

Module 6: Systems engineering in the Needs Identification State Session 1 of 9

Version 4.0.2

How to write good requirements

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Objectives

1. To understand the activities performed in the Needs Identification State of the System Development Process (SDP)
2. To understand the nature of feasibility studies
3. To understand the nature and importance of the concept of operations (CONOPS) document
4. To create some of the products produced in the Needs Identification State of the SDP
5. To introduce models and simulations

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Contents

1. The critical applied systems engineering tasks which systems and software engineers must perform in the Needs Identification State if the project is to have any chance to succeed
2. The Concept of Operations (CONOPS) representation and why it is critical to successful system development
3. Introduction to modelling and simulation
4. Their place in the systems life cycle

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Topics

- **Stakeholders**
- The three parts of the Needs Identification State
- Feasibility studies
- Iterative/recursive nature of systems engineering
- The Concept of Operations (CONOPS)
- The difference between solution selection criteria and requirements
- Sensitivity analysis
- Common causes of cost and schedule growth for large-scale systems
- Proposals and tenders
- Business plans
- Types of contracts
- Exercises



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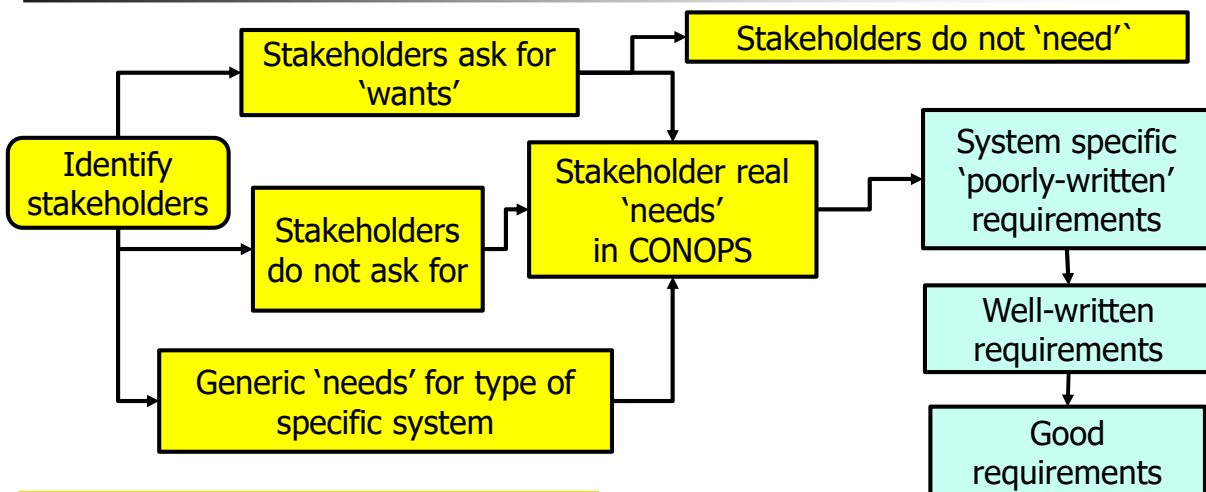
The Needs Identification State

- Is missing in the 'B' paradigm
- Begins with an undesirable situation
- Addresses the undesirability and causes
- Determines the FCFDS
- Comprises the following sub-States:
 1. The exploring the problem sub-State
 2. The conceptualizing the solution sub-State
 3. The system architecting sub-State.
- Ends at the Operations Concept Review (OCR)
- Courses usually describe the "what"
- Now for a digression into the "how"

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Process for writing good requirements



A paradigm Needs Identification State

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Writing good requirements modules

1. Needs Identification State (NIS) (Module 6)

1. WGR Module 2: Stakeholders and their importance (NIS Session 2)
2. WGR Module 3: Communicating with the stakeholders (NIS Session 3)
3. WGR Module 4: Converting stakeholder wants to needs (NIS Sessions 4 and 5)
4. WGR Module 5: Documenting stakeholders' needs (NIS Sessions 6 and 7)

~~2. System Requirements State (Module 7)~~

- ~~1. WGR Module 6: Converting stakeholder needs to requirements~~
- ~~2. WGR Module 7: Converting requirements to well-written requirements~~
- ~~3. WGR Module 8: Converting well-written requirements to good requirements~~

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Any questions ?

- If you have already taken the Writing Good Requirements course, then
 1. There is no need to repeat it
 2. Download and review the notes from each session (they have probably been updated since you took the course)
- If you have **not** taken the Writing Good Requirements course, then you are about to do most of it



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