

WEBINAR RULES

- You'll be **muted** all along the Webinar
- There's a '**Question**' section to ask your questions whenever you want, you don't need to wait until the end. All questions will be addressed at the **end of the webinar**.
- If you have any **technical issues** please use this chatting box, or mail us at: support@reusecompany.com
- You will receive a survey either after the webinar or by mail. Your **opinion** is **EXTREMELY VALUABLE!**
- The Webinar **will be recorded**. A link to the recording will be **sent to you** in few days.



STARTING SOON

09:00

CET

REQUIREMENTS MANAGEMENT IN MS WORD

LEARN FAST, COLLABORATE SMARTER





01

What we DO

- The REUSE Company is a solution provider specialized in the
- application of semantic technologies and artificial intelligence to
- improve the digitalization of the Systems Engineering life cycle.





Ilyes Yousfi



- **Current position:** Senior Consulting Engineer - The REUSE Company
- Master's degree from the University of Montreal (Canada) and the IMT Atlantique School of Engineering (France). Background in energy and mechanical engineering
- Involved in a research project around the environmental impacts of end-of-life management of aircrafts (2014)
- Consulting services to help industry actors leverage Systems Engineering activities.
- Active member of INCOSE – ASEP Certified
- Major contributor of the Requirements Working Group's INCOSE Guide to Writing Requirements (v4)
- Co-author of the book Real-time quality assessment of the INCOSE Guide for Writing Requirements Rules :A Tailoring Guide, by the REUSE Company.
- Passionate about international projects and learning languages, Ilyes speaks 4 languages fluently: English, French, German and Spanish.

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 - Bridging the gap between MS Word and Requirements Engineering
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 - Meet REx, the SES ENGINEERING Studio Add-in for MS Word
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 - Next webinar announcement
 - Conclusion

INTRODUCTION

COLLABORATIVE ENVIRONMENTS IN SYSTEMS ENGINEERING



➤ **Modern SE: Increasing complexity**

- Complex systems
- Complex organizations
- Complex toolchains

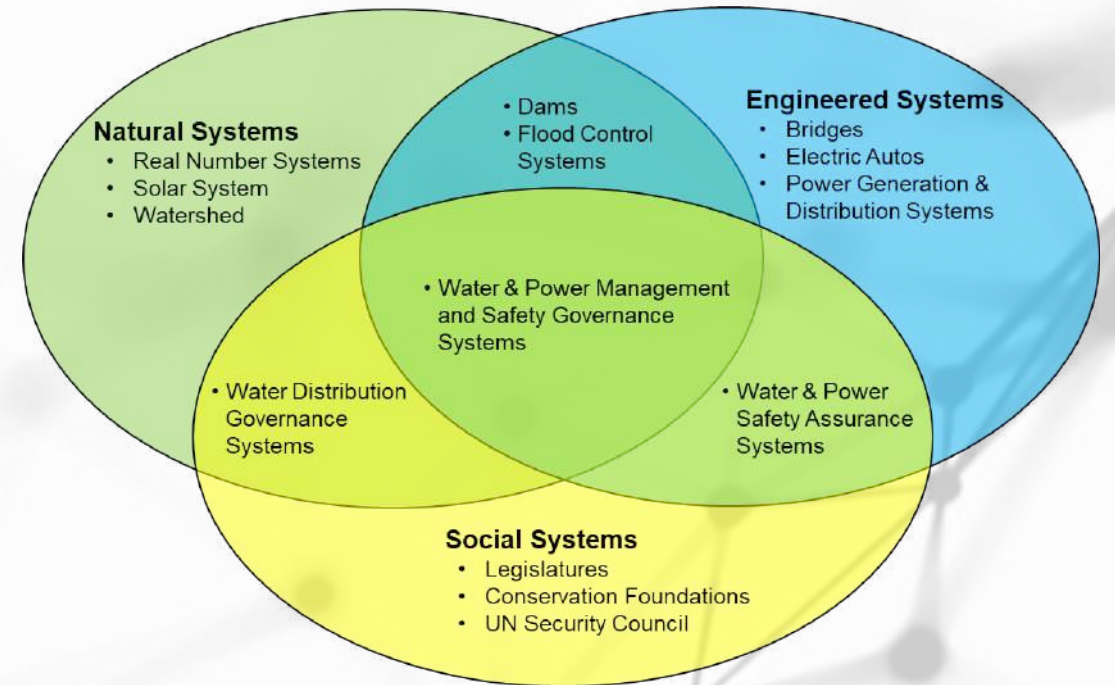
➤ **Modern SE: Increasing complexity**

➤ **Complex systems**

➤ **Systems of Systems (SoS) : a system whose elements are independent systems.**

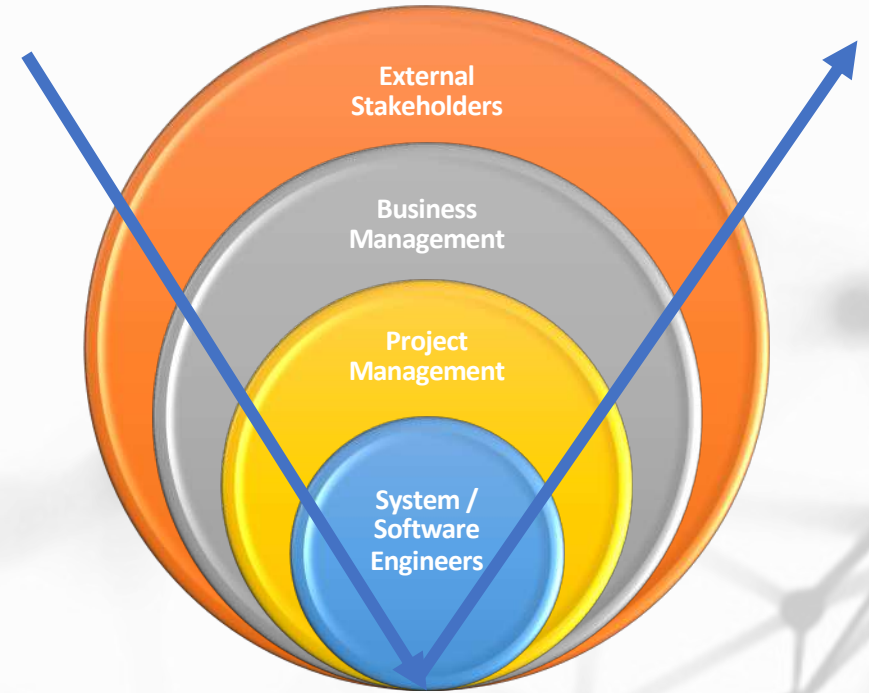


Source: INCOSE SE Vision 2020

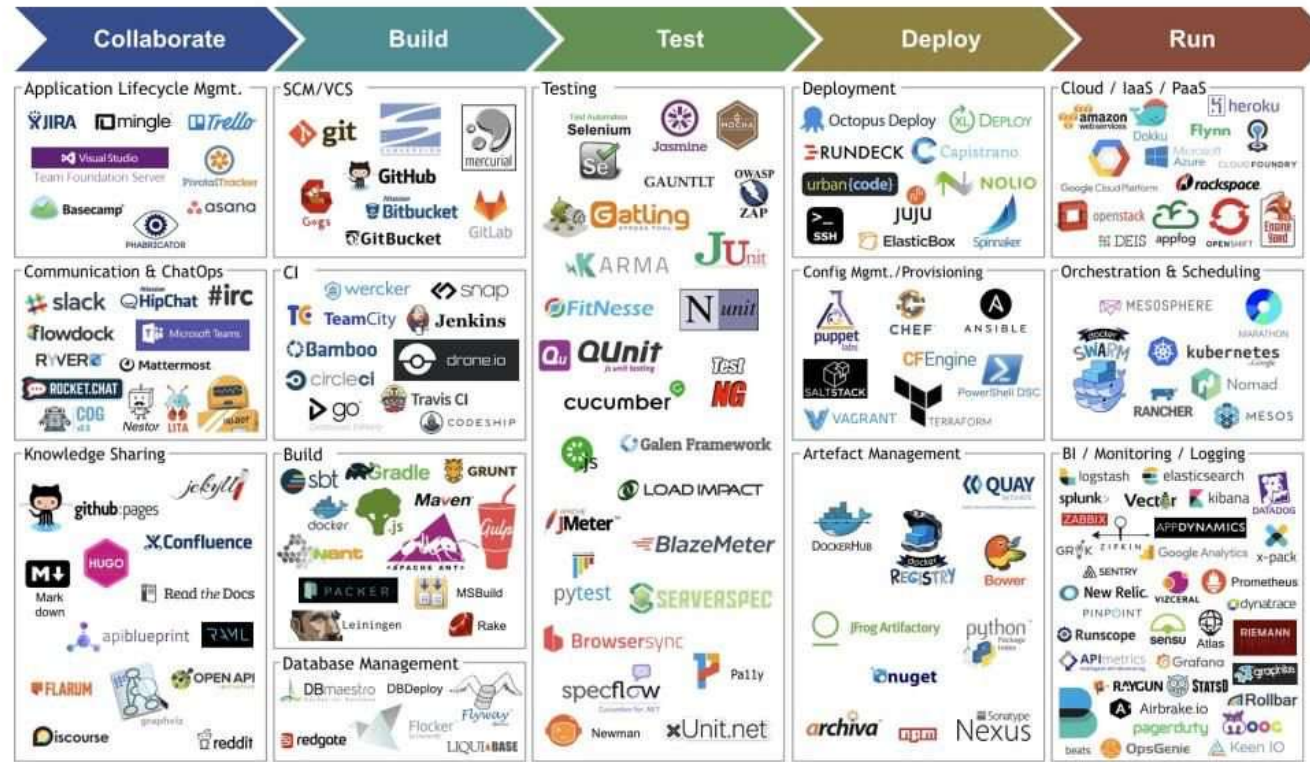


Acknowledgement: INCOSE BKCASE

- **Modern SE: Increasing complexity**
 - **Complex organizations**
 - Diversity of stakeholders: The onion diagram
 - Need to work **across** entities and beyond a single company / business unit.



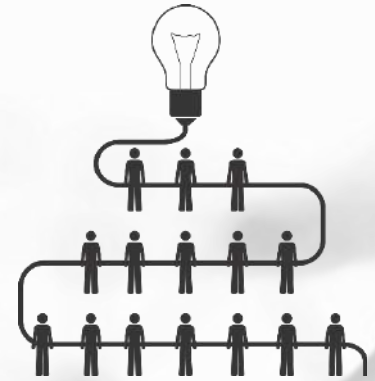
- **Modern SE: Increasing complexity**
 - **Complex toolchains**
 - The increasing complexity of systems and organizations gives rise to **complex toolchains**



This Photo by Unknown Author is licensed under CC BY-SA

COLLABORATION

= Working **together** to achieve a **common** goal



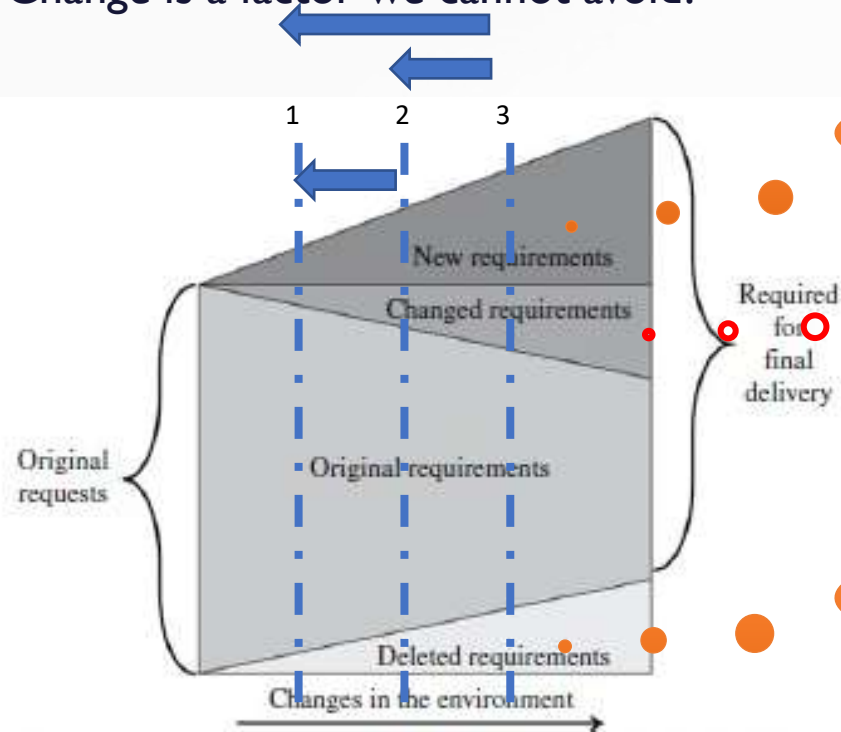
Together...

- Avoiding siloed entities and enhancing **cross-domain** teams
- Enabling common platforms for **multidisciplinary** contributions and **sharing** knowledge

Common...

- Meeting the **organization's** business objectives, **stakeholder** needs and the overall **project's** schedule.

- Key process to mitigate the risks of change, which are **multiplied** in collaborative environments!
- Change is a factor we cannot avoid!



Are these new requirements necessary?

Am I introducing conflicts?

May this new version underspecify the system?



FIGURE 5.9 Requirements changes are inevitable. Derived from (Forsberg et al., 2005) Figure 9.3. Reprinted with permission from Kevin Forsberg. All other rights reserved.

Agile principle (from the Agile Manifesto): “Welcome changing requirements, even late in the development. Agile processes harness change for the customer’s competitive advantage.”

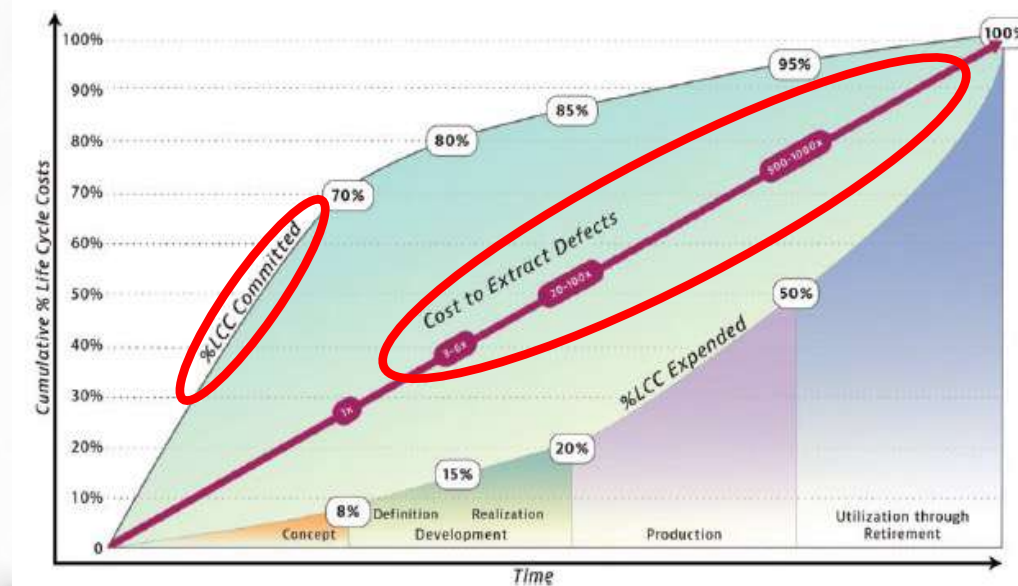
BRIDGING THE GAP BETWEEN MS WORD AND REQUIREMENTS ENGINEERING





➤ Requirements = **The lifeblood for Systems Engineering**

- Design input and technical expression of stakeholder/user needs
- System verification criteria
- Validation of the system requirements and underlying design, implementation and operating systems.
- A high cost if overlooked...



Life cycle costs and defect costs against time. INCOSE SEHB original figure by Walden derived from DAU (1993).

➤ Why MS Word for Requirements Engineering ?

➤ The clash of 2 approaches :

1) Make users adopt a standard requirements management tool:

- Limited access to licenses :
 - Number
 - External users : Contractors, suppliers
- Steep learning curve
- Resistance to change working environments / company standard

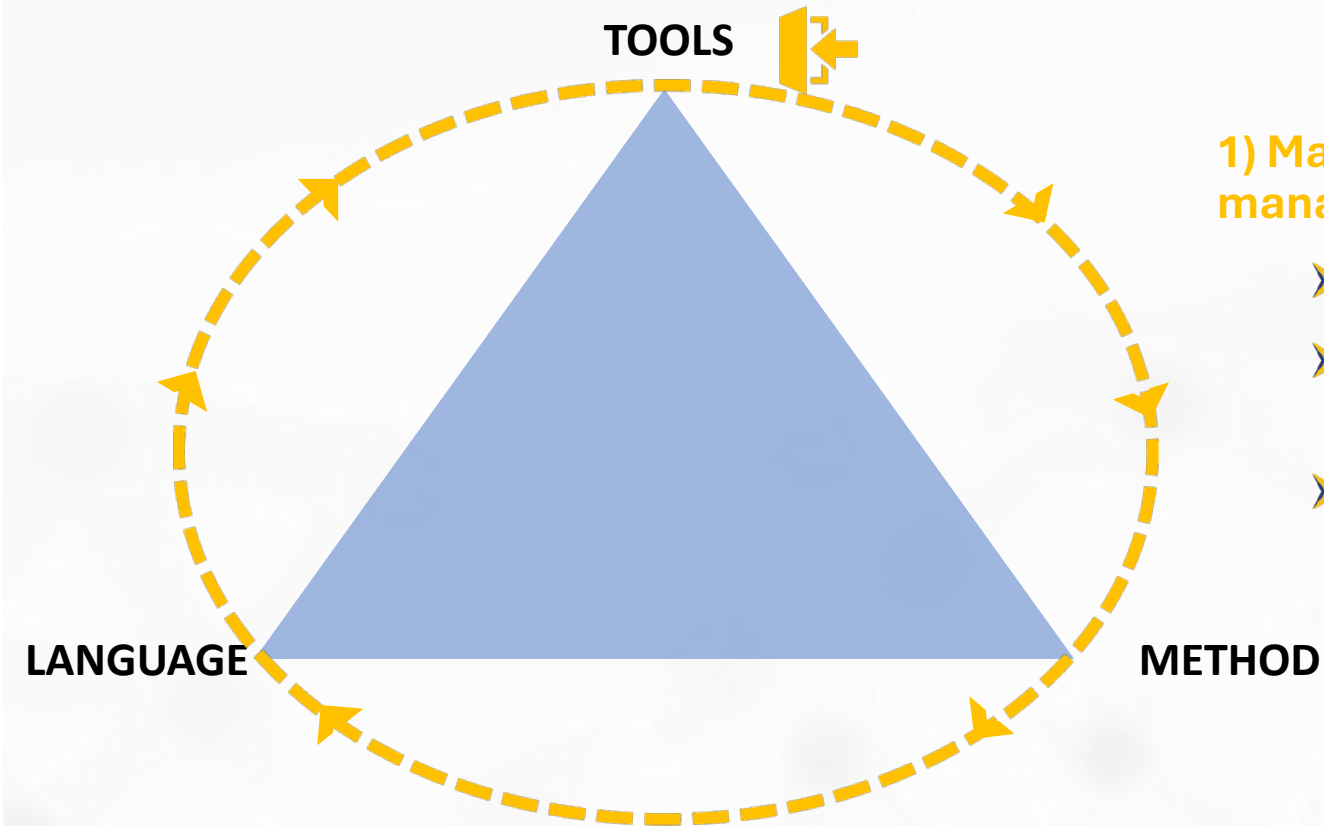
➤ Why MS Word for Requirements Engineering ?

➤ The clash of 2 approaches :

2) Bring requirements management features to MS Word:

- + ➤ User-friendliness, broader audience / user base
 - Involves more stakeholders in **early phases of system development** (“High level requirements” from which the design input is defined).
 - **Early detection of defects and inconsistencies and reduced risk of rework!**
- + ➤ Instil a common requirements management framework at higher scale:
 - Writing rules, attributes management, change & conflict management, workflows...
- + ➤ Extend the digital thread to meet both ends of the V model

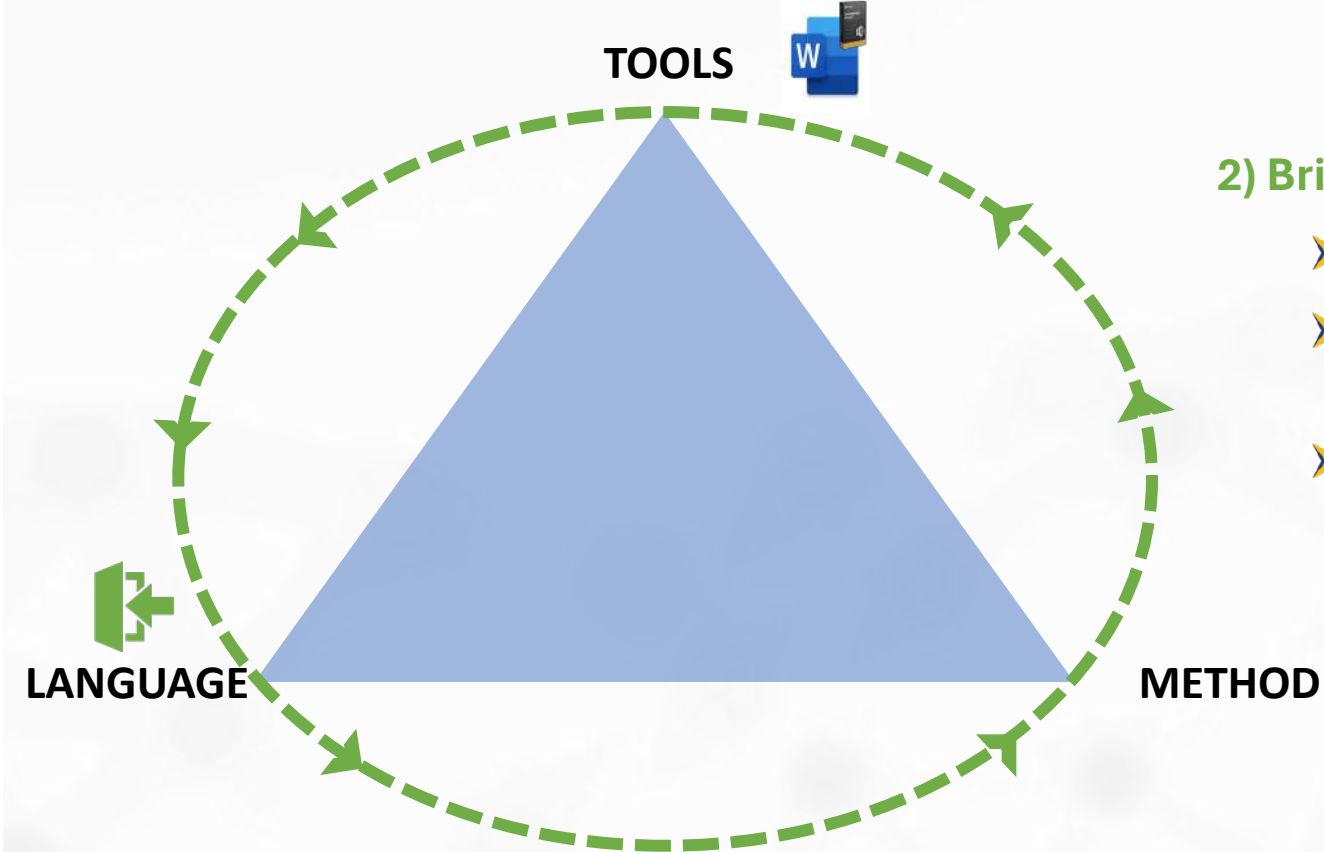
➤ TOOL-METHOD-LANGUAGE Triangle:



1) Make users adopt a standard requirements management tool:

- *Tool:* Requirements Management Tool, ALM, PLM, etc.
- *Method:* application is linked to the tool learning curve and **adoption rate**
- *Language:* Natural Language, tool's internal data model, ReqIF...

➤ TOOL-METHOD-LANGUAGE Triangle:

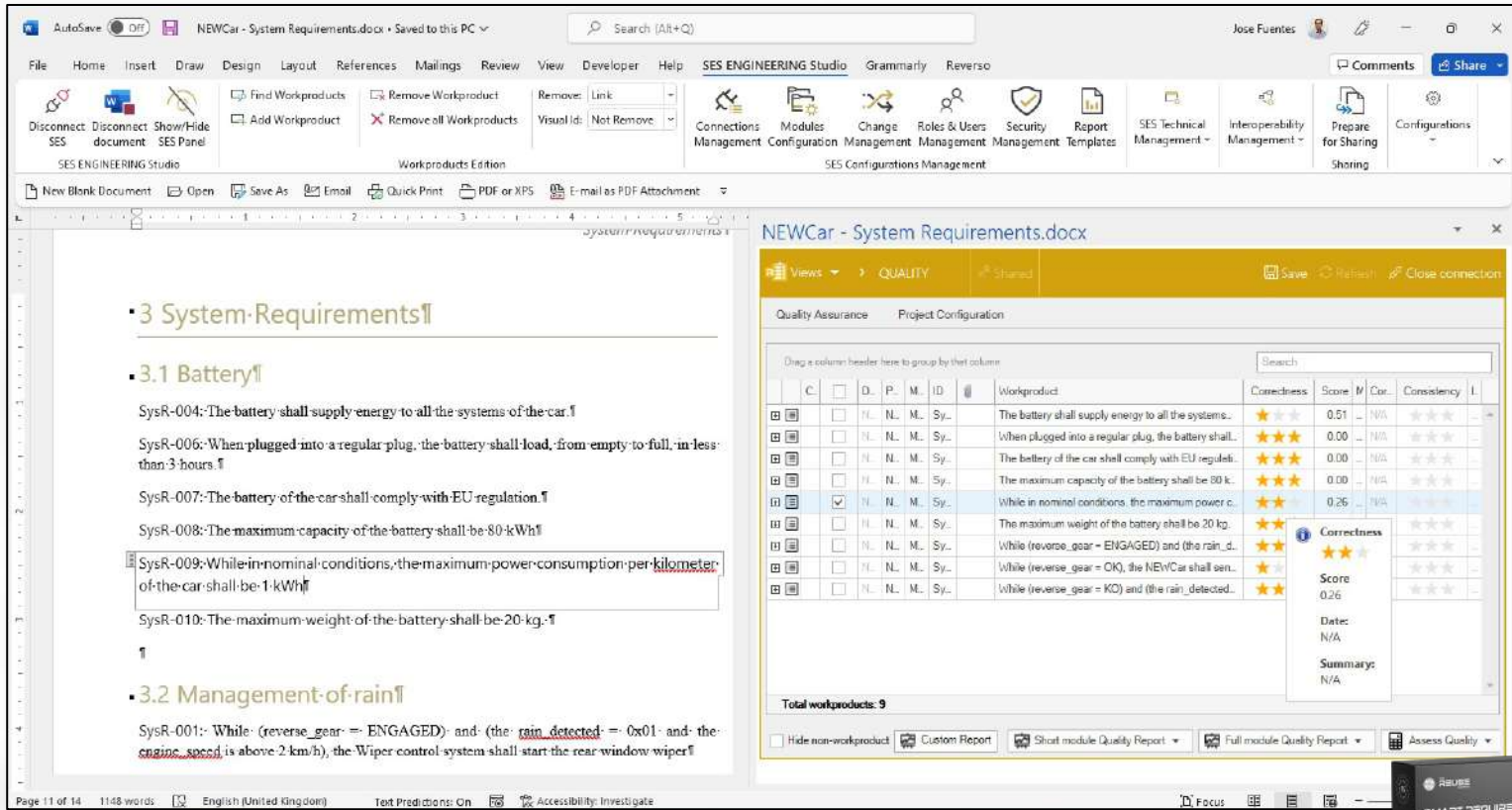


2) Bring requirements management features to MS Word:

- *Language:* **Natural Language**
- *Method:* Fast-track requirements management principles, agile / flexible, broader audience
- *Tool:* MS Word with **SES ENGINEERING Studio add-in**

**MEET THE
SES ENGINEERING STUDIO
ADD-IN
FOR
MS WORD**





- 1 Create a requirements document.
- 2 Parsing existing documents.
- 3 Attribute management in MS Word.
- 4 Baselines and versions
- 5 Requirements Quality
- 6 Traceability with other documents, sources and models.
- 7 Interoperating with other tools.
- 8 Propagating changes in requirements to other sources.
- 9 Collaborative Change Management.



➤ Webinar Series: “Boosting Requirements Management Capabilities for MS Word”

- 9 short episodes (15-20 minutes each)



Webinar series



| Capability | IBM DOORS | MSWord | MSWord with SES Add-in |
|--------------------------|-----------|--------|------------------------|
| Object boundaries | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| ID management | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Attribute management | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Tracing | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Data Quality | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Reporting/Doc generation | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Co-working capability | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Security management | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Change Management | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Versioning/baselining | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Licensing | ★ ★ ★ | ★ ★ ★ | ★ ★ ★ |
| Σ | 22 | 8 | 29 |



IBM DOORS



➤ Embedded capabilities of SES ENGINEERING Studio : Quality

The screenshot displays the SES ENGINEERING Studio Quality Assurance interface within a Microsoft Word document titled 'TW - SYSR.docx'. The interface features a ribbon with various quality assurance tools and a central table of workproducts.

Quality Assurance Interface:

- Views:** QUALITY
- Quality Assurance Tools:** Module selector, Current state, Snapshot, Evolution scoreboard, Workproducts, Metrics, Charts, Correctness, Consistency, Completeness, Repository, Suggestions.

Workproducts Table:

| C. | Project | Module | ID | Workproduct name | Correctness | Score | M. | Correctn. | Consistency | Is... |
|-------------------------------------|----------|---------|-------|---|-------------|-------|----|-----------|---|-------|
| <input checked="" type="checkbox"/> | Projec.. | Modul.. | SysR1 | While the Temperature Warrior is in Combat Mode, the Temperat.. | ★★★★★ | 0.00 | 0 | 20/01/2.. | ★★★★★ | N.. |
| <input checked="" type="checkbox"/> | Projec.. | Modul.. | SysR2 | While the Temperature Warrior is in Combat Mode, the Temperat.. | ★★★★★ | 0.00 | 0 | 20/01/2.. | ★★★★★ | N.. |
| <input checked="" type="checkbox"/> | Projec.. | Modul.. | SysR3 | While the Temperature Warrior is in Combat Mode, the Temperat.. | ★★★★★ | 0.00 | 0 | 20/01/2.. | ★★★★★ | N.. |
| <input checked="" type="checkbox"/> | Projec.. | Modul.. | SysR4 | While the Temperature Warrior is in Combat Mode, the Temperat.. | ★★★★★ | | | | Assess CCC for the whole specification | |
| <input checked="" type="checkbox"/> | Projec.. | Modul.. | SysR5 | While the Temperature Warrior is in Combat Mode, the Temperat.. | ★★★★★ | | | | Assess correctness for the whole specification | |
| <input checked="" type="checkbox"/> | Projec.. | Modul.. | SysR6 | While the Temperature Warrior is in Combat Mode, the Temperat.. | ★★★★★ | | | | Assess completeness for the whole specification | |
| <input checked="" type="checkbox"/> | Projec.. | Modul.. | SysR7 | While the Temperature Warrior is in Combat Mode, the Temperat.. | ★★★★★ | | | | Assess consistency for the whole specification | |

Summary: Total workproducts: 132

Actions: Hide non-workproduct, Custom report, Short module quality report, Full module quality report, Assess quality, Author work-product

➤ Embedded capabilities of SES ENGINEERING Studio : V&V

The screenshot displays the Microsoft Word interface with the SES ENGINEERING Studio V&V (Verification and Validation) tool embedded. The main document window shows a section titled "2 Requirements" with the following text:

This section includes the system requirements specification concerning the entire system (*Temperature Warrior*).

- SysR1 - While the Temperature Warrior is in Combat Mode, the Temperature Warrior shall measure the physical environment temperature.
- SysR2 - While the Temperature Warrior is in Combat Mode, the Temperature Warrior shall modify the physical environment temperature.
- SysR3 - While the Temperature Warrior is in Combat Mode, the Temperature Warrior shall increase the physical environment temperature.
- SysR4 - While the Temperature Warrior is in Combat Mode, the Temperature Warrior shall decrease the physical environment temperature.
- SysR5 - While the Temperature Warrior is in Combat Mode, the Temperature Warrior shall register the time in which the temperature of the sensor is within the defined

The V&V Assurance tool interface on the right includes a "Verification View" table with the following data:

| Variable item | Verification Phase | V.. | Verifi |
|--|--------------------|-------------|--------|
| <input checked="" type="checkbox"/> While the Temperature Warrior is in C... | | Suggested | ✓ |
| <input type="checkbox"/> While the Temperature Warrior is in C... | | Not treated | |
| <input type="checkbox"/> While the Temperature Warrior is in C... | | Not treated | |
| <input type="checkbox"/> While the Temperature Warrior is in C... | | Not treated | |
| <input type="checkbox"/> While the Temperature Warrior is in C... | | Not treated | |
| <input type="checkbox"/> While the Temperature Warrior is in C... | | Not treated | |

Below the table, the tool shows "Total workproducts: 132" and a list of actions including "Evaluate all", "Evaluate selected", "Set selected to Yes", "Set selected to No", "Set selected to N/A", "Set selected to On Going", "Accept suggested for selected", "Accept all suggestions", "Delete selected Verification action", and "Delete all actions".

➤ Embedded capabilities of SES ENGINEERING Studio : Traceability

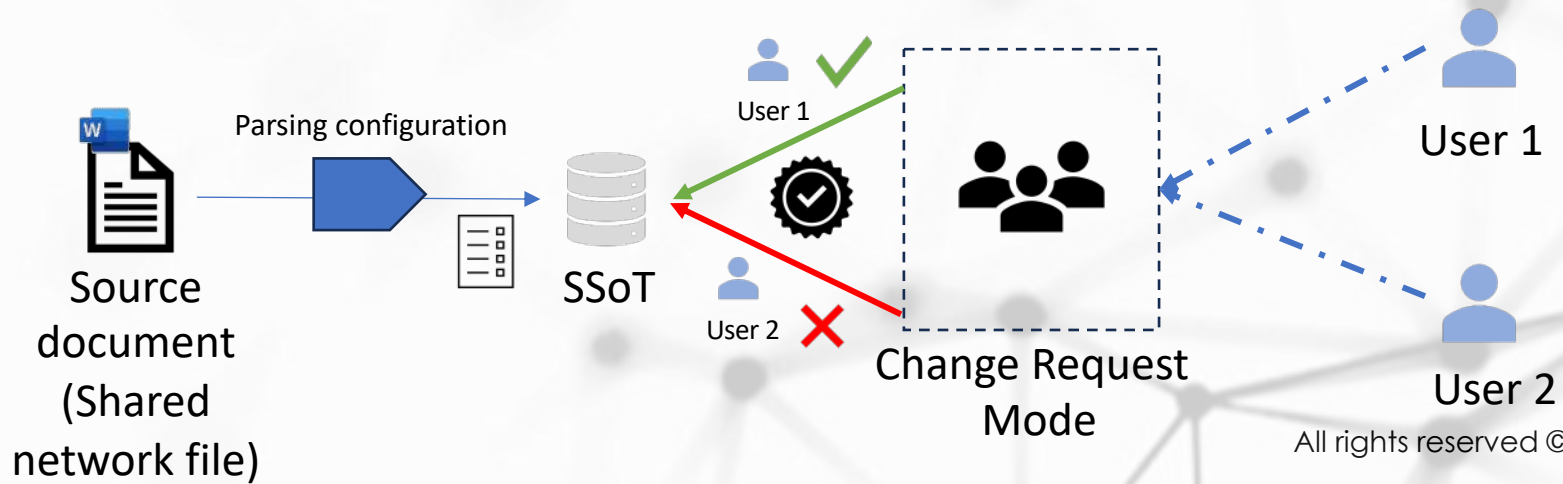
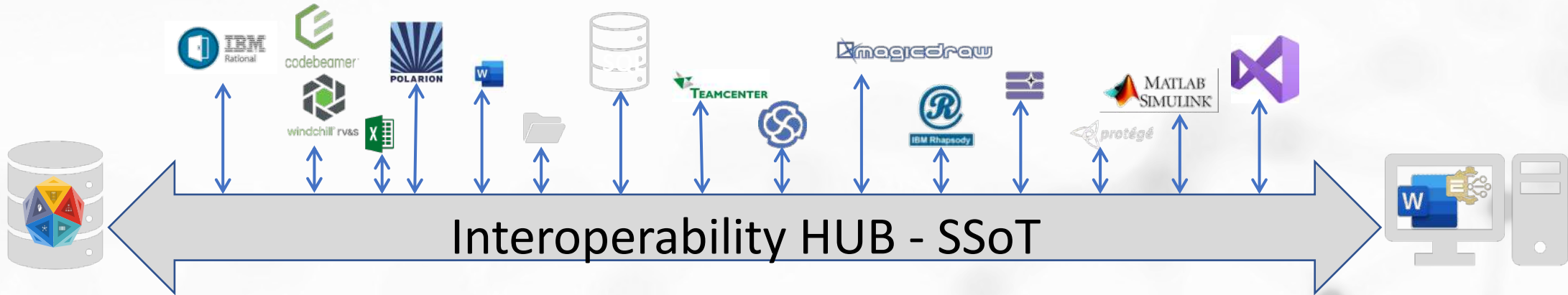
The screenshot shows the SES ENGINEERING Studio interface. The 'Traceability Management' menu item is highlighted in red. The interface includes a ribbon with various tools, a 'Traceability Management' pane at the bottom, and a table of workproducts.

| State in the ontology | Visual Workproduct ID | Description |
|-----------------------|------------------------|--|
| Updated | Module - TW - SoW.docx | |
| Loaded | GOAL-001 | Develop a system involving hardware, firmware |
| Loaded | GOAL-002 | Develop a system capable of managing the air |
| Loaded | GOAL-003 | The system developed must maintain the temp |
| Loaded | GOAL-004 | The system developed shall combat against oil |
| Loaded | GOAL-005 | Complete the development with minimum reso. |
| Loaded | GOAL-006 | Complete the development according to the air |
| Loaded | GOAL-007 | The system shall record all the project docume |

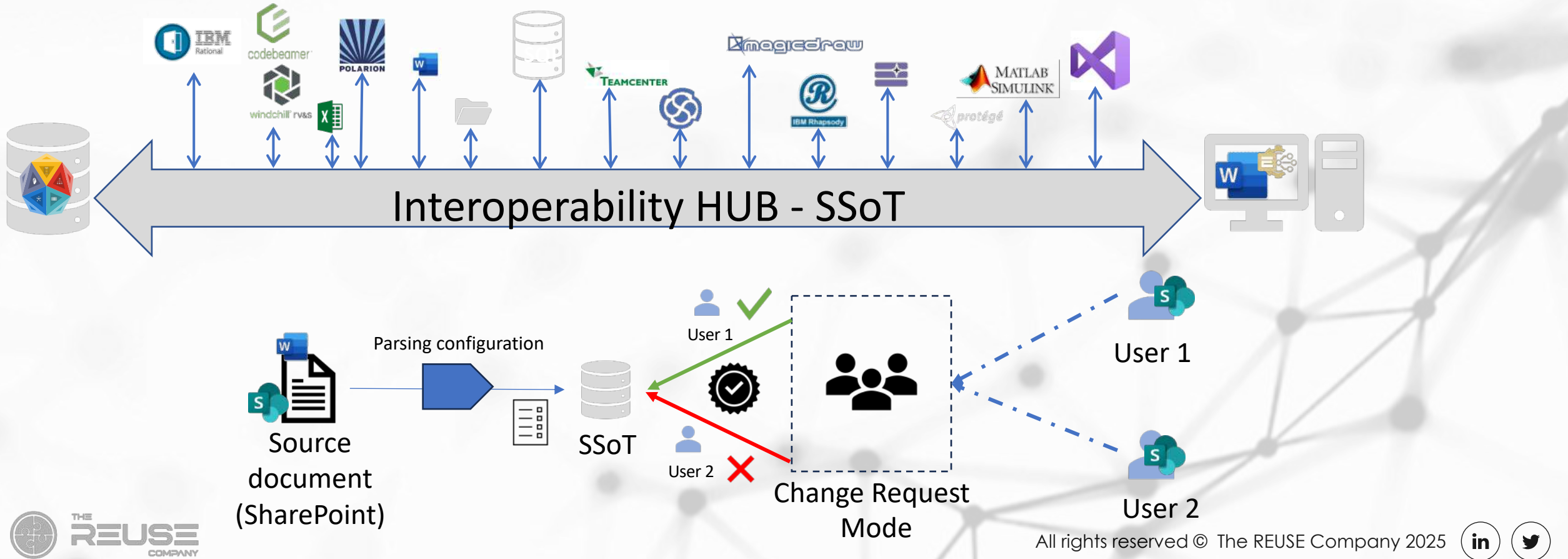
The screenshot shows the SES ENGINEERING Studio interface with the 'Traceability Management' pane open. The pane displays a table of traces and a list of traceability projects.

| Id | Source Id | Target Id | Source | Target | State | Trace type | Created by | Created on | Last modified by | Last modified on | Rationale |
|------|-----------|-----------|---------------------------------|---|------------|------------|------------------|----------------------|------------------|----------------------|-----------|
| 2650 | GOAL-002 | SysR106 | Develop a system capable of... | When the Temperature Warior is in Com... | Consistent | +Denies | SESAdministrator | 1/20/2022 3:51:10 PM | SESAdministrator | 1/20/2022 3:51:10 PM | |
| 2651 | GOAL-002 | SysR106 | Develop a system capable of... | E When the Temperature Warior is in th... | Consistent | +Denies | SESAdministrator | 1/20/2022 3:54:42 PM | SESAdministrator | 1/20/2022 3:57:22 PM | |
| 2652 | GOAL-002 | SysR107 | Develop a system capable of... | When the Temperature Warior is in the... | Consistent | +Denies | SESAdministrator | 1/20/2022 3:54:42 PM | SESAdministrator | 1/20/2022 3:54:42 PM | |
| 2653 | GOAL-002 | SysR112 | Develop a system capable of... | When the Temperature Warior is in the... | Consistent | +Denies | SESAdministrator | 1/20/2022 3:54:42 PM | SESAdministrator | 1/20/2022 3:54:42 PM | |
| 2654 | GOAL-002 | SysR128 | Develop a system capable of... | When the Temperature Warior is in the... | Consistent | +Denies | SESAdministrator | 1/20/2022 3:58:30 PM | SESAdministrator | 1/20/2022 3:58:30 PM | |
| 2655 | GOAL-005 | SysR125 | Complete the development wit... | When the Temperature Warior is in the... | Consistent | +Denies | SESAdministrator | 1/20/2022 3:59:22 PM | SESAdministrator | 1/20/2022 3:59:22 PM | |

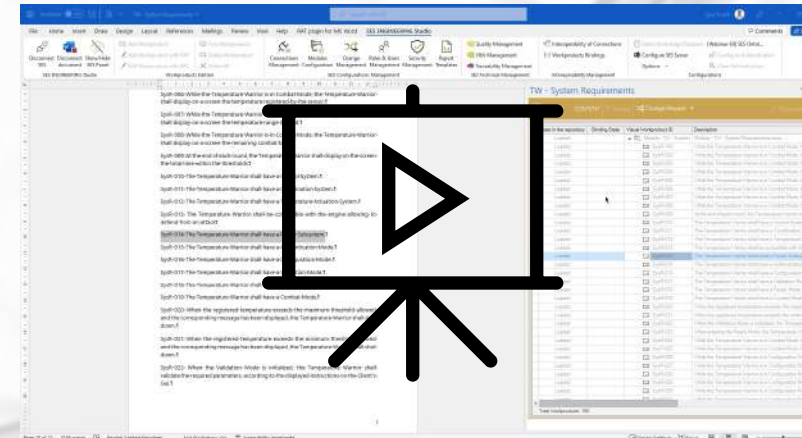
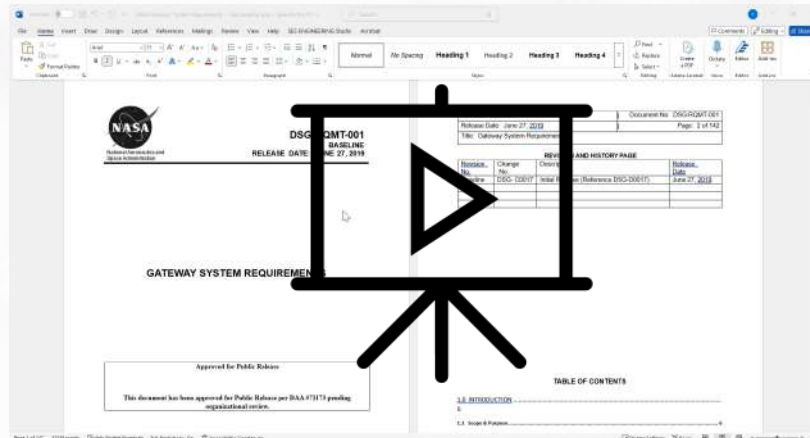
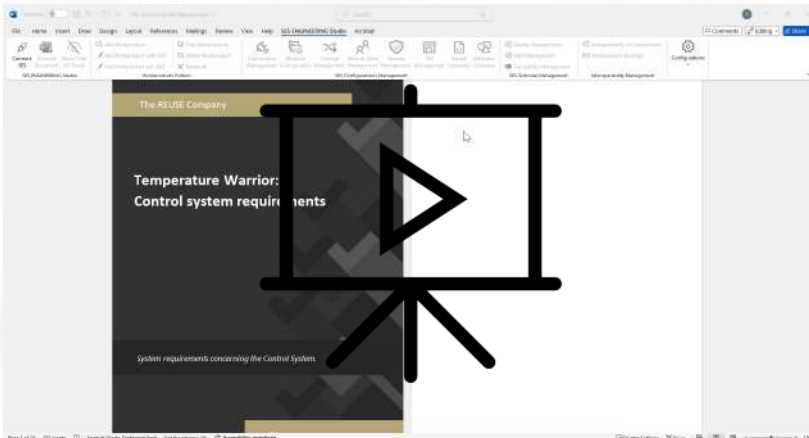
- 2 Users accessing a document to edit
 - Document is stored in a shared network
 - Synchronized into a common repository (SSoT = Synchronized Source of Truth)



- 2 Users accessing a document to edit
 - Document is stored in a shared network
 - Synchronized into a common repository (SSoT = Synchronized Source of Truth)



- Convert your document in a set of engineering configuration items.
- User roles & access level configuration
- Change Request Mode
 - Individual Change Proposal (User suggesting a change to 1 object)
 - Change Request resolution (Approve/Decline)





Q & A

➤ **SAVE THE DATE:**

-----April 3, 2025-----

Why you should join:

- Updates about the SES Integration with Capella MBSE & related features
- Synchronization from/to other SE tools through Interoperability functions.



Jose Fuentes
 Chief Sales Manager of The REUSE Company

- Former Product Manager of RQA and the Systems Engineering Suite
- INCOSE CSEP Certified
- Graduated in the INCOSE Institute for Technical Leadership
- Member of the board of AEIS – The Spanish chapter of INCOSE
- Active contributor to the INCOSE Guide to Writing Requirements
- Other certifications: ITIL
- Other interests: Project Management, Business Analysis, Risk Management

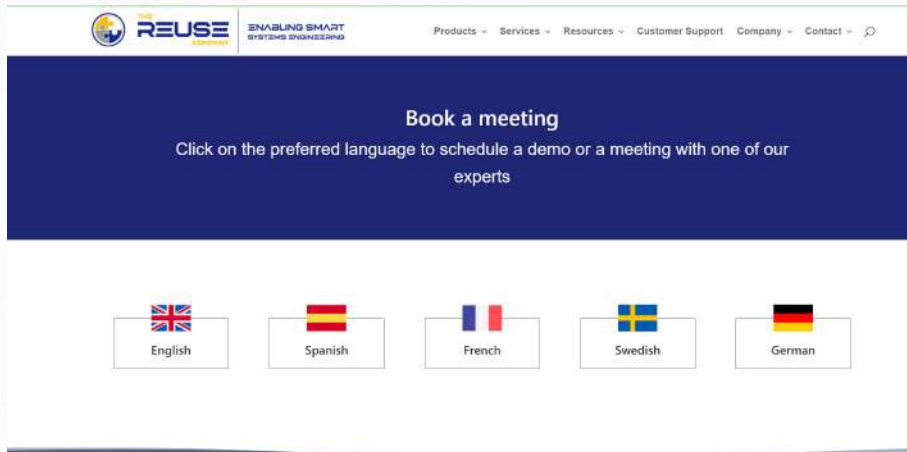


Ilyes Yousfi
 Sales & Consulting Engineer

- Member of INCOSE (AEIS - Spanish Chapter) and INCOSE ASEP Certified
- Active major contributor to the "INCOSE Guide to Writing Requirements" from INCOSE's Requirements Working Group
- Co-author of "Real-time quality assessment of the INCOSE Guide to Writing Requirements : A Tailoring Guide" by the REUSE Company
- 8+ years of experience supporting projects to enable a synchronized source of truth / digital thread and to improve requirements quality in companies of different industries : Aerospace/defense, automotion, biotech, etc.

➤ **Willing to go further? You have different options!**

➤ **Book a meeting with a consultant**



➤ **Requirements Analysis Service :**

<https://www.reusecompany.com/personalized-requirements-analysis>

➤ **Trial license request:** contact@reusecompany.com

➤ **Get further information...**



The screenshot shows the website for The REUSE Company. At the top left is the logo with the tagline "ENABLING SMART SYSTEMS ENGINEERING". Navigation links for "Resources", "Support", "Company", and "Contact" are visible. The main heading is "Software Tools for Digitizing the Systems Life Cycle Management". Below this, three bullet points describe the company's focus: "Inter-connecting the complete Tools Ecosystem of your organization", "Enabling digital support to all the Technical Management processes (ISO 15288) for the engineering items of your tools ecosystem", and "Integrating document centric (Documentation), knowledge driven (Reuse) and model-based (MBSE) approaches in one Hub". A large white box at the bottom contains the text: "Systems Engineering Tools and Solutions for System Life cycle Management based on Connectivity, Interoperability and Reuse".

www.reusecompany.com



The screenshot shows the YouTube channel for The REUSE Company. The channel name is "The REUSE Company" with the handle "@TheREUSECompany" and 289 subscribers. The navigation menu includes "INICIO", "VIDEOS", "EN DIRECTO", "LISTAS", "COMUNIDAD", "CANALES", and "INFORMACIÓN". A video player is currently showing "SES ENGINEERING Studio". Below the player is a carousel of video thumbnails with titles such as "Boosting MS Word with Requirements Management...", "System Life Cycle Management with SES...", "Systems Engineering Rigor needs an Interoperability...", "Interoperability in SES ENGINEERING Studio", "Controlling the values of your signals in Technical...", and "Configuration Management with SES ENGINEERING...".

[@thereusecompany](https://www.youtube.com/@thereusecompany)

- Next event participation :
 - **INCOSE Symposium 2025**
 - Ottawa, ON – Canada
 - 26-31 July 2025



- Last updates about our tools & services to leverage Systems Engineering
- Get to know the team!
- Ideas are welcome!



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REUSE
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