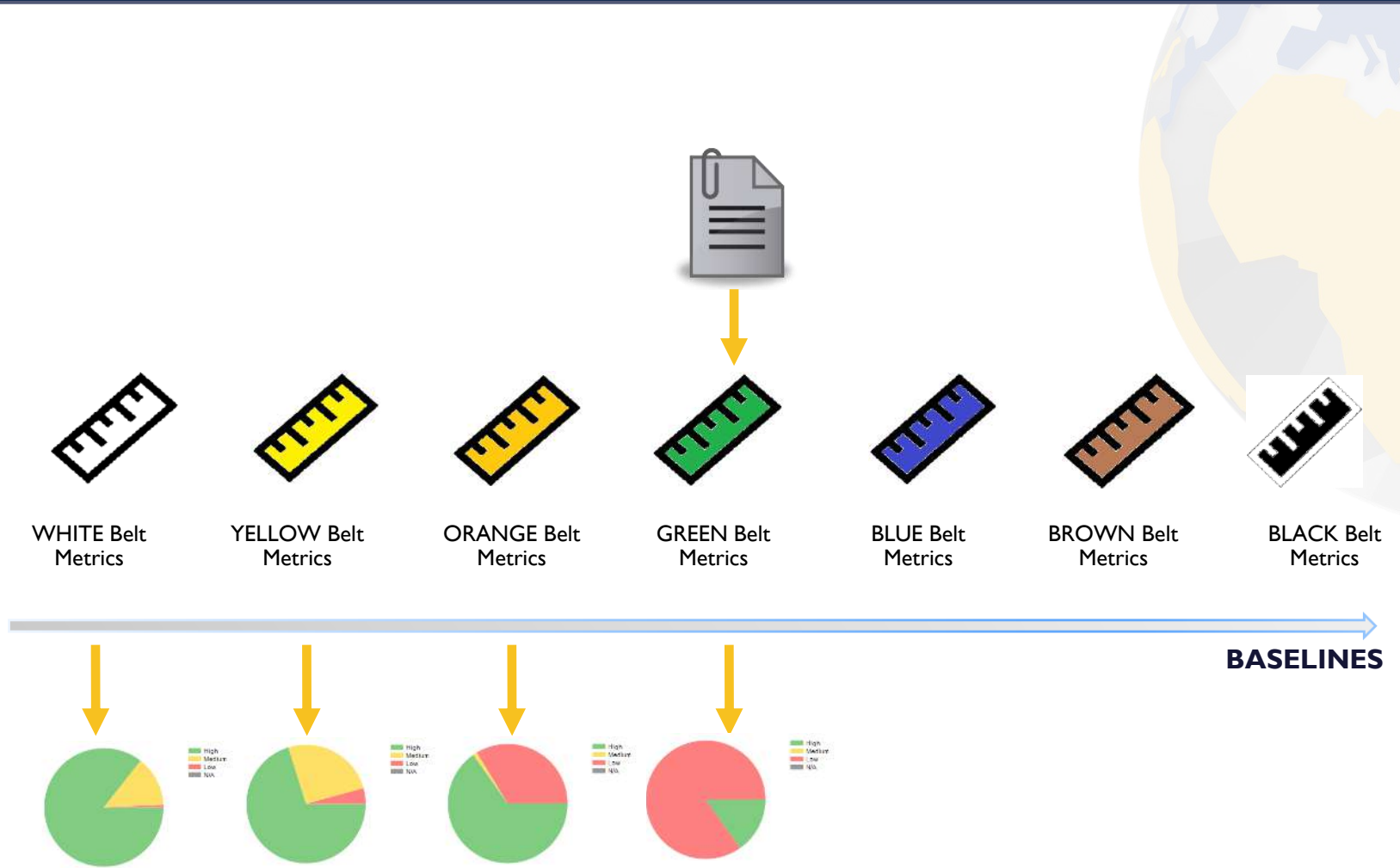
➤ **Main Target** : requirement reviewers

➤ **Key features:**

- **CCC*** quality check of engineering items from 50+ tools (Requirements Management, ALM, MBSE...)
- Settings to **configure and customize** quality rules (metrics)
- Quality reports generation
- Automated assessment tasks (batch process).

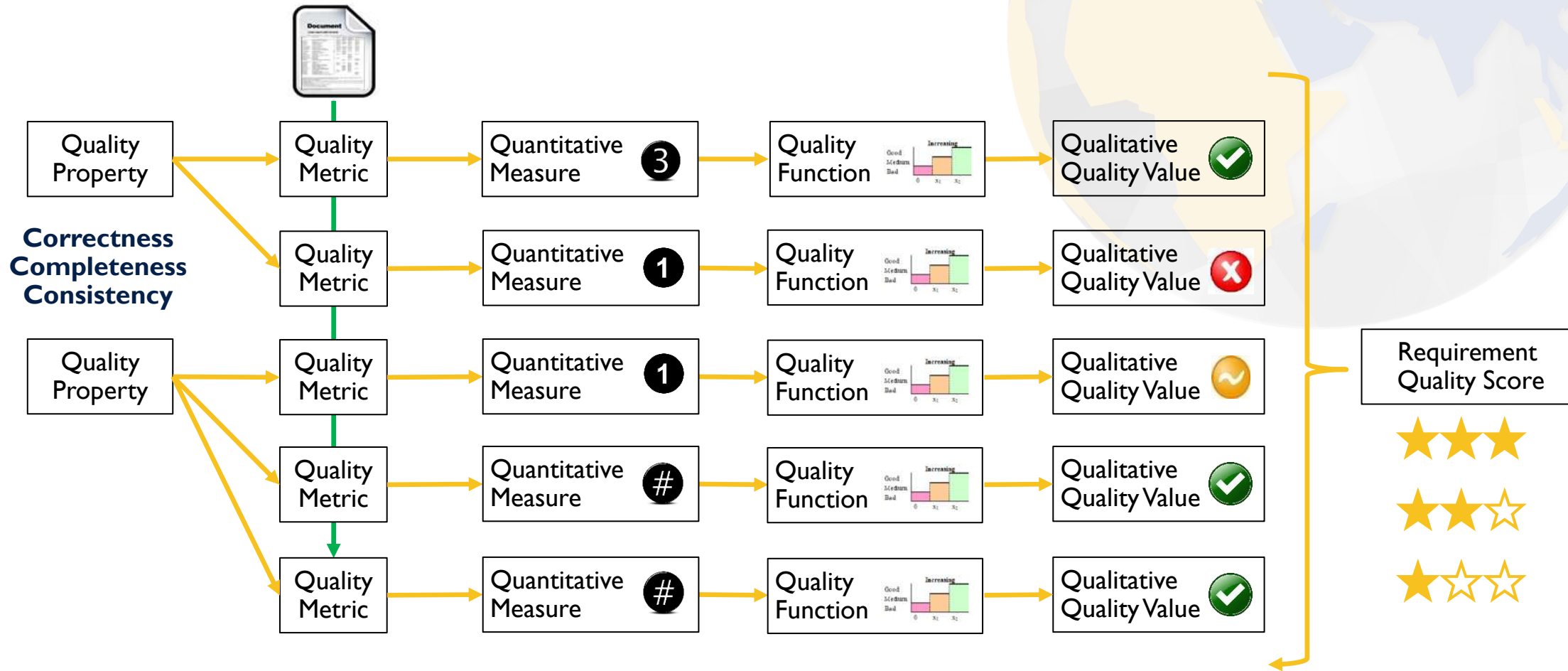


*Correctness, Consistency, Completeness



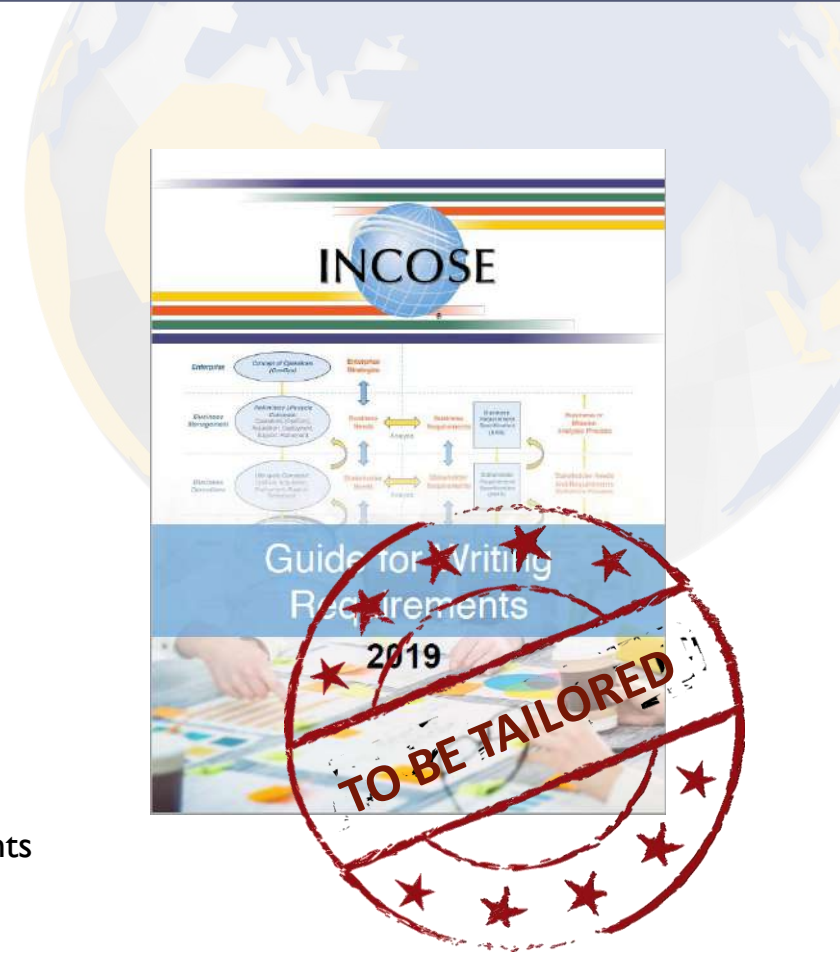
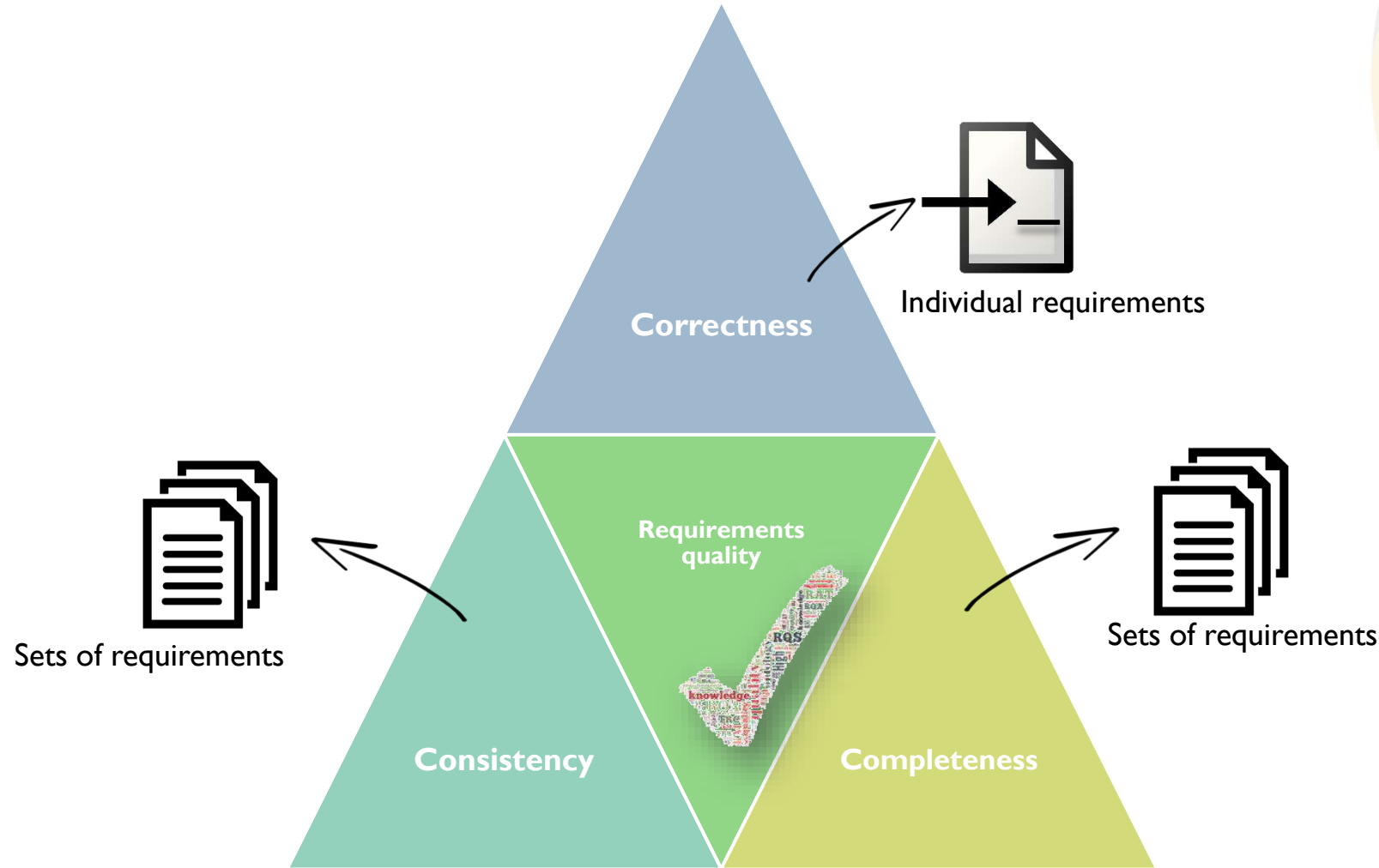


**Tool-assisted
Requirements
Quality
Verification**





Requirements Quality Metrics: CCC Approach





> 58 Metrics

Mapping INCOSE GtWR v4.0 (2023) rules with TRC quality metrics

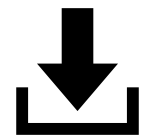
TACKLED SCORE
38 YES
4 NO

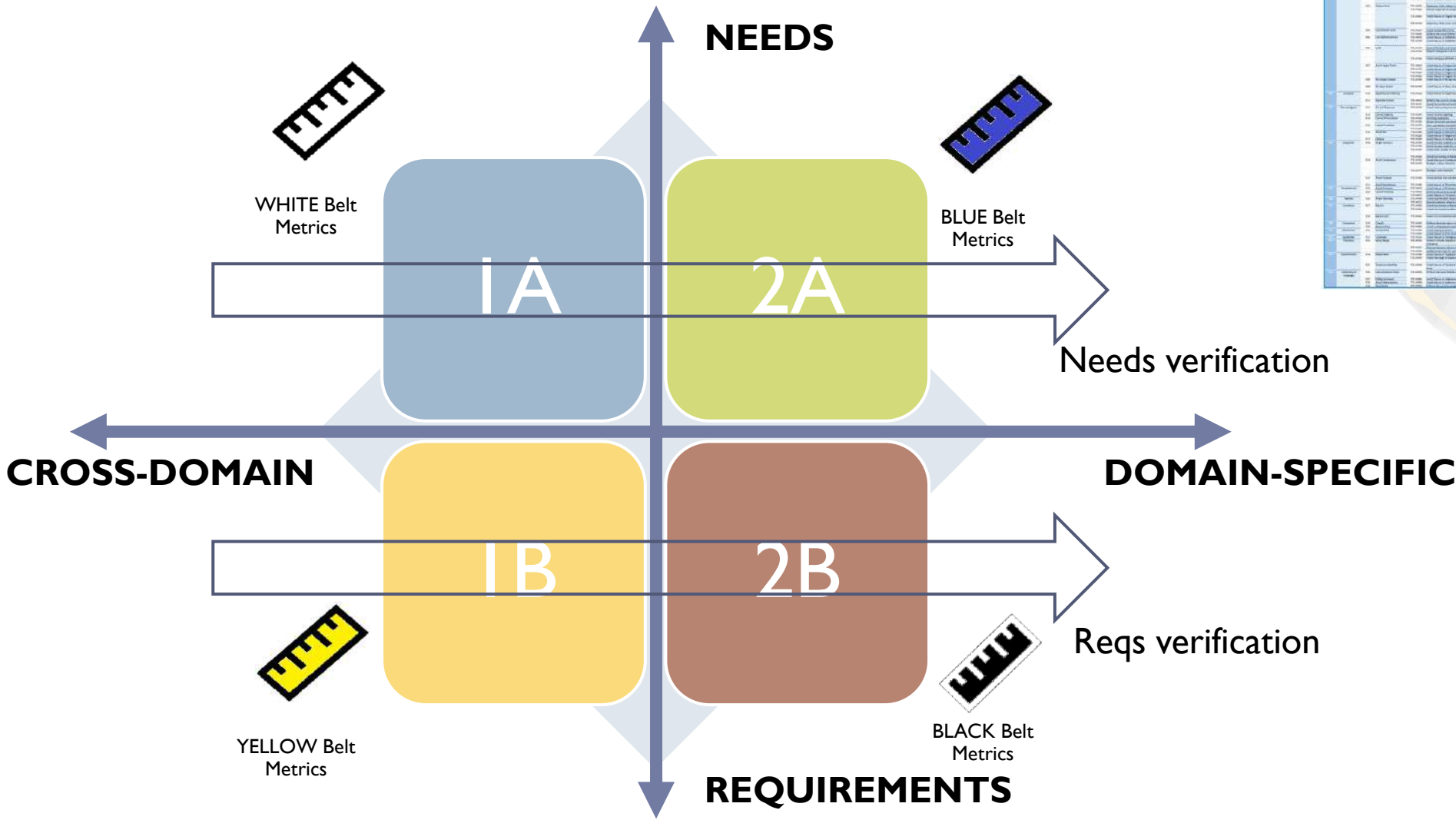


<http://www.reusecompany.com>

T id	Type	INCOSE Rule	Rule short name	Metric Number	Metric Name	Metric Type	Scope
T01	Accuracy	R01	Sentence Structure	TRC-M010	Enforce the use of a complete sentence structure	Non-parameterized	2-Domain-specific
				TRC-M365	Avoid the use of Banned Modal Verbs	Parameterized - Cluster	1-Cross-domain
		R02	Use Active Voice	TRC-M030	Avoid the use of Passive Voice	Parameterized - Pattern matching	1-Cross-domain
				TRC-M035	Avoid the use of Passive Voice after the modal verb	Parameterized - Pattern matching	1-Cross-domain
				TRC-M040	Avoid the use of Passive Voice out of the condition block	Parameterized - Pattern matching	1-Cross-domain
				R03	Subject Verb	TRC-M050	Determine if the subject is a recognized Agent term
		TRC-M055	Detect inappropriate subject at the document level			Parameterized - Sub terms in SCM	2-Domain-specific
		TRC-M065	Avoid the use of Vague Verbs after Modal Verbs			Parameterized - Pattern matching	1-Cross-domain
		TRC-M120	Determine if the main verb is a Controlled Action Verb			Parameterized - Pattern matching	2-Domain-specific
		R04	Use Defined Terms	TRC-M845	Avoid unspecified subject	Parameterized - Pattern group matching	1-Cross-domain
				TRC-M225	Avoid Unclassified Terms	Parameterized - Term tag	2-Domain-specific
		R05	Use Definite Articles	TRC-M630	Enforce the use of Define Terms by avoiding Synonyms	Non-parameterized	2-Domain-specific
				TRC-M020	Avoid the use of Indefinite Articles	Parameterized - Term tag	1-Cross-domain
				TRC-M130	Avoid the use of Indefinite Articles in front of an Agent	Parameterized - Pattern matching	1-Cross-domain
				R06	Units	TRC-M140	Ensure Numbers are followed by Units or noun qualifications
		TRC-M150	Detect inadequate Unit for a Characteristic			Parameterized - Relationships not SCM compliant	1-Cross-domain
TRC-M160	Avoid mixing up different measurement systems	Measurement units consistency metric	1-Cross-domain				

Link to download the mapping table



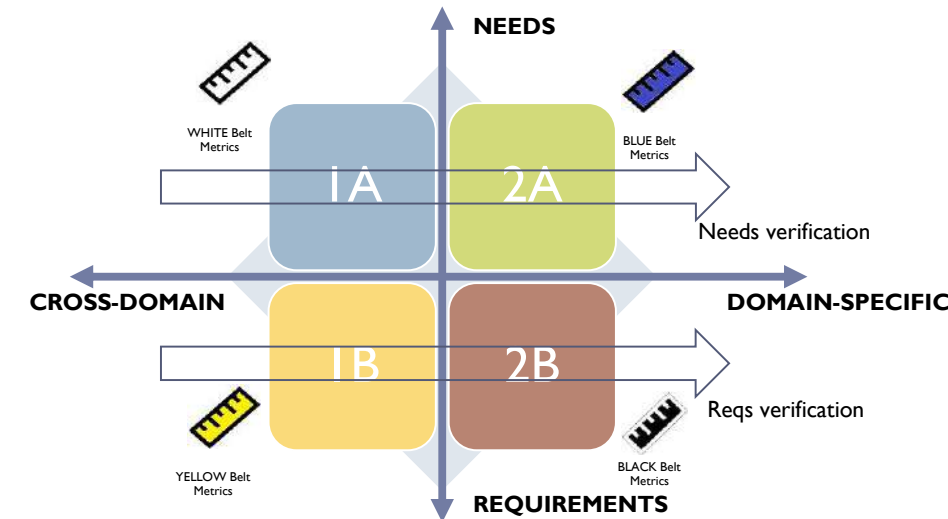



Quality Assurance - Metrics set templates

Metrics set templates:

+ Add metric set

Identifier	Name	Description
187	1A - INCOSE GtWR v4.0 CROSS-DOMAIN METRICS x NEED Statements	1A. This subset includes cross-domain rules, which do not require domain-specific data dictionaries, and applies to NEED sta
188	1B - INCOSE GtWR v4.0 CROSS-DOMAIN METRICS x REQUIREMENT Statements	1B. This subset includes cross-domain rules, which do not require domain-specific data dictionaries, and applies to REQUIRE
189	2A - INCOSE GtWR v4.0 CROSS-DOMAIN & DOMAIN-SPECIFIC METRICS x NEED Statements	2A. This subset includes cross-domain & domain-specific rules, which require a project data dictionary, and applies to NEED
190	2B - INCOSE GtWR v4.0 CROSS-DOMAIN & DOMAIN-SPECIFIC METRICS x REQUIREMENT Statements	2B. This subset includes cross-domain & domain-specific rules, which require a project data dictionary, and applies to REQU



Metrics set template configuration: 1B - INCOSE GtWR v4.0 CROSS-DOMAIN METRICS x REQUIREMENT Statements

Metrics configuration: **Correctness** Consistency Completeness

Correctness metrics:

Metric Identifier	Custom Metric...	Name	Rationale	Weight	En...	Correctness type
32,401	N/A	Abstraction R31 / TRC-M490: Avoid stating a solution	This quality met...	1	<input checked="" type="checkbox"/>	Parameterized - Cluster
32,402	N/A	Abstraction R31 / TRC-M500: Avoid the use of Flow sentences	This metric chec...	1	<input checked="" type="checkbox"/>	Parameterized - Cluster
32,365	N/A	Accuracy R01 / TRC-M365: Avoid the use of Banned Modal Verbs	This is a metric...	1	<input checked="" type="checkbox"/>	Parameterized - Cluster
32,367	N/A	Accuracy R02 / TRC-M040: Avoid the use of Passive Voice out of the condition block	This metric chec...	1	<input checked="" type="checkbox"/>	Parameterized - Pattern matching
32,369	N/A	Accuracy R05 / TRC-M130: Avoid the use of Indefinite Articles in front of an Agent	This metric chec...	1	<input checked="" type="checkbox"/>	Parameterized - Pattern matching
32,372	N/A	Accuracy R06 / TRC-M140: Ensure Numbers are followed by Units or noun qualifications	This metric chec...	1	<input checked="" type="checkbox"/>	Parameterized - Term tag
32,371	N/A	Accuracy R06 / TRC-M150: Detect inadequate Unit for a Characteristic	hec...	1	<input checked="" type="checkbox"/>	Parameterized - Relationships not SCM comp...
32,376	N/A	Accuracy R07 / TRC-M950: Avoid the use of Vague Terms	hec...	1	<input checked="" type="checkbox"/>	Parameterized - Cluster
32,377	N/A	Accuracy R08 / TRC-M190: Avoid the use of Escape clauses	hec...	1	<input checked="" type="checkbox"/>	Parameterized - Special Sentences
32,378	N/A	Accuracy R09 / TRC-M200: Avoid the use of Open-Ended clauses	hec...	1	<input checked="" type="checkbox"/>	Parameterized - Special Sentences
32,397	N/A	Completeness R24 / Completeness R25 / TRC-M070: Avoid the use of Pronouns t	met...	1	<input checked="" type="checkbox"/>	Parameterized - Term tag
32,379	N/A	Concision R10 / TRC-M210: Avoid the use of Superfluous infinitives	hec...	1	<input checked="" type="checkbox"/>	Parameterized - Pattern group matching
32,380	N/A	Concision R11 / TRC-M215: Check the number of condition clauses	me...	1	<input checked="" type="checkbox"/>	Parameterized - Cluster
32,381	N/A	Non-ambiguity R12 / TRC-M230: Avoid incorrect grammar structures	cor...	1	<input checked="" type="checkbox"/>	Parameterized - Pattern group matching
32,383	N/A	Non-ambiguity R14 / TRC-M250: Facilitate readability	ba...	1	<input checked="" type="checkbox"/>	Non-parameterized
32,382	N/A	Non-ambiguity R14 / TRC-M260: Review incorrect punctuation	hec...	1	<input checked="" type="checkbox"/>	Non-parameterized
32,384	N/A	Non-ambiguity R15 / Singularity R19 / TRC-M350: Avoid the use of Combinators	hec...	1	<input checked="" type="checkbox"/>	Parameterized - Cluster
32,385	N/A	Non-ambiguity R15 / TRC-M270: Set a convention for logical expression forms	hec...	1	<input checked="" type="checkbox"/>	Parameterized - Cluster

No. of metrics: 38, Enabled: 38

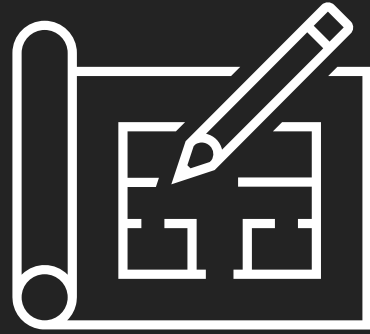
Enabled

- + Add new metric
- Edit metric
- X Delete metric(s)**
- Enable Selected
- Enable all
- Disable all
- View text as paragraphs
- Search...
- Copy to
- Select all
- Select none
- Invert selection
- Copy selection to clipboard
- Export...
- Refresh



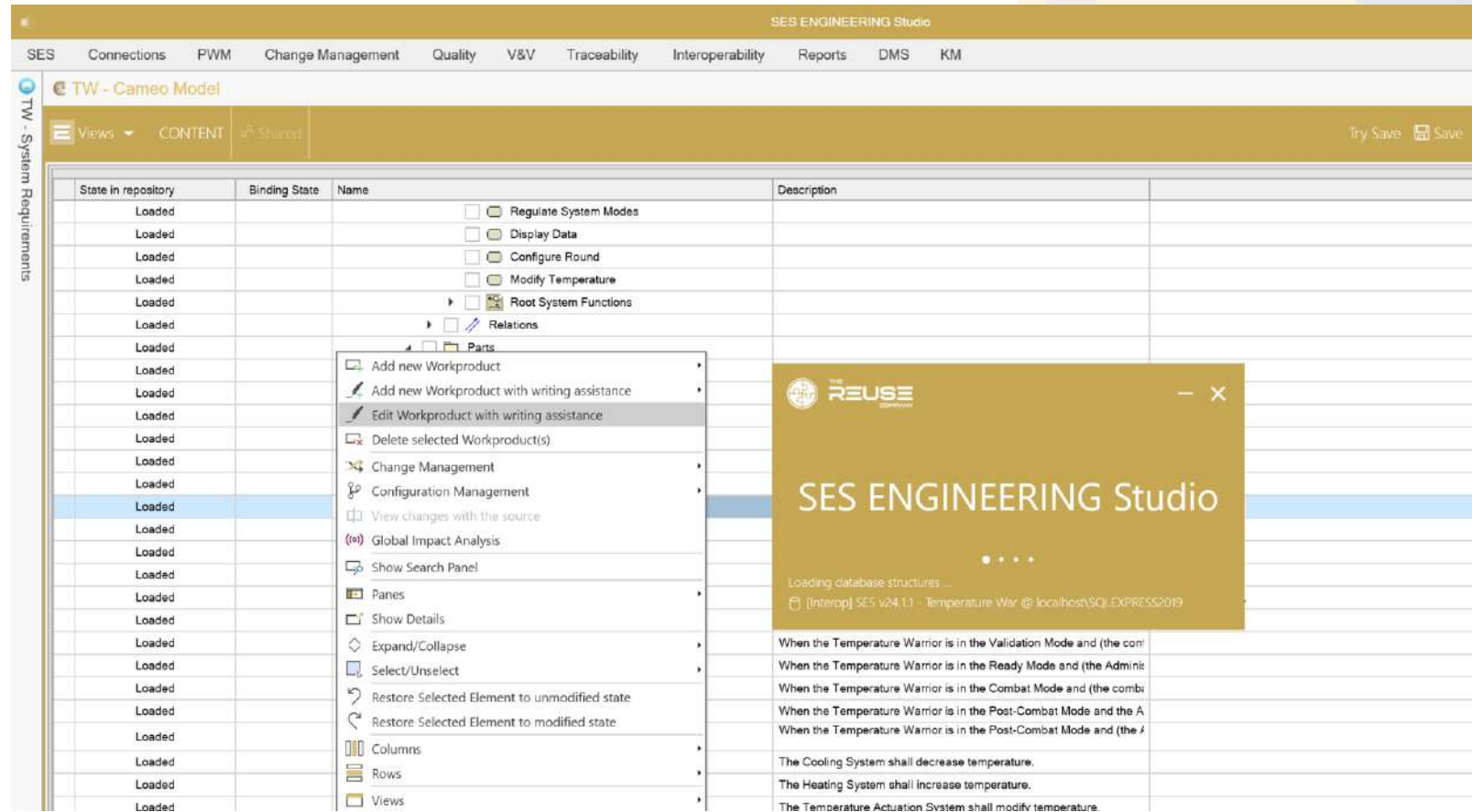
Demo #1 : Requirements Quality Review

- Connect to a requirements repository (ALM)
- Select and customize a quality configuration
 - Run a quality assessment
- View, store and export results



Tool-assisted Requirements Authoring

➤ I. RAT – AUTHORIZING Tool Desktop version (SES ENGINEERING Studio)



The screenshot displays the SES ENGINEERING Studio desktop application. The main window title is "SES ENGINEERING Studio" and the menu bar includes: SES, Connections, PWM, Change Management, Quality, V&V, Traceability, Interoperability, Reports, DMS, and KM. The current project is "TW - Cameo Model".

The central area features a table with the following columns: State in repository, Binding State, Name, and Description. The table contains multiple rows, all with "Loaded" in the "State in repository" column. The "Name" column lists various system requirements, including "Regulate System Modes", "Display Data", "Configure Round", "Modify Temperature", "Root System Functions", "Relations", and "Parts".

A context menu is open over the "Parts" entry, listing actions such as "Add new Workproduct", "Add new Workproduct with writing assistance", "Edit Workproduct with writing assistance", "Delete selected Workproduct(s)", "Change Management", "Configuration Management", "View changes with the source", "Global Impact Analysis", "Show Search Panel", "Panels", "Show Details", "Expand/Collapse", "Select/Unselect", "Restore Selected Element to unmodified state", "Restore Selected Element to modified state", "Columns", "Rows", and "Views".

Overlaid on the right side of the table is a dialog box titled "SES ENGINEERING Studio" with the subtitle "Loading database structures ...". The dialog box shows the connection path: "[Interop] SES v24.1.1 - Temperature War @ localhost\SQLEXPRESS2019". Below the dialog box, the "Description" column of the table contains several text-based requirements, such as "When the Temperature Warrior is in the Validation Mode and (the con...", "When the Temperature Warrior is in the Ready Mode and (the Admini...", "When the Temperature Warrior is in the Combat Mode and (the comb...", "When the Temperature Warrior is in the Post-Combat Mode and the A...", "When the Temperature Warrior is in the Post-Combat Mode and (the #...", "The Cooling System shall decrease temperature.", "The Heating System shall increase temperature.", and "The Temperature Actuation System shall modify temperature."



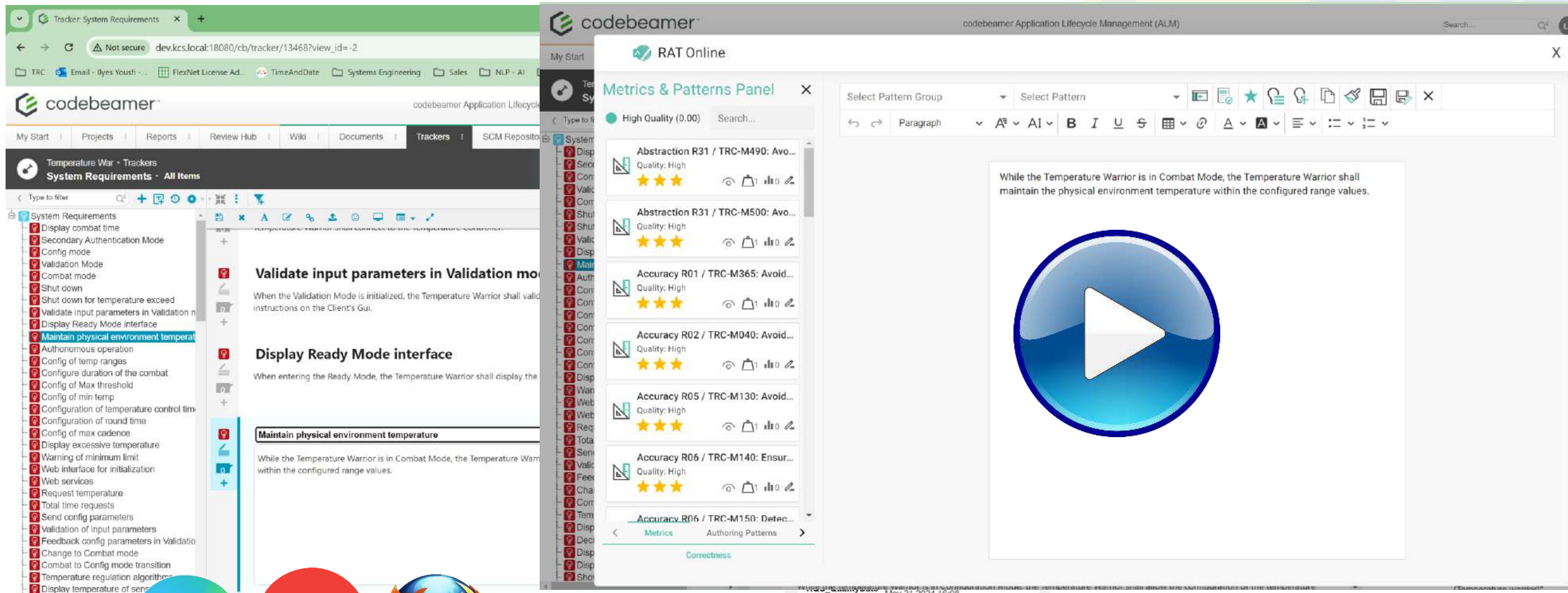
2. RAT plug-in



The screenshot shows the 'Temperature Warrior SysR' software interface. The main window displays a list of system requirements (SysR-1 to SysR-25) with their descriptions. A 'Rich Authoring' dialog box is open, showing a list of actions such as 'Insert...', 'Advanced Insert', 'Edit...', 'Advanced edit...', 'Synchronize...', 'Settings', 'Reload ontology', 'Change SES Server connection parameters...', 'Test License', 'Change Language', 'About...', and 'Help...'. The dialog box also displays the text 'Rich Authoring' and 'Checking for available 'RAT' license...'.

ID	Description
SysR-1	The Temperature Warrior shall have a hardware/software peculiarity of the operation in the same physical space.
SysR-2	While the Temperature Warrior is in the physical environment, the Temperature Warrior shall measure the temperature.
SysR-3	While the Temperature Warrior is in the physical environment, the Temperature Warrior shall modify the temperature.
SysR-4	While the Temperature Warrior is in the physical environment, the Temperature Warrior shall increase the temperature.
SysR-5	While the System is in the environment temperature, the Temperature Warrior shall protect against incoming attacks.
SysR-6	The temperature Registration System shall manage temperature decrease to protect against incoming attacks.
SysR-7	The Registration System shall manage temperature decrease to protect against incoming attacks.
SysR-8	The cooling system shall decrease the temperature.
SysR-9	The control system shall regulate the temperature functionality.
SysR-11	The Temperature Warrior shall have a Ready Mode.
SysR-12	The Temperature Warrior shall have a Combat Mode.
SysR-13	The Temperature Warrior shall have a management system.
SysR-14	When Temperature warrior is in the Ready Mode, the Temperature warrior shall have a Ready Mode.
SysR-15	The Temperature Warrior shall have a Ready Mode.
SysR-16	The Temperature Warrior shall have a Ready Mode.
SysR-17	The Temperature Warrior shall have a Ready Mode.
SysR-18	The Temperature warrior shall have a Ready Mode.
SysR-19	The Temperature Warrior shall have a Ready Mode.
SysR-20	The Temperature Warrior shall have a Combat Mode.
SysR-21	The temperature warrior shall have a management system.
SysR-22	When the registered temperature exceeds the maximum threshold allowed and the corresponding message has been displayed, the Temperature Warrior shall shut down.
SysR-23	When the registered temperature exceeds the minimum threshold allowed and the corresponding message has been displayed, the Temperature Warrior shall shut down.
SysR-24	When the Validation Mode is initialized, the Temperature Warrior shall validate the required parameters, according to the displayed instructions on the Client's Gui.
SysR-25	When entering the Ready Mode, the Temperature Warrior shall display the Ready Mode interface.

3. RAT – AUTHORIZING Web Extension






New - REQUIREMENTS ENGINEERING Studio

File View Log

Authoring with pattern 'METRIC - System physical characteristic (Completeness & Consistency)'

METRIC - System physical requirements (Completeness & Consistency) (2) METRIC - System physical characteristic (Completeness & Consistency)

Correctness metrics summary: **Medium Quality** 1.25

Name:
[METRIC - System physical characteristic (Completeness & Consistency)]

Description:
N/A

Pattern group(s):
· METRIC - System physical requirements (Completeness & Consistency) (149)

Example:
N/A

Indexable:	Enabled:	Weight:
Yes	Yes	1,100

Syntax:

DEFINITE ARTICLE + Maximum + «PROPERTY AND PHYSICAL CHARACTERISTIC» + PREPOSITION OF + DEFINITE ARTICLE + «SYSTEM ELEMENT» + «MODAL COMPULSORY» + VERB TO BE + Lower + Than +

NOUN or MODAL VERB

«SYSTEM»

Properties:

- Element = { fan }
- Measurement Unit = { watt }
- Physical Property = { power consumption }
- ... And 1 more:

Relationships:

[[«Association»] [C.O. = 0; Forced relationship type = «Association»] : [«SYSTEM ELEMENT»] [C.O. = 0] || [[«PROPERTY AND PHYSICAL CHARACTERISTIC»] NOUN] [C.O. = 0]]

✓ R10 Precision - Open ended (a...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R11 Concision - Superfluous inf...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R15 Non Ambiguity - Incorrect...	★★★★	19	N/A	<input type="checkbox"/>	1
✓ R15 Non Ambiguity - Incorrect...	★★★★	1	N/A	<input type="checkbox"/>	1
✓ R17 Non Ambiguity - Statemen...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R10 Singularity - TRC - Text lan...	★★★★	1	N/A	<input type="checkbox"/>	1

Save and close

Requirement Patterns Guidance



The screenshot displays the REUSE ENGINEERING Studio interface. A central text editor shows the sentence "The capacity of the" with a dropdown menu of suggested terms such as "Accumulator", "Air conditioning system", and "Car body fittings". A green box with the text "Automatic Suggestion of Terms" is overlaid on this area. To the right, a "Correctness metrics summary" panel shows a "Medium Quality" score of 1.25 and lists metrics like "R02 Precision - TRC - Imperative mode (Enforce)" and "R44 Uniformity Of Language - Style guide (Enforce)". At the bottom, a table lists various metrics with their correctness ratings and values.

Metric	Correctness	Value	Summary	Mandatory	Weight
✓ R02 Precision - TRC - Imperativ...	★☆☆	0	At least one imperative verb must be involved	<input type="checkbox"/>	1
✓ R44 Uniformity Of Language - ...	★☆☆	0	The structure of the requirement must follow one of th...	<input type="checkbox"/>	1
✓ R05 Precision - Imprecise quan...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R07 Precision - Vague adverbs...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R08 Precision - Vague adjective...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R10 Precision - Open ended (A...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R11 Concision - Superfluous inf...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R15 Non Ambiguity - Incorrect...	★★★★	19	N/A	<input type="checkbox"/>	1
✓ R15 Non Ambiguity - Incorrect...	★★★★	1	N/A	<input type="checkbox"/>	1
✓ R17 Non Ambiguity - Statemen...	★★★★	0	N/A	<input type="checkbox"/>	1
✓ R19 Singularity - TRC - Text len	★★★★	1	N/A	<input type="checkbox"/>	1





New - REQUIREMENTS ENGINEERING Studio

File View Log

Authoring with pattern 'METRIC - System physical characteristic (Completeness & Consistency)'

METRIC - System physical requirements (Completeness & Consistency) (2) METRIC - System physical characteristic (Completeness & Consistency)

Normal

Font Arial Font Size 12

The capacity of the

- Accumulator
- Air conditioning system
- Auxiliary electric system
- Auxiliary systems
- Battery
- Braking system
- Cabinet
- Cabling
- Car body
- Car body fittings

Matching patterns elements:

Example Source

37 terms

Show numbers

Show optional terms

Weight Pattern name

1100 METRIC - System physical characteristic (Completeness & Consistency)

Correctness metrics summary:

Medium Quality 1.25

Metric	Value
✓ R02 Precision - TRC - Imperative mode (Enforce)	0
✓ R44 Uniformity Of Language - Style guide (Enforce)	0

Real Time Quality Assessment

[Suggest manual assessment](#) Ready

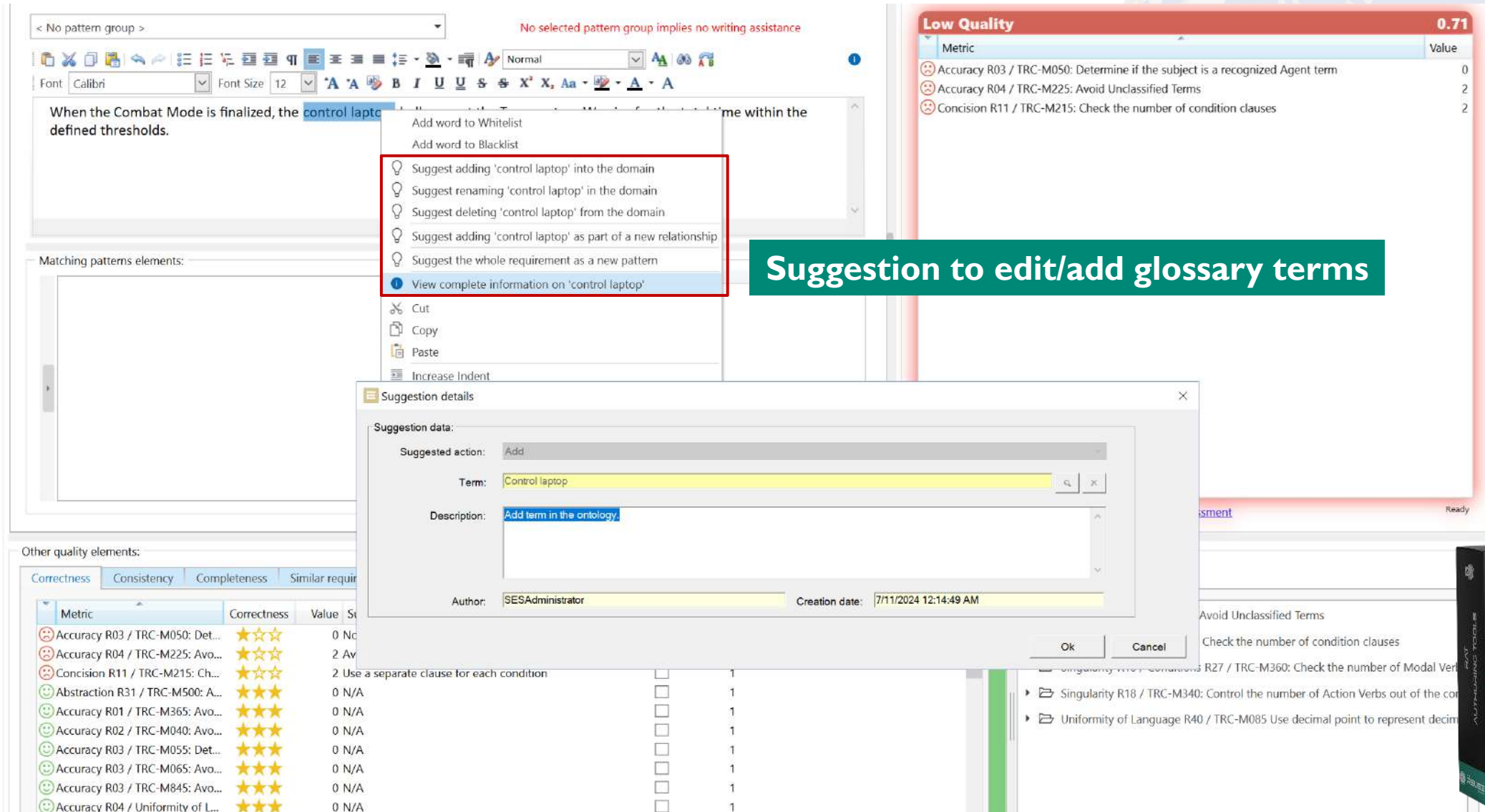
Other quality elements:

Correctness Consistency Completeness Similar requirements Additional attributes Traces Lessons learned Quality forums Syntactic information Formal representation Patterns information

Metric	Correctness	Value	Summary	Mandatory	Weight
✓ R02 Precision - TRC - Imperative...	☆☆☆	0	At least one imperative verb must be involved	<input type="checkbox"/>	1
✓ R44 Uniformity Of Language - ...	☆☆☆	0	The structure of the requirement must follow one of th...	<input type="checkbox"/>	1
✓ R05 Precision - Imprecise quan...	☆☆☆☆	0	N/A	<input type="checkbox"/>	1
✓ R07 Precision - Vague adverbs...	☆☆☆☆	0	N/A	<input type="checkbox"/>	1
✓ R08 Precision - Vague adjective...	☆☆☆☆	0	N/A	<input type="checkbox"/>	1
✓ R10 Precision - Open ended (A...	☆☆☆☆	0	N/A	<input type="checkbox"/>	1
✓ R11 Concision - Superfluous inf...	☆☆☆☆	0	N/A	<input type="checkbox"/>	1
✓ R15 Non Ambiguity - Incorrect...	☆☆☆☆	19	N/A	<input type="checkbox"/>	1
✓ R15 Non Ambiguity - Incorrect...	☆☆☆☆	1	N/A	<input type="checkbox"/>	1
✓ R17 Non Ambiguity - Statemen...	☆☆☆☆	0	N/A	<input type="checkbox"/>	1
✓ R19 Singularity - TRC - Text lan...	☆☆☆☆	1	N/A	<input type="checkbox"/>	1

Save and close





Suggestion to edit/add glossary terms

Low Quality 0.71

Metric	Value
Accuracy R03 / TRC-M050: Determine if the subject is a recognized Agent term	0
Accuracy R04 / TRC-M225: Avoid Unclassified Terms	2
Concision R11 / TRC-M215: Check the number of condition clauses	2

Suggestion details

Suggestion data:

Suggested action: Add

Term: Control laptop

Description: Add term in the ontology.

Author: SESAdministrator

Creation date: 7/11/2024 12:14:49 AM

Other quality elements:

Metric	Correctness	Value	St...
Accuracy R03 / TRC-M050: Det...	☆☆☆	0	Nc
Accuracy R04 / TRC-M225: Avo...	☆☆☆	2	Av
Concision R11 / TRC-M215: Ch...	☆☆☆	2	Use a separate clause for each condition
Abstraction R31 / TRC-M500: A...	☆☆☆	0	N/A
Accuracy R01 / TRC-M365: Avo...	☆☆☆	0	N/A
Accuracy R02 / TRC-M040: Avo...	☆☆☆	0	N/A
Accuracy R03 / TRC-M055: Det...	☆☆☆	0	N/A
Accuracy R03 / TRC-M065: Avo...	☆☆☆	0	N/A
Accuracy R03 / TRC-M845: Avo...	☆☆☆	0	N/A
Accuracy R04 / Uniformity of L...	☆☆☆	0	N/A





Demo #2 : Requirements Authoring Assistance

- Edit a requirement
- Check the metrics rating in real time and Use pattern assistance
 - Update your requirement





- Systems Engineering is an **iterative and recursive** endeavor to develop **requirements** and **architecture** gradually (recursively).
- This implies the use of **different tools** (RM tools and MBSE tools), to either **transfer requirements** between one tool and the other, or to **trace requirements and model elements** between these 2 different tools (or both things at the same time).
- Learn more about this Systems Engineering pattern, and discover how to seamlessly **interoperate different RM and MBSE tools** to accomplish it.

Dates: September 11th & 12th, 2024

Link to the Registration:

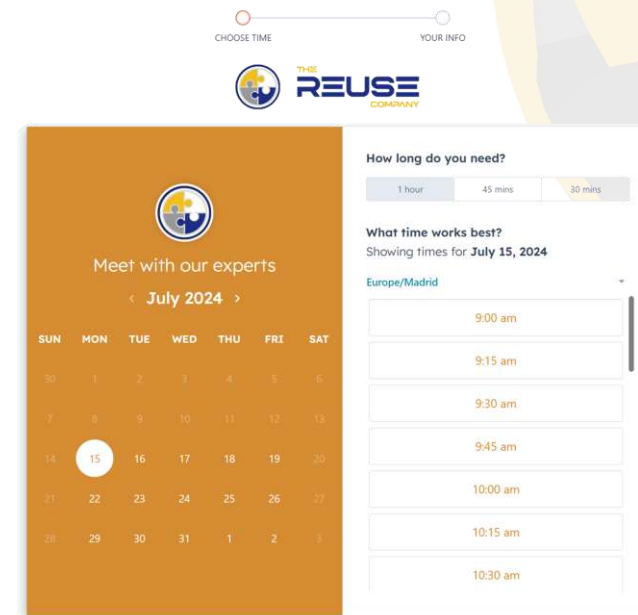
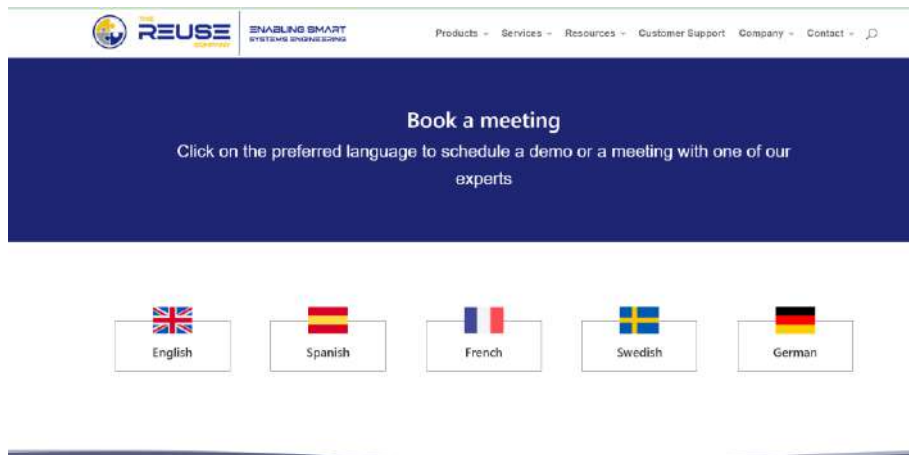
<https://www.reusecompany.com/webinars/mbse-zig-zag-pattern-a-theoretical-and-practical-approach>





Willing to go further? You have different options!

- Book a meeting with a consultant








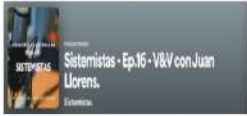






- Requirements Analysis Service : <https://www.reusecompany.com/personalized-requirements-analysis>
- Request a trial license : contact@reusecompany.com
- Get further information...



- www.reusecompany.com
- Information about the Systems Engineering Suite
- Resources (Webinars, handbooks)
- Request for demo
- Support Forum

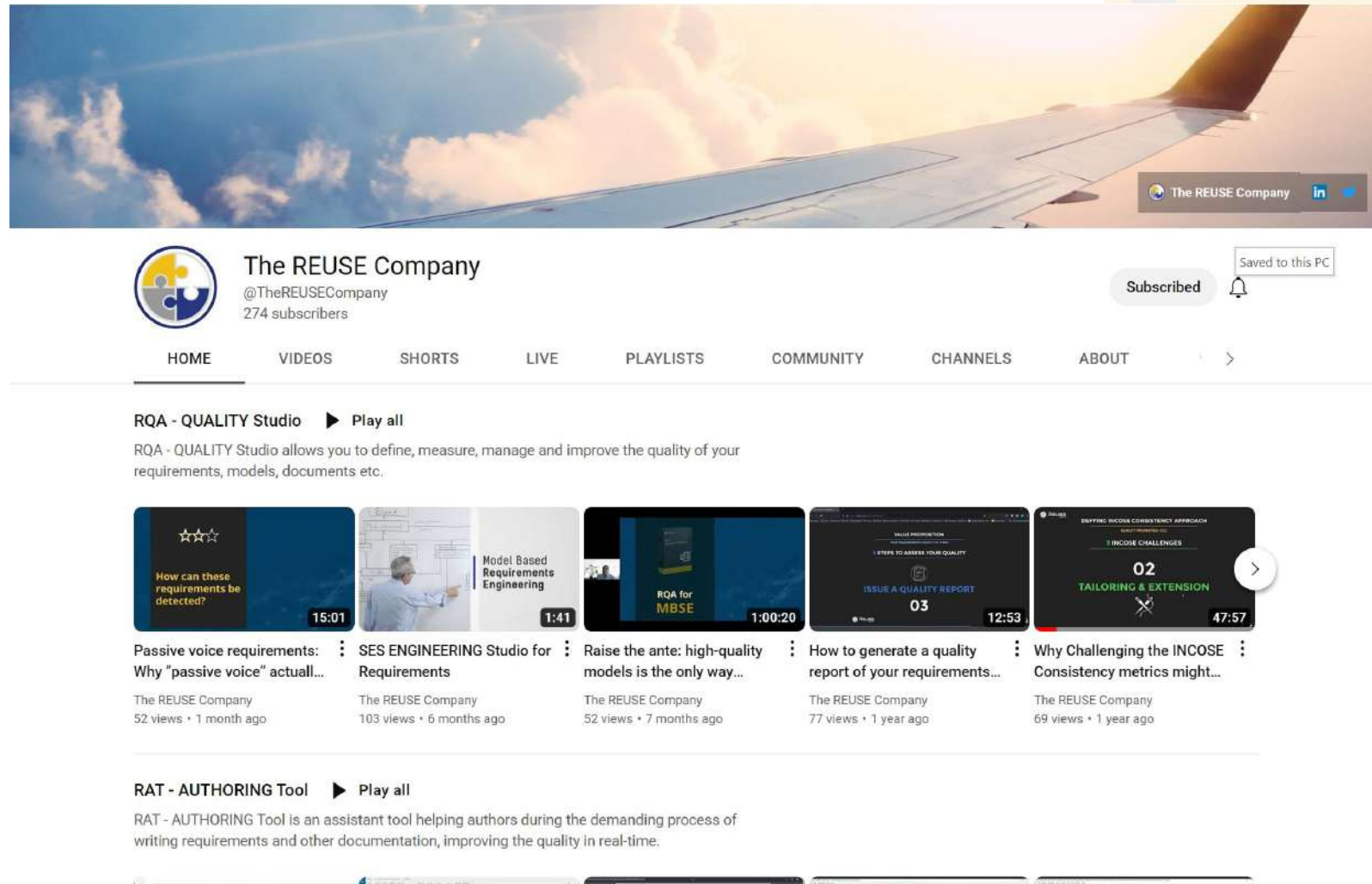
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 <p>Requirements management through AIIG Contracts 15'</p>	 <p>Connecting the Dots: Interoperability between your favourite Systems Engineering tools 15'</p>	 <p>Semantic traceability: how to keep the digital thread all along the SE lifecycle 15'</p>	 <p>The MBSE Podcast Trust us we are Systems Engineers MBSE around the world: Spain with Juan Llorens 15'</p>
 <p>Passive voice requirements: Why "passive voice" actually can become a nightmare 15'</p>	 <p>(In Spanish) Invitados al podcast 'Sistemistas': V&V ¿Qué es qué? 15'</p>	 <p>Connecting textual requirements and Capella models (Invited presenters) 15'</p>	 <p>Requirements Management: Managing data over entire life cycles 15'</p>
 <p>How to kick off your KM – KNOWLEDGE Management project 15'</p>	 <p>Taming the System Engineering Life cycle using Connectivity and Interoperability: the SES ENGINEERING Studio 15'</p>	 <p>Raise the ante: high-quality models is the only way forward after high-quality requirements 15'</p>	 <p>Digitalizing the V&V process on both sides of the V-Model 15'</p>

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RQA - QUALITY Studio allows you to define, measure, manage and improve the quality of your requirements, models, documents etc.

 <p>How can these requirements be detected?</p> <p>15:01</p>	 <p>Model Based Requirements Engineering</p> <p>1:41</p>	 <p>RQA for MBSE</p> <p>1:00:20</p>	 <p>ISSUE A QUALITY REPORT</p> <p>03</p> <p>12:53</p>	 <p>02 TAILORING & EXTENSION</p> <p>47:57</p>
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RAT - AUTHORING Tool ▶ Play all

RAT - AUTHORING Tool is an assistant tool helping authors during the demanding process of writing requirements and other documentation, improving the quality in real-time.



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