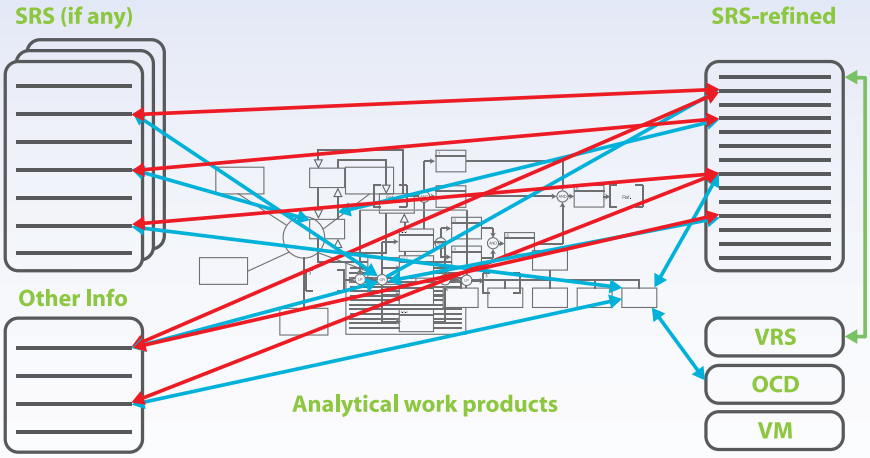
Requirements Analysis
& Specification Writing

A Course Over Five Days

Requirements problems are at the top of the list of reasons why projects go wrong.

Commercial, military, other government, consultants... users, acquirers, product designers, suppliers. You will learn, in Requirements Analysis, systematic, effective ways to capture and validate requirements to a measurable and appropriate standard. In Specification Writing, a two day module, you will learn how to structure a specification of requirements and how to best express those requirements in natural language (English). Both the Requirements Analysis and Specification Writing modules apply to both products and services. Examples are oriented towards products.



SRS: system or software requirements specification
VRS: verification requirements specification
OCD: operational concept description
VM: value (or system/software effectiveness) model

PPI-005227-4

What people have said about this course:

"The structure of this course is very good" - delegate, Thales Australia Limited, Australia

"The presenter proved himself to be an authority on the subject" - delegate, Telstra Corporation

"The best thing about the course was the extent to which my knowledge was increased about the scope of good system requirements analysis and specification writing" - delegate, Railcorp, Australia

"My eyes were opened and I am an evangelist for requirements now!" - delegate, Booz.Allen & Hamilton, USA

"An excellent week – well formatted, researched and presented. Congratulations" - delegate, Royal Australian Air Force

"The best thing was the ability of the presenter to teach what could be dry material in a fun way" - Raytheon Technical Services, CA, USA

"The structure was excellent. I wish I could have taken this course when I started working at USAF. I really got a lot out of the entire course" - delegate, United States Air Force

"Excellent presentation, workshop material and answers" - delegate, Seoul, South Korea

8:30am to 5:00pm daily

See website www.ppi-int.com for details on course scheduling.

Who should attend?

- Acquirer Personnel
- Supplier Personnel
- Developer Personnel

... who, in any capacity, deal with requirements.

" Delivery and content was easy to follow and interaction encouraged. A fairly dry topic delivered very well. "

delegate, Adelaide

Fee Structure

See website www.ppi-int.com for details on course fees.

*Group fee applies to registrations of 3 or more delegates at the same time. Earlybird fee applies when payment is received 30 days prior to the first day of the course.

** Course dates are subject to change. Please check website for program updates.

This course is recognized by Engineers Australia for CPD purposes

This course is recognized by ECSA 5 points (ref. INCOSE 11/001/13)

Our courses are available on-site. Enquire for more information.

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PROJECT PERFORMANCE INTERNATIONAL

Requirements Analysis & Specification Writing
Course Outline

PROJECT PERFORMANCE INTERNATIONAL

Requirements Analysis

1. **Why Emphasise Requirements?**
   - issues and terminology
   - lessons from real projects
   - requirements and the law

2. **Requirements Within the System Life Cycle**
   - the origin of requirements
   - concept of the system boundary
   - the modelling boundary
   - the systems engineering process
   - development of system architecture and detail design
   - requirements traceability
   - summary of terms relating to requirements
   - baselines and their use
   - the waterfall life cycle paradigm
   - incremental acquisition/development
   - evolutionary acquisition/development
   - *Workshop - requirements engineering principles*
   - common requirements pitfalls in the system life cycle

3. **What are Requirements?**
   - definitions and views
   - relationship to design
   - relationship to baselines.

4. **Types of Requirements**
   - why categorise requirements by type?
   - eight basic types
   - differences between requirements for hardware, software, services
   - non-requirements
   - *Workshop - categorising requirements by type*
   - other categories- design drivers, critical, global, priority, importance,stability

5. **The Quality of Requirements**
   - correctness
   - completeness
   - consistency
   - clarity
   - non-ambiguity
   - traceability
   - testability
   - singularity
   - feasibility
   - freedom from product/process mix

6. **Requirements Analysis Techniques**
   - primary, secondary, tertiary stakeholders
   - initial assessment and planning
   - measuring requirements quality
   - methods of engaging in requirements dialogue
   - context analysis
   - *Workshop - context analysis*

6. **Requirements Analysis Techniques (cont.)**
   - design requirements analysis
   - states & modes analysis
   - *Workshop - states and modes analysis*
   - requirements parsing
   - *Workshop - parsing analysis*
   - functional analysis - needs analysis, operational analysis, use cases
   - *Workshop - functional analysis*
   - rest of scenario analysis
   - *Optional workshop - rest of scenario analysis*
   - out of range analysis
   - *Optional workshop - out of range analysis*
   - ERA analysis
   - other constraints search
   - value analysis
   - verification requirements development
   - operational concept description
   - clean up
   - special issues of the human interface
   - supplementary methods and notations
   - common pitfalls in requirements analysis

7. **Coping with the Real World**
   - what to do when the user "doesn't know"
   - how to respond to "moving goalposts"
   - protecting yourself from the communication chasm

8. **Tool Support to Requirements Analysis**
   - tools supporting requirements analysis
   - tools supporting requirements management
   - examples of available tools
   - common pitfalls in using tools

9. **Requirements Verification**
   - requirements reviews
   - use of metrics

10. **Management of Requirements Analysis**
    - management issues
    - using and managing "TBDs"
    - designing a requirements codification scheme
    - managing resolution of requirements issues
    - defining reviews and reports
    - risk management applied to the requirements phase
    - risk driven specifications

Specification Writing

1. **Transforming Requirements into Requirements Specifications**
   - what is a specification?
   - how requirements specifications relate to requirements
   - how requirements specifications relate to configuration baselines
   - using DIDs and templates
   - using a requirements database to automate specification production

2. **Requirements Flowdown into Requirements Specifications**
   - the specification tree
   - special considerations for interface requirements

3. **Requiements Specification Types**
   - types of requirements specification
   - IEEE specification standards
   - US military and other international specification standards
   - score sheet for public domain specification standards

4. **Structuring Your Requirements Specification**
   - what to put in your system requirements specification, the statement of work (or equivalent) and the conditions of contract
   - *workshop – allocating requirements to documents*
   - structuring a statement of work
   - structuring a system requirements specification
   - dealing with variants
   - *workshop – writing a scope section to deal with variants*
   - states and modes
   - *workshop – structuring a specification to deal with states, modes and functions*
   - functional versus design oriented specifications
     - differences
     - when to use each type
   - function and performance
   - *workshop – classifying specified requirements as functional or design*
   - *workshop – writing a functionally oriented requirements specification*
   - *workshop – writing a design oriented requirements specification*
   - other requirements types
   - annexes, appendices and applicable documents

5. **Requirements Specification Writing**
   - review of requirements quality
   - requirement structural template
   - requirements constructs
     - shall, should, will, and may
     - linking
     - cross-referencing
     - *workshop – linking and cross-referencing*
     - defining terms
     - *workshop – defining terms*
     - context dependence
     - reference to applicable documents
     - use of precedence
     - *workshop – using precedence*
     - using success criteria to express otherwise vague requirements
     - *workshop – using success criteria*
     - *workshop –key specification for a system*
     - paragraph headings
   - use of supporting data
     - mission profiles/use cases
     - baseline designs
     - benchmarks
   - linking the specification to the statement of work or conditions of contract
   - test specifications
   - *workshop – evaluation of example specifications*

6. **Bibliography**
   - additional reference material

Biography - Robert Halligan

Your presenter, Mr Robert Halligan, FIE (Aust), is Managing Director of Project Performance International, a consultancy company which has achieved remarkable success in assisting clients on major commercial, defence and aerospace programs. Robert has held senior management positions with Rockwell, Andrew Corporation and the Department of Defence. He has honed his experience over twenty years in the requirements engineering of large communications, computing and electronic warfare systems. He has travelled, worked and studied extensively in the United States and the United Kingdom. A sought-after consultant, Robert developed, on behalf of an industry client, the procedures to be used for a multi-million dollar requirements analysis effort, conducted training of client staff in requirements analysis and led analysis of critical system requirements. He has subsequently led numerous requirements analysis efforts on projects of up to $1B. As a hands-on engineering manager, Robert is experienced in the wide range of commercial and military specification standards. He has prepared or reviewed well over 100 significant specifications. Robert is widely regarded in Australia and internationally as an authority on requirements analysis and specification writing.