- **Webinar rules:**
  - You'll be muted all along the Webinar
  - There's a *Question* section to ask your questions or send your comments whenever you want
  - The Webinar will be recorded. A link to the recording will be sent to you in few days

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Boosting Requirements Management capabilities in MS Word:

Managing Traceability

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THE REUSE COMPANY

- Short introduction
- Traceability – What's it used for and Why?
- The SES approach to Traceability
  - Managing Traceability when using MS Word
- Live demo
- Q&A

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- **The Systems ENGINEERING Suite:**
  - RQA – QUALITY Studio
  - RAT – AUTHORING Tool
  - TRACEABILITY Studio
  - V&V Studio
  - KM – Knowledge Manager

  - SES ENGINEERING Studio
  - **SES ENGINEERING Studio add-in for MS Word**

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The PRESENTER

- Christer worked in the Medical and Defence sectors at either industrial organisations or as business entrepreneur for over 20 years at various operational and management levels.
- Currently he is the CEO of REUSE Scandinavia in Sweden which specializes in requirements quality services and tools within the Scandinavian region.
- Christer is a driven change facilitator and has successfully adopted and implemented international process frameworks and standards within industry.
- He has in recent years specialised in organisational learning, change management, process improvements, LEAN and Systems Engineering (SE) and Requirements Engineering (RE).

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Traceability

Why and How?

WHY should we care about TRACEABILITY?

- Facilitate Change Control and impact analysis
- Facilitate traceability between requirements and verification artefacts
- Enable traceability between layers of requirements

From: ***INCOSE Needs and Requirements Manual***
Needs, Requirements, Verification, Validation Across the Lifecycle

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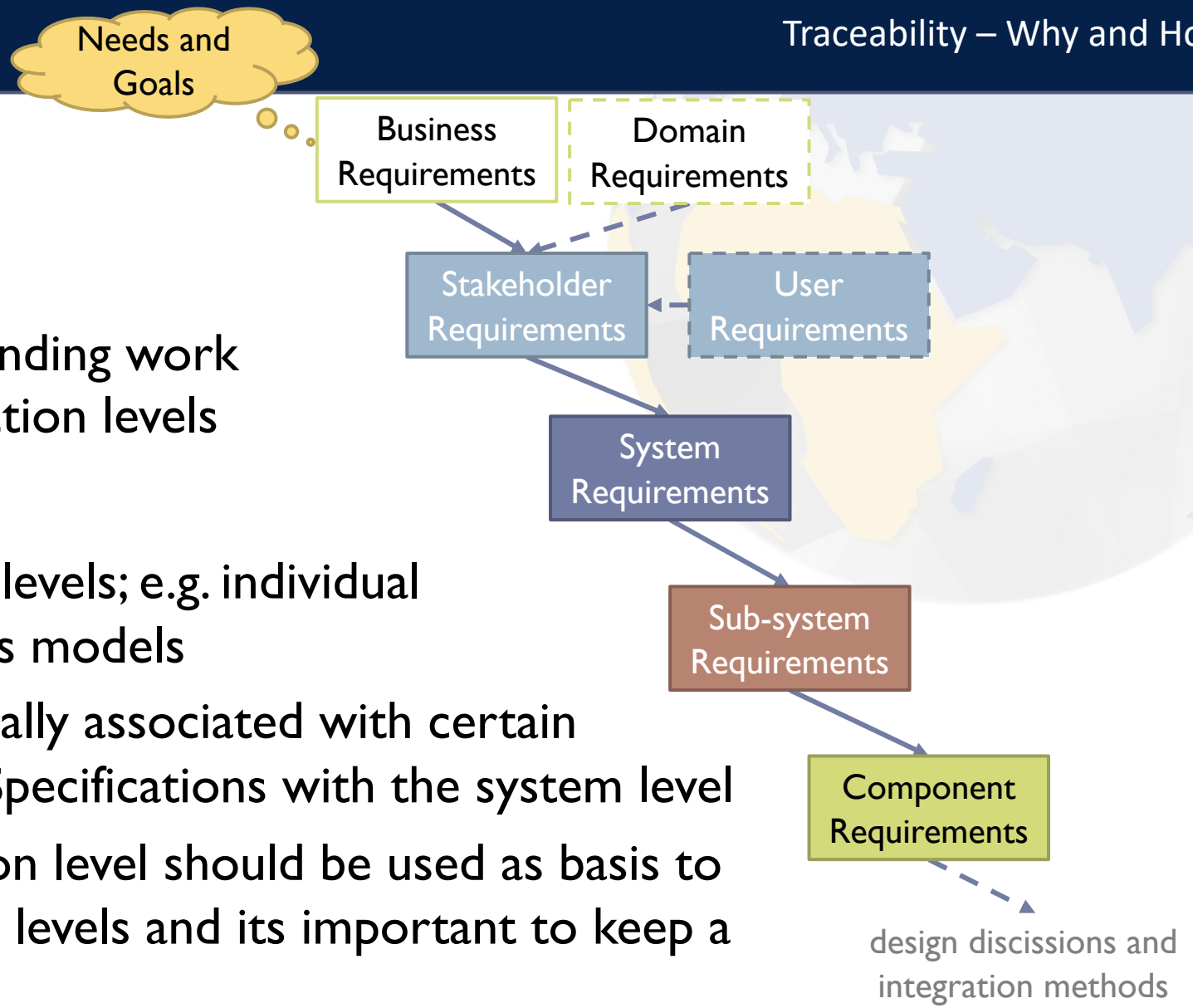

Abstraction Level

- Requirements and their corresponding work products occur at various abstraction levels

Dependencies

- Some work products occur at all levels; e.g. individual requirements, sketches or process models
- Other work products are specifically associated with certain levels; e.g. System Requirements Specifications with the system level
- Work products on high abstraction level should be used as basis to produce work products on lower levels and its important to keep a proper **backward traceability**

From: IREB Requirements Engineering Fundamentals

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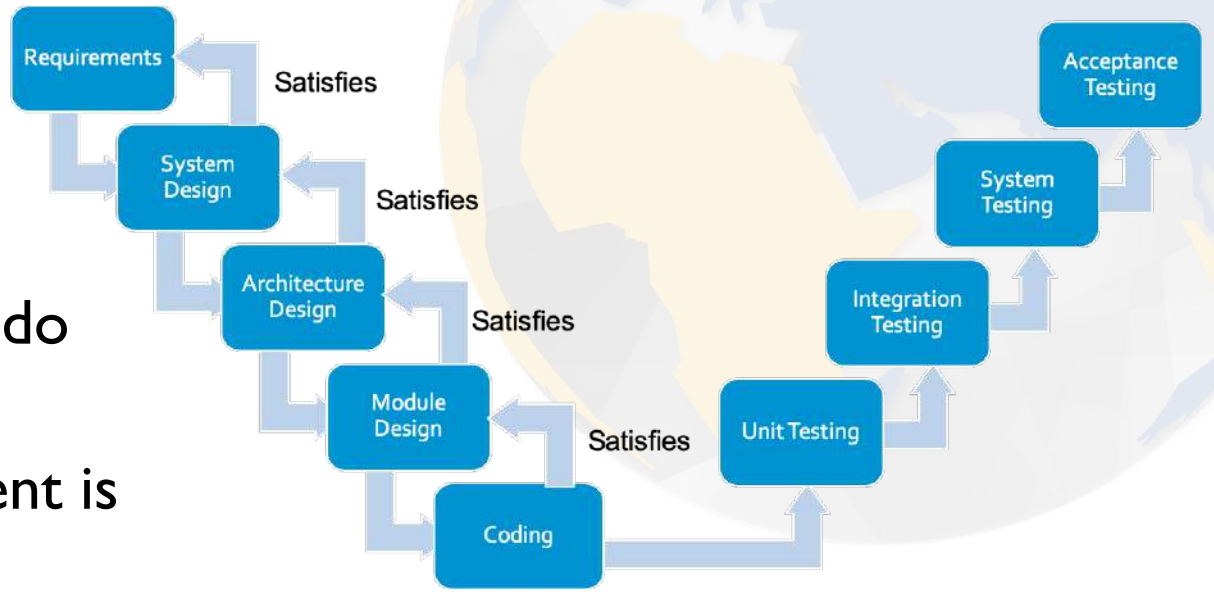
Traceability

- Without proper traceability, Requirements Engineering is hardly feasible, as you cannot do the following:
  - Provide evidence that a certain requirement is satisfied
  - Prove that a requirement has been implemented
  - Show product compliance with applicable laws, contracts and/or standards
  - Look for missing work products
  - Analyse the effects of a change to requirements



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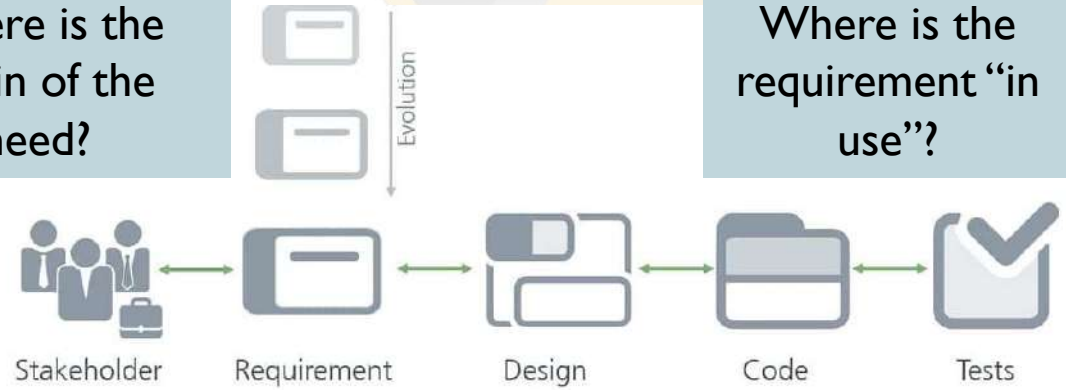
Types of Traceability

- There are different needs for traceability:
  - ***Backward traceability***: What was the origin of the requirement? Where was it found? Which sources were analysed at elicitation?
  - ***Forward traceability***: Where is this requirement used? Which deliverables are based on it? Which tests shows fulfilment?
  - ***Traceability between requirements***: Is it derived from a higher-level requirement?

Backward Traceability: Where is the origin of the need?

Forward Traceability: Where is the requirement "in use"?



Requirements Traceability: How are the requirements related to each other?

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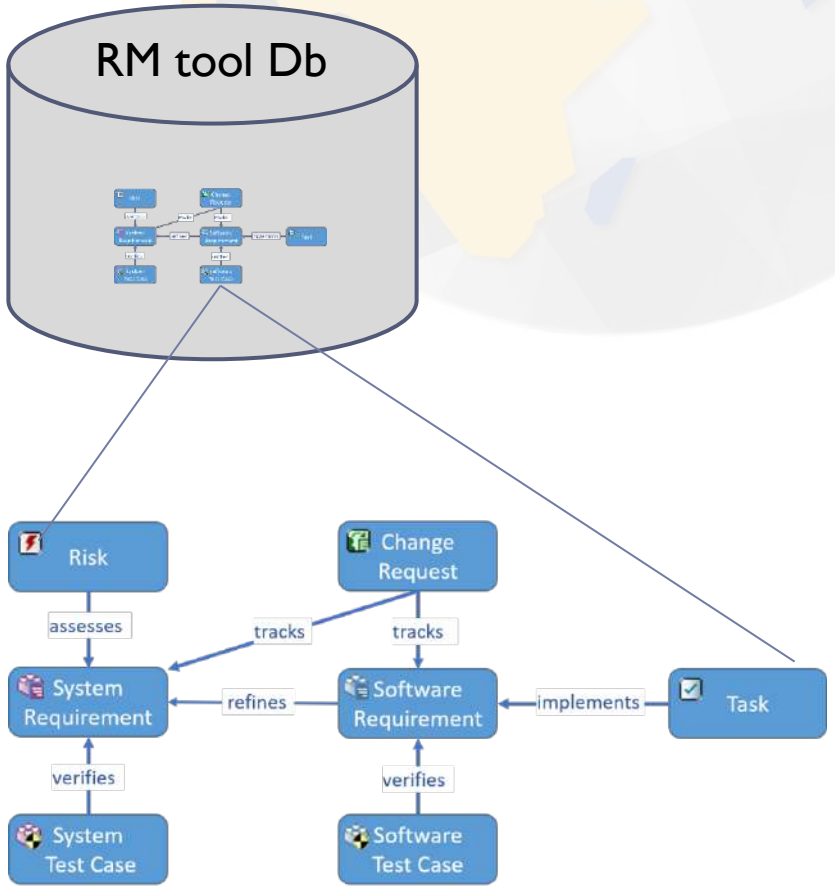
HOW to manage traceability with a traditional RM tools – Siemens Polarion

- Typical RM tools can manage traceability within its own environment and data set
- You can use a specific view of the Work Items to generate traceability data which can be exported to spreadsheets or printed as a hard copy.
- If the requirements data and test data is in different requirement projects, some queries needs to be run to maintain traceability information
- A typical artefact is the traceability matrix



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HOW to manage traceability using MS Word – Is it possible?

Two MAJOR Problems

- **No reliable automatic numbering** of requirements
- **No robust requirements traceability model**
  - I need to manually cross reference requirements in the document using hyper links to the source document (not source work product)
  - These "links" never react on a change in the source

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The SES approach to Traceability

HOW to manage traceability using SES MS Word Add-in

The SES MS Word Add-In manages the MS Word "defects" and adds the complete set of required capabilities:

- The SES Add-in parsed the work products and gives them an unique reference number (either from the doc or from SES)
- SES provides a traceability capability able to create bidirectional trace links
  - These will react on any change:
    - Change in source and/or target
    - Deleted work items
    - Plus adding semantic search capability for finding traces

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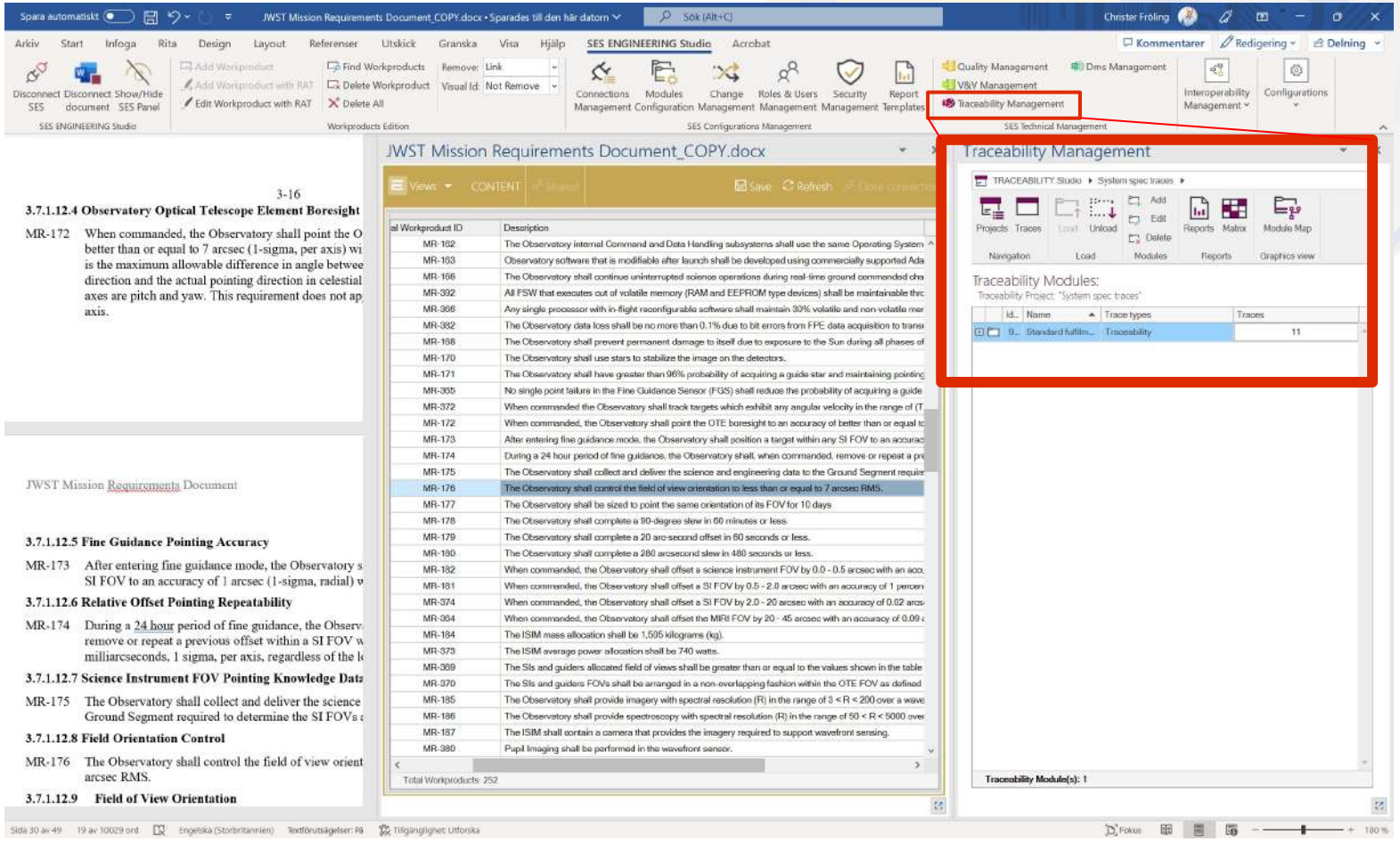
Requirement traceability – Example from SES MS Word Add-in

- **Traceability Management**
  - Define Trace project
    - Define Trace Module
- **Perform traceability**
  - Manual
  - Automatic based on NLP
- **Perform impact analysis**
  - Before/After requirements change
  - Before/After document baseline change
- **Prepare traceability report**



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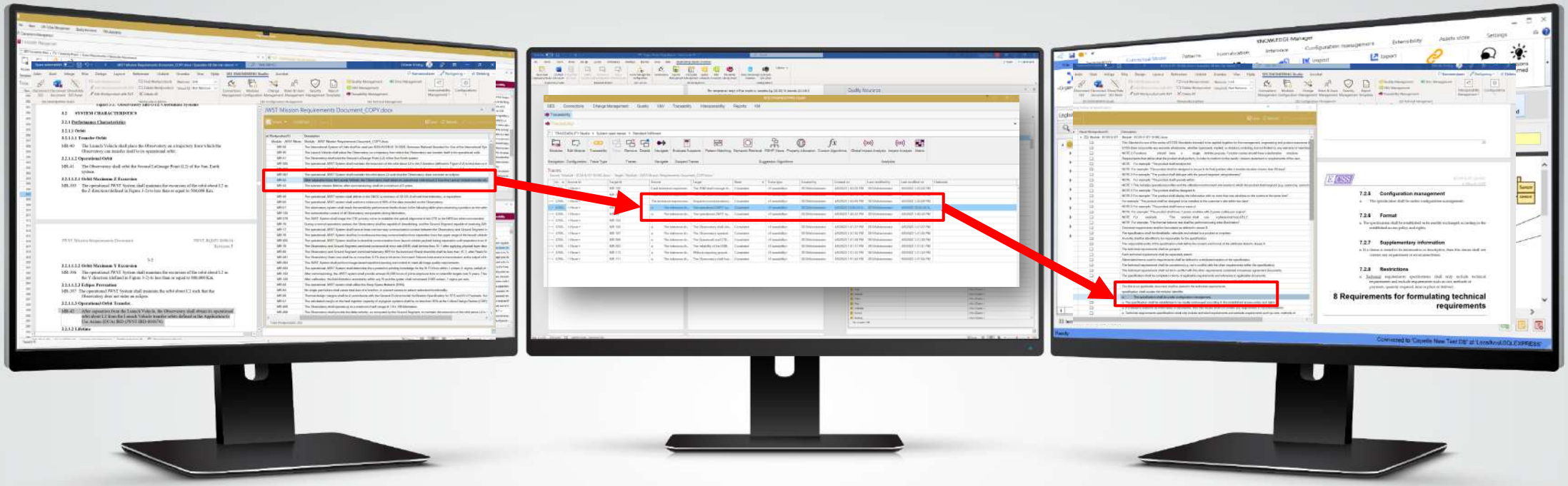
The suggested workplace setup – Multiple screens



Source

Traceability Module

Target

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Demonstration

Demo

Steps:

1. Open MS-Word
2. Connect to your ontology
3. Open a second MS Word connection
4. Open the traceability capability within MS Word
5. Show the traceability project/module
6. Create traces between the two documents
7. Perform change and show:
    1. How changes are detected
    2. How the impact analysis looks like

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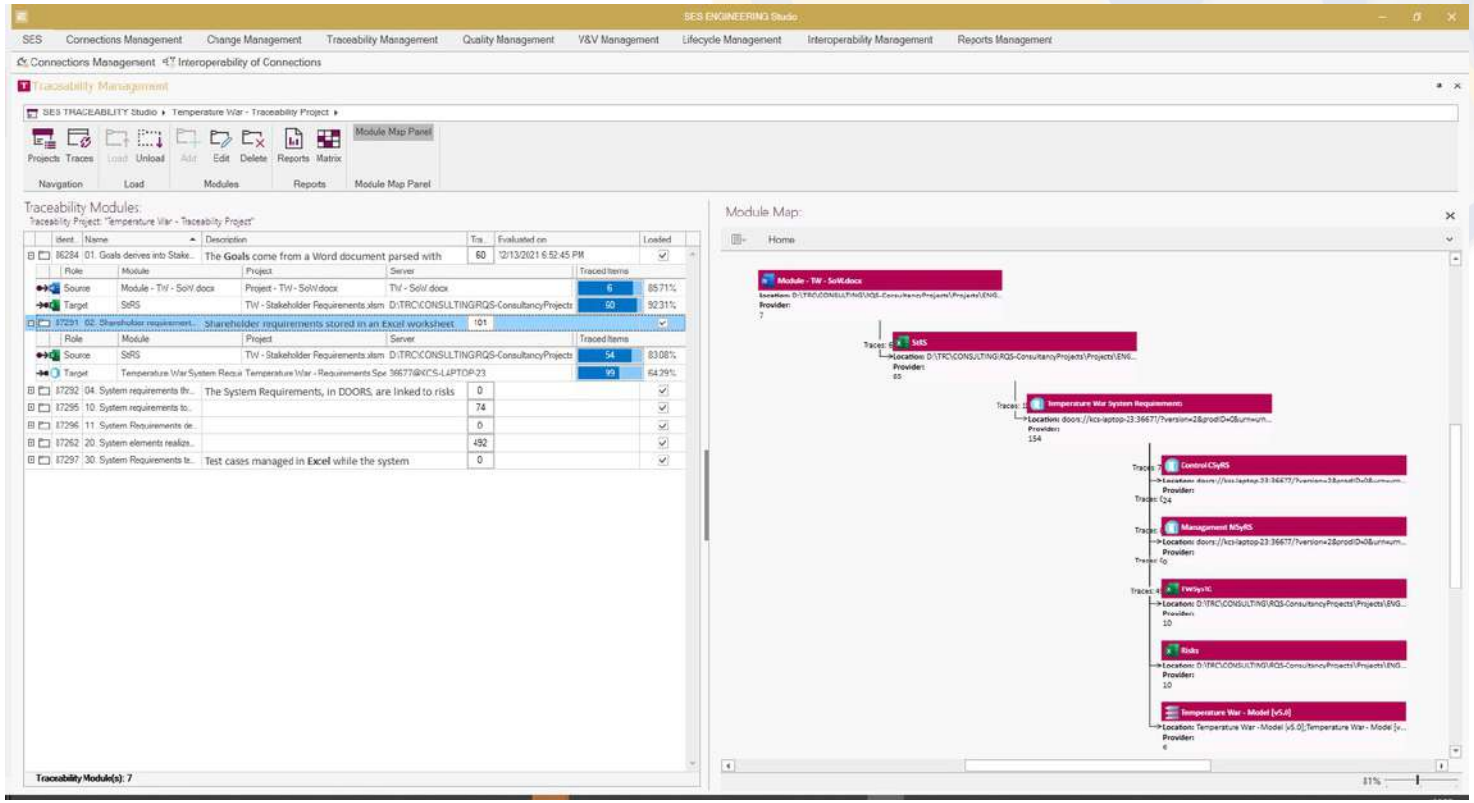
SES ENGINEERING Studio provides a rich traceability capability

- Manage traceability projects, modules and links
- Manage traceability dynamics with **suspect traces**
- Unlimited traceability with access to **all types of engineering items**



Demo available on YouTube:

https://youtu.be/0LTkA89e6oU

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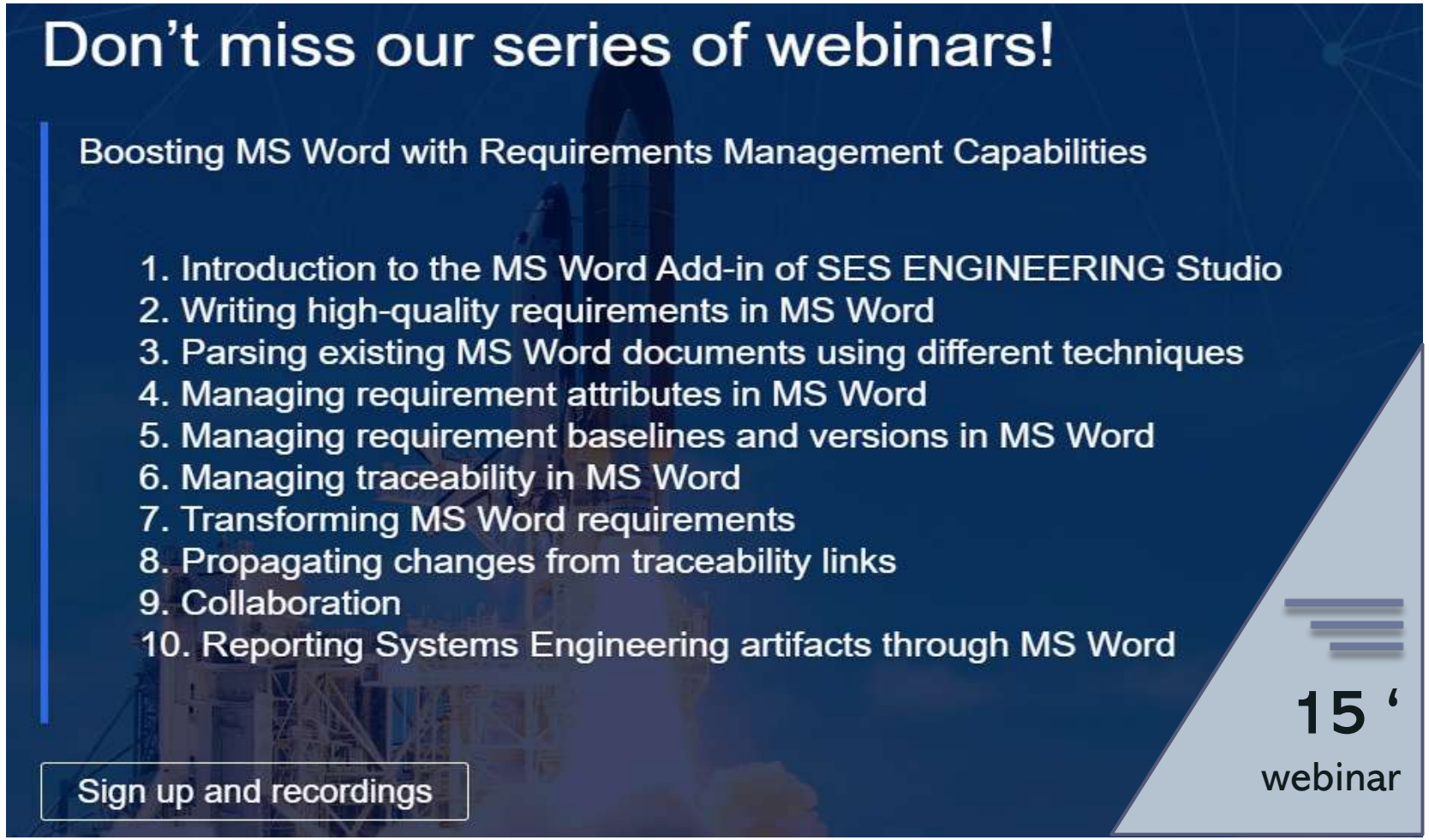
Q&A



Episode 7. Carrying your requirements everywhere.

Once I have my requirements inside MS Word, what more can I do? In this episode, we will see how, using the SES ENGINEERING Studio add-in, you can **append, copy, or merge those requirements onto another source** (Requirements Management Systems, modeling tools, etc.) completing the round-trip process.

Date:

Tuesday, May 9th, 2023, 5:00 PM CET (Madrid)/ 5:00 PM JST (Tokyo)/ 7:00 PM AEDT (Sydney)
Thursday, May 11th, 2023, 9:00 PM CET (Madrid)/ 8:00 AM PST (Los Angeles)/11:00 AM EST (Detroit)

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Managing data for Acquisition

A stage in the development of a complex system

The scope of an **Acquisition** may be anything from standard off-the-shelf components to complete systems, developed to meet the customer's specifications. In case of large Procurement agencies, for example Defence Material Procurement organisations, the scope of Acquisitions is often the latter.

However, the actual **Acquisition process** is typically very briefly described and its integration into the general technical processes is not always clear in standards like ISO 15288.

Date:

Tuesday, April 25th, 2023, 5:00 PM CET (Madrid)/ 5:00 PM JST (Tokyo)/ 7:00 PM AEDT (Sydney)
Thursday, April 27th, 2023, 9:00 PM CET (Madrid)/ 8:00 AM PST (Los Angeles)/11:00 AM EST (Detroit)

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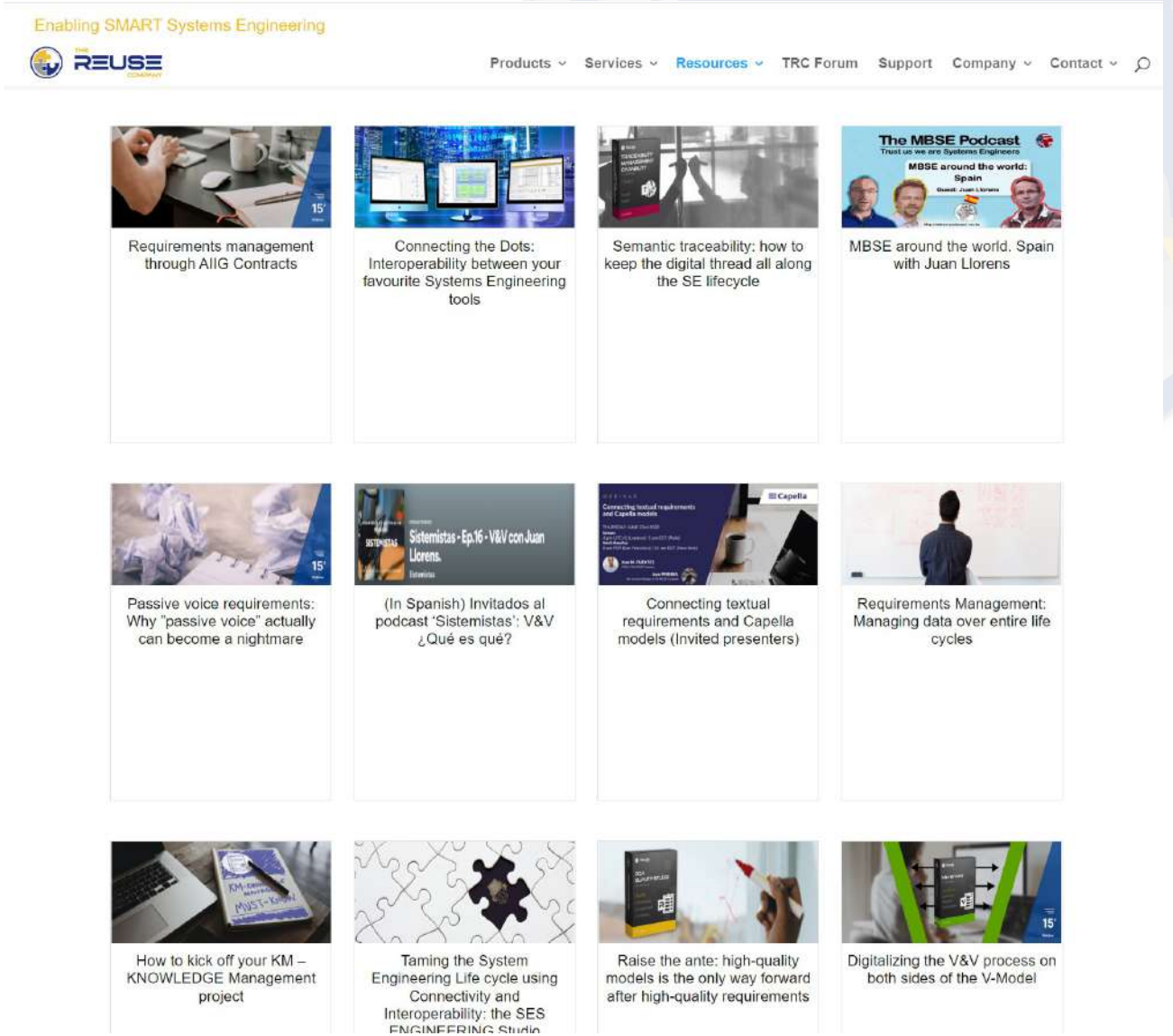

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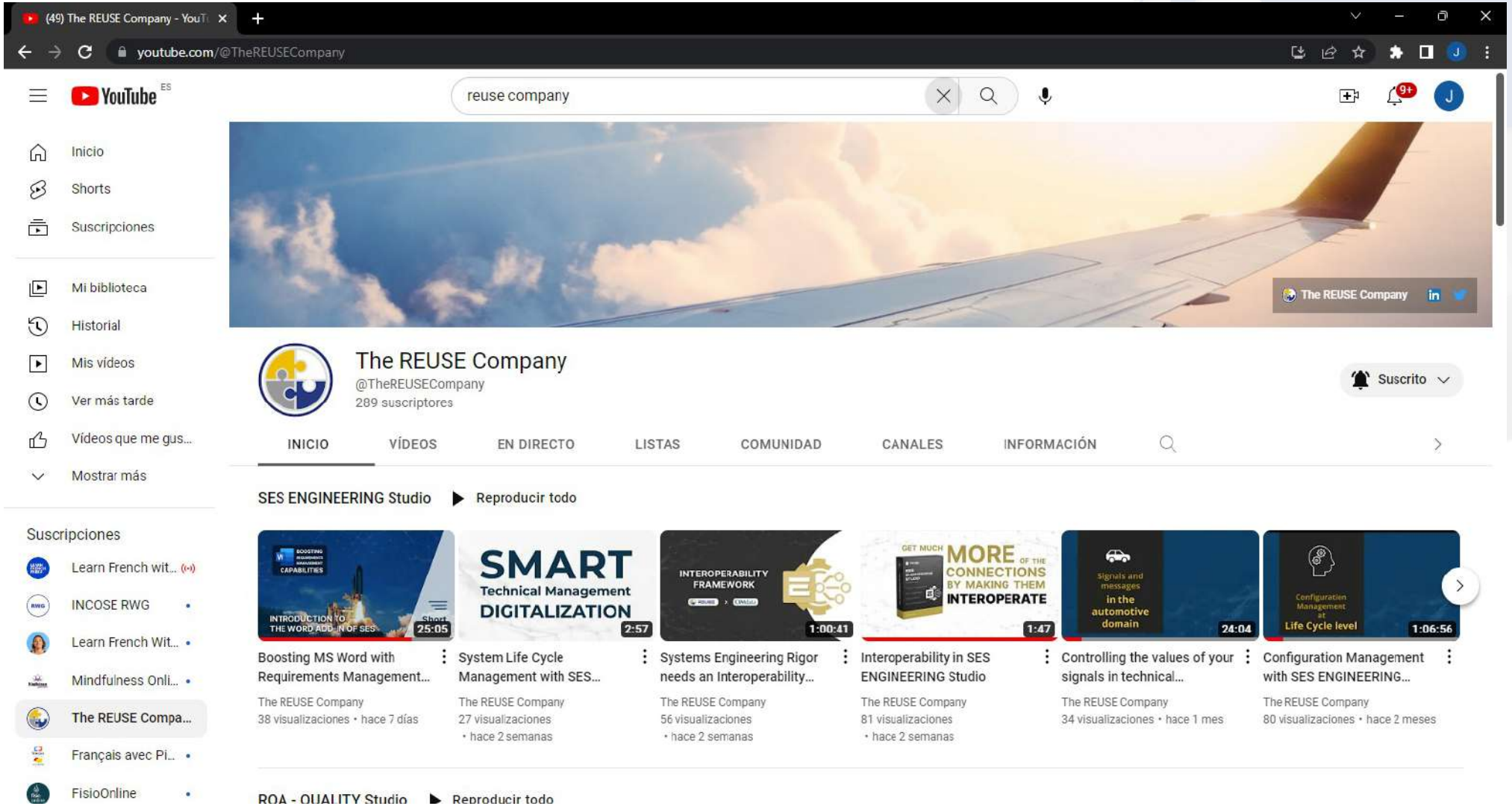

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