Conceptual Development Life Cycle Approach

Process Mentor – DOORS – Quality Centre

Continuous and Automatic

Governance, Delivery and Traceability of Business Requirements into Production

Graeme Higgins

Business Analyst Architect

Objective and Understanding of Requirements

Formal Requirements & Development Toolset to:

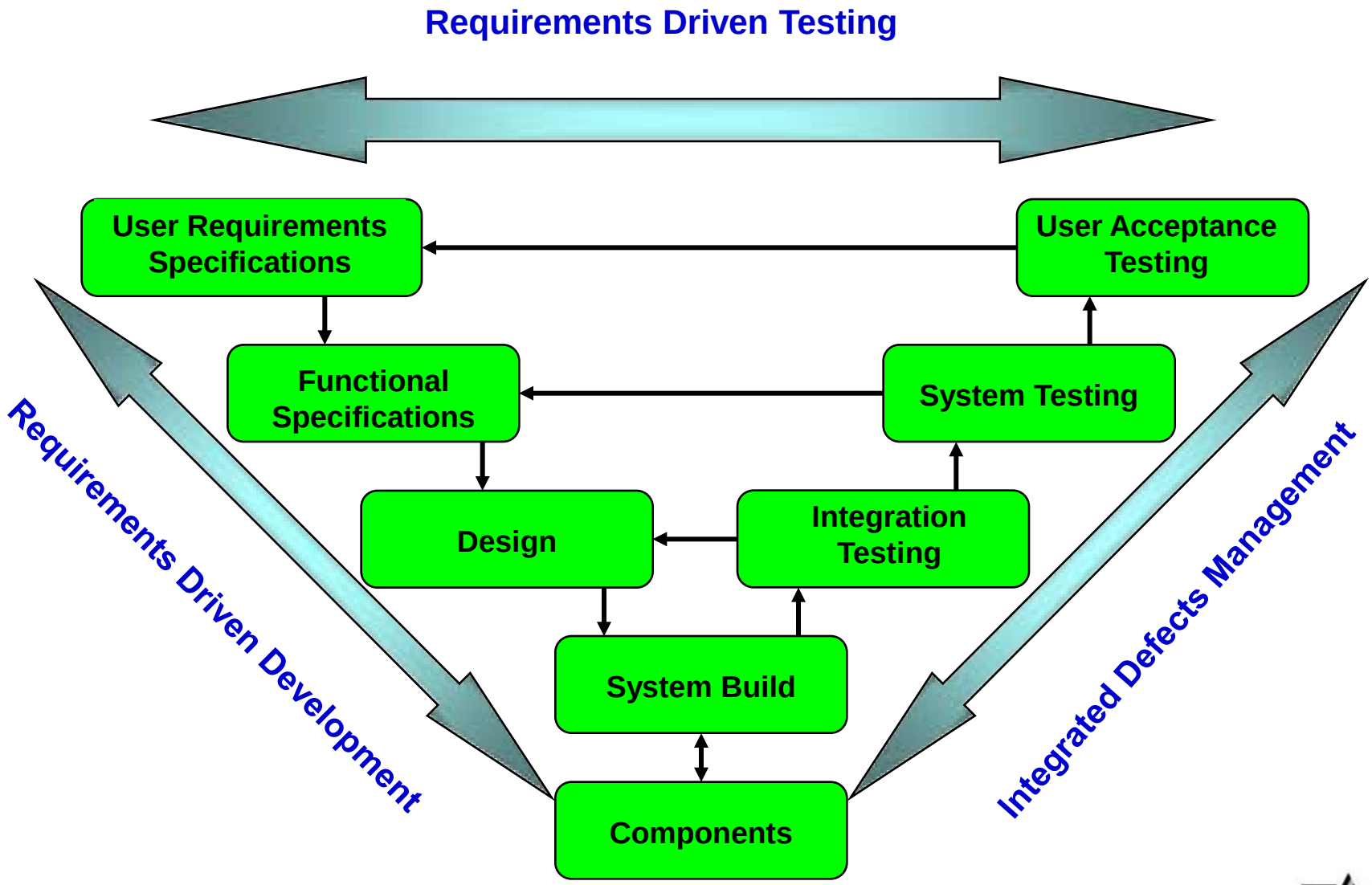
- Manage requirements formally and accurately
- Avoid gaps in functionality and quality
- Support a rapid solution delivery approach and
- Support conventional/waterfall delivery approaches

To aid

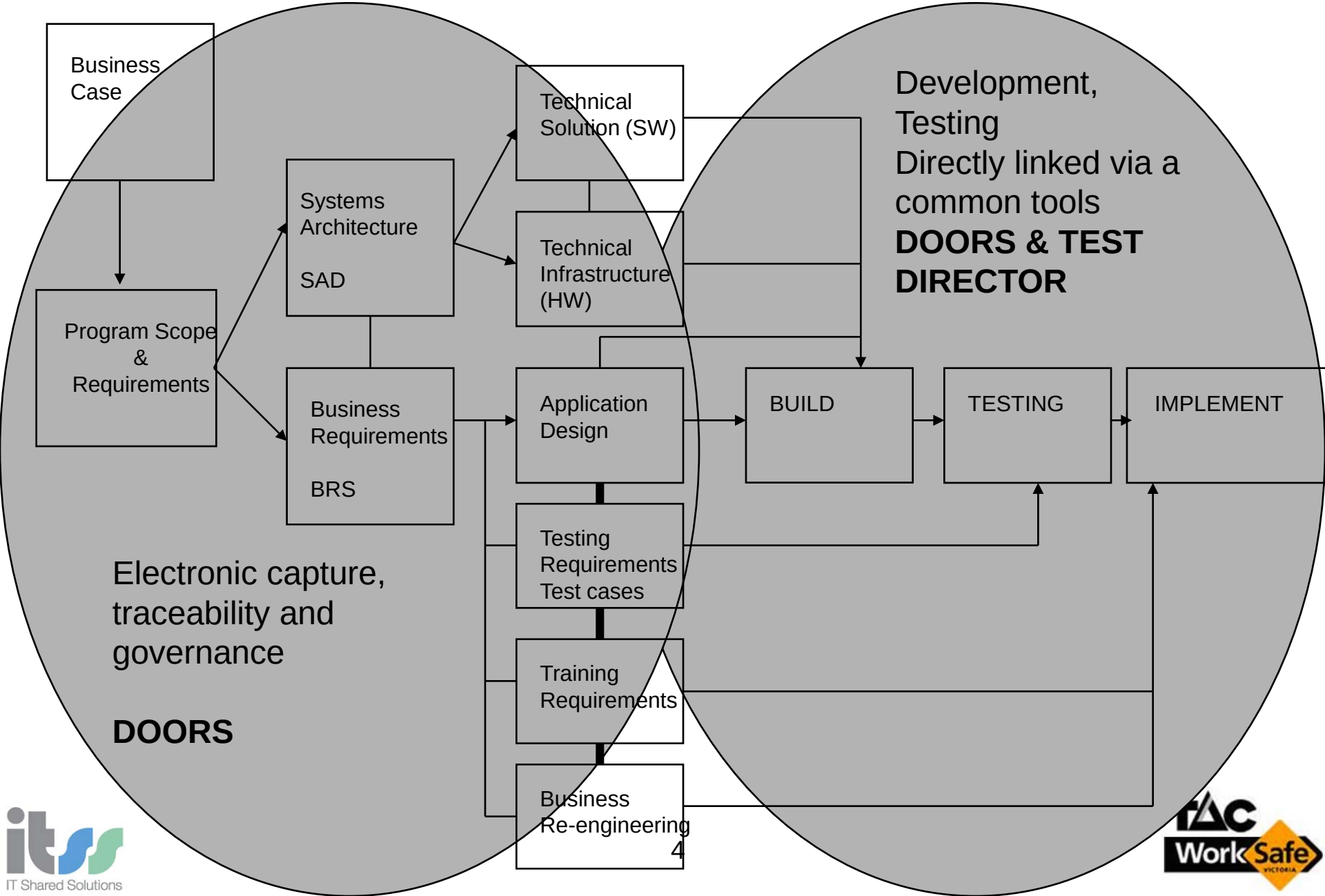
- Manage production migration
- Align to business
- Maintain business as usual

Substantial benefits will be gained

Linking Requirements to Solution delivery & business outcomes



Projects Life Cycle Model



All information is captured electronically

- Process Mentor – contains all the standard deliverable skeletons - Life Cycle Methodology
- DOORS - Electronically captures **ALL** life cycle documents, not just requirements
- DOORS – Cross links all these documents, by specific business requirements, with direct links into testing, test cases
- DOORS – Any change in the high level business requirements will show the impact all the way through to the solution design and supporting test cases

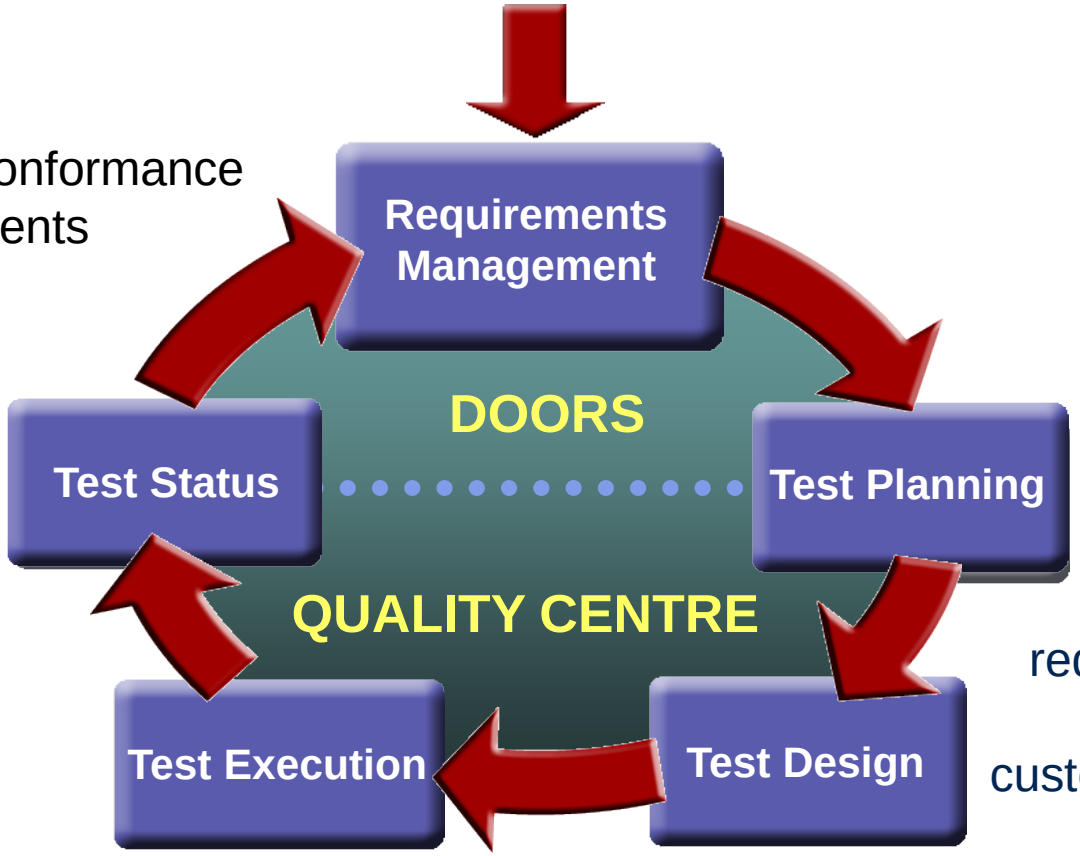
HOW IT ALL FITS

- **Process Mentor –** Life Cycle Methodology
- **DOORS** - Requirements Management
- **Quality Centre** - Testing

Requirements tool is directly inter- linked to the testing tool

Process Mentor Methodology

Quality is conformance to requirements

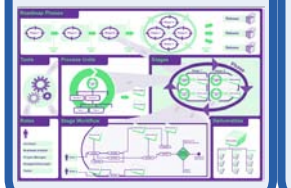


Tests based on requirements ensure deliverables meet customer expectations

Testable Requirements, Testing Focused on Requirements, Release Management based on Requirement Quality

Process Mentor – Product Architecture

Web Client - Portal



Authoring - Raptor

Governance - Advisor

Enactment - Accelerator

Project Planning

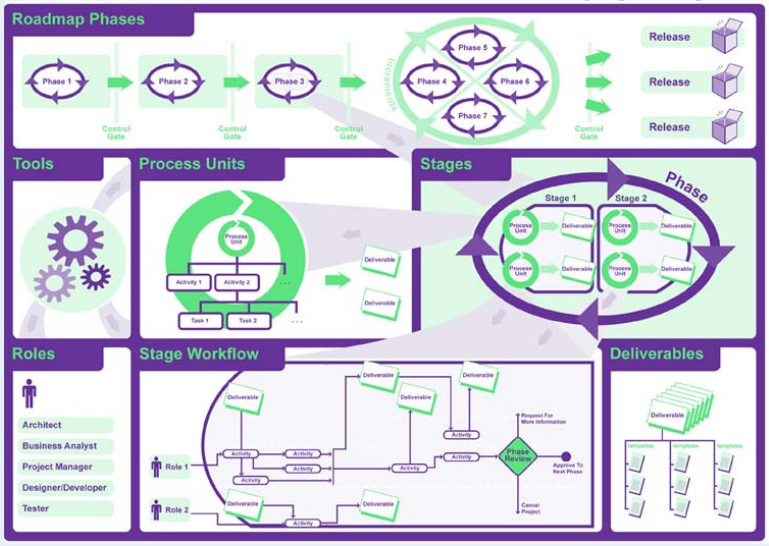
Project Portals

Development - Team Guide

Development Environments

Content Services

Content – Process Asset Library (PAL)

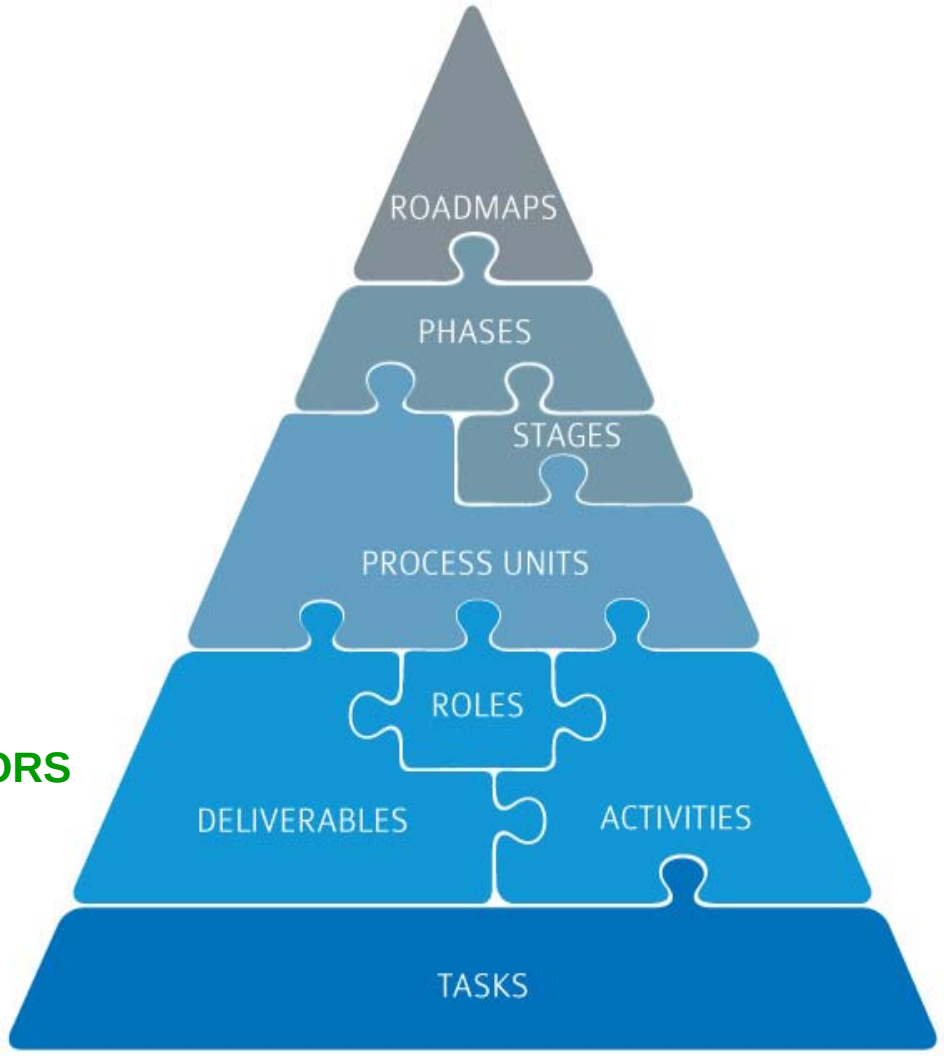


IT Shared Solutions

TAC WorkSafe VICTORIA

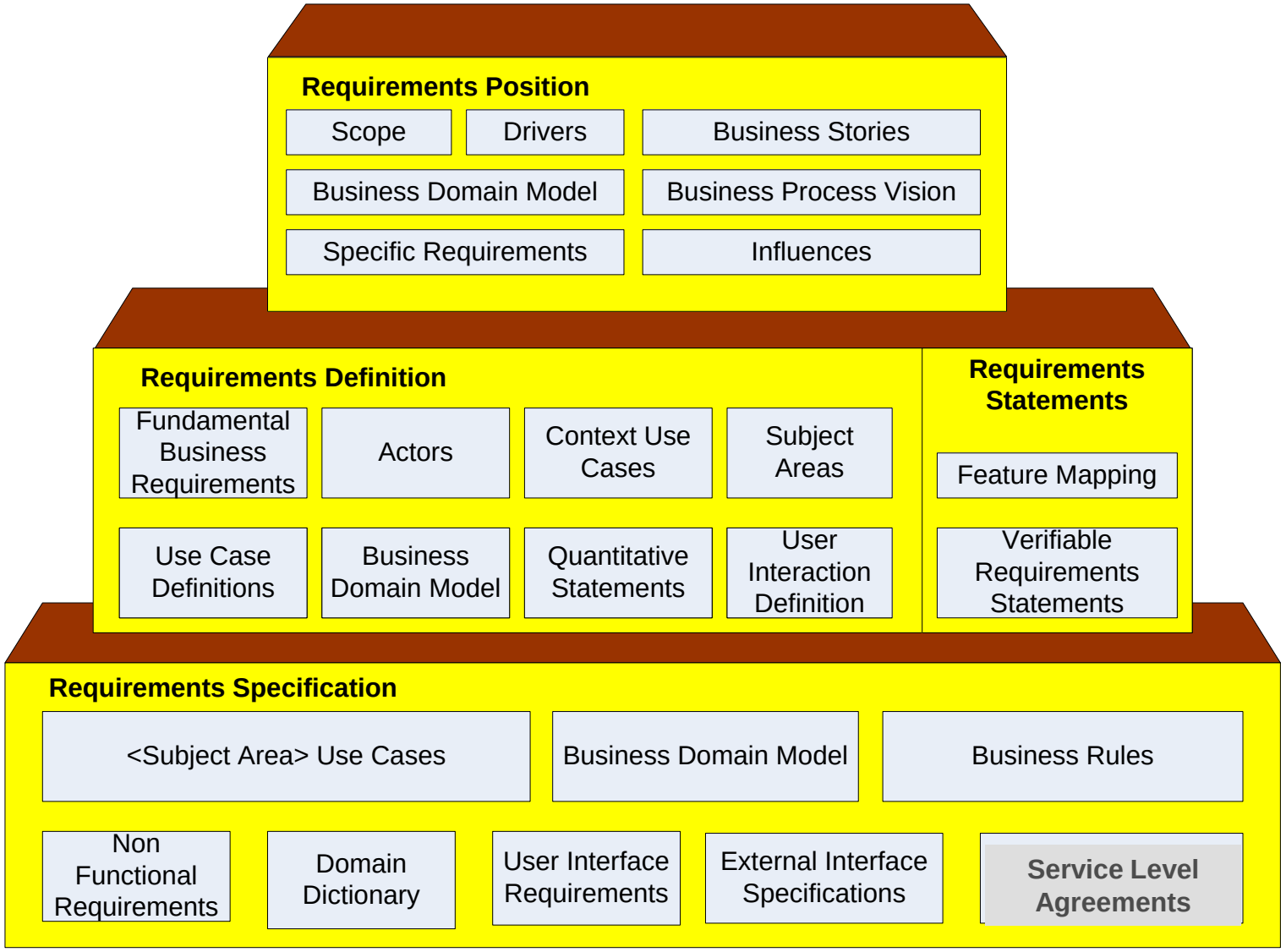
Process Mentor – A series of Process skeletons

- Roadmaps
  - Different project approaches, e.g. Agile, procurement, e-commerce, etc.
  - Complete life cycle
  - Business life cycles
- Process Units
  - Specific use
  - Role centric
  - Principle body of knowledge
- Roles
  - Workbooks categorised by role
  - 6 Primary Roles **Groups in DOORS**
  - 37 supplementary roles



IT Shared Solutions

Three Tier Requirements Model (Scalable)



Process Units

- Provides the foundation of work within an organisation;
- Ensures responsibility & accountability through a role centric approach;
- Develops workflow, adding life to projects and operational work.
- Can be automatically generated into schedules.

Requirements Management

Description
Goal
Objectives
Approach
Inputs
Activities
Deliverables
Estimation
Tailoring
Positioning
Supporting Process Units
Relationships
General Guidelines

Description

Requirements Management is concerned with the effective control of information related to project requirements and in particular, the preservation of the integrity of that information for the life of the project and with respect to changes in the project and its environment.

The workflow diagram below shows just the activities performed in the Requirements Management process unit. To understand how these activities fit in to a project and how all roles collaborate on a project, look at the Roadmaps in Process Mentor. There are different roadmaps for different styles of projects. Each roadmap provides workflow diagrams for each stage of a project. These 'stage' workflows show when activities need to be completed to produce a deliverable, what level of detail needs to be in the deliverable at that point in time and what roles need to work together.

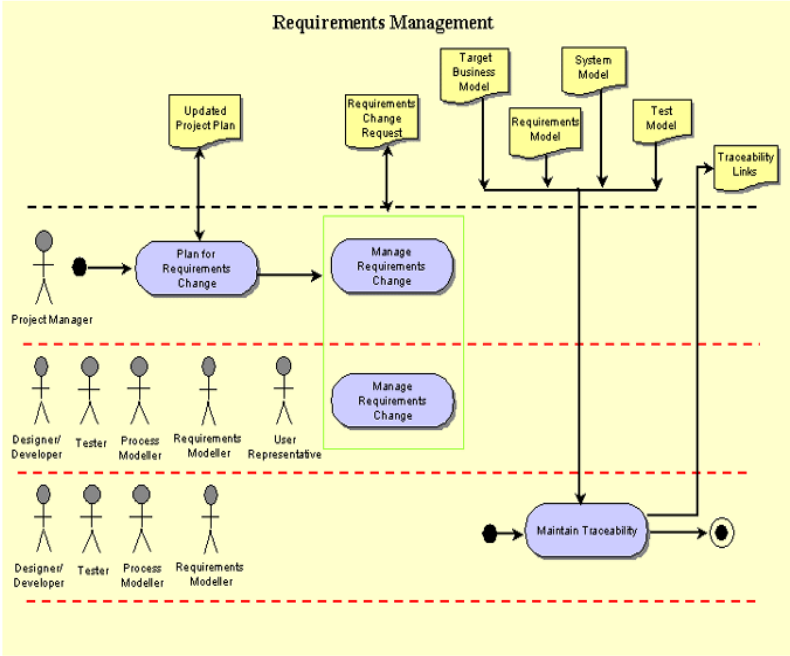
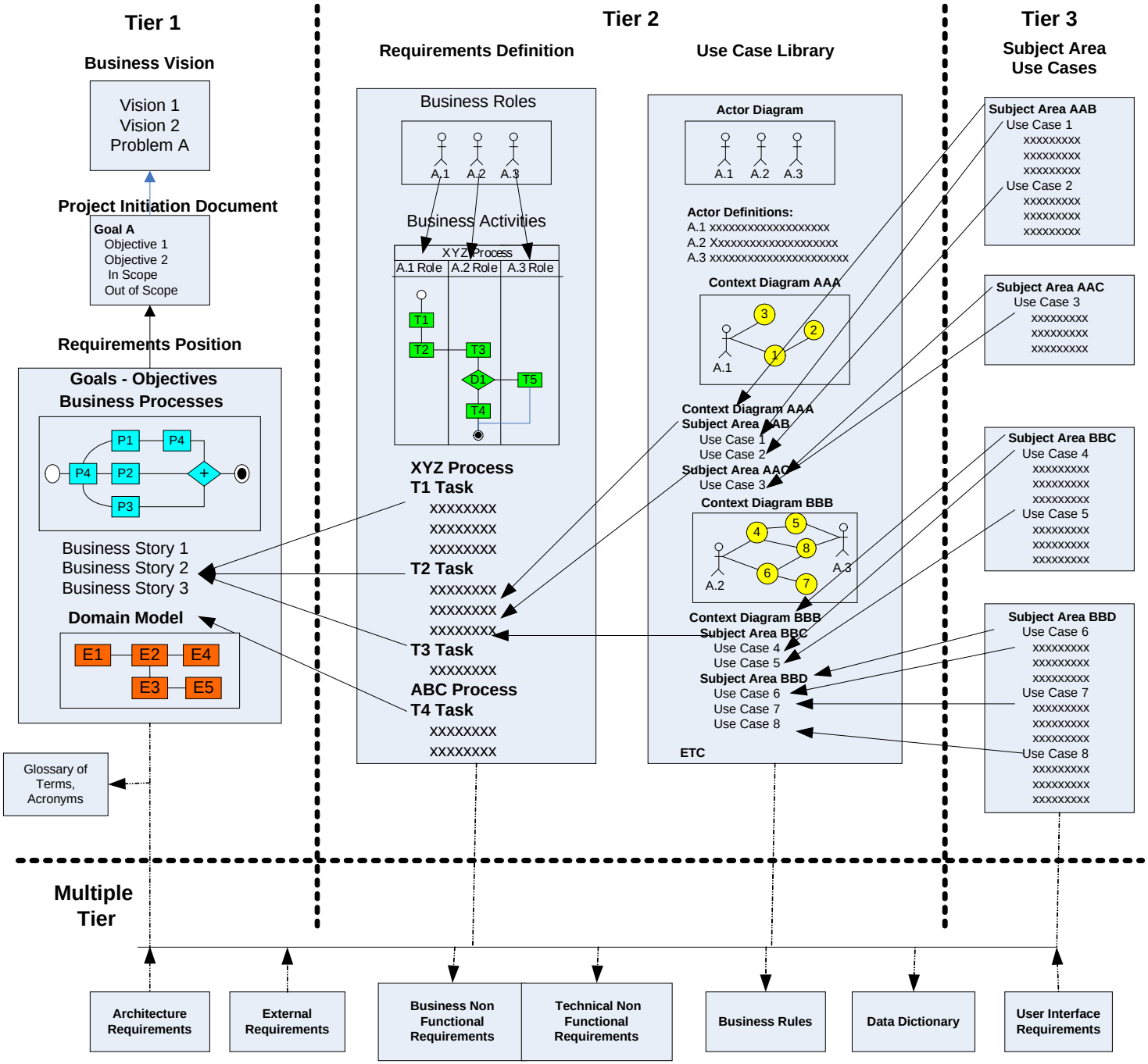
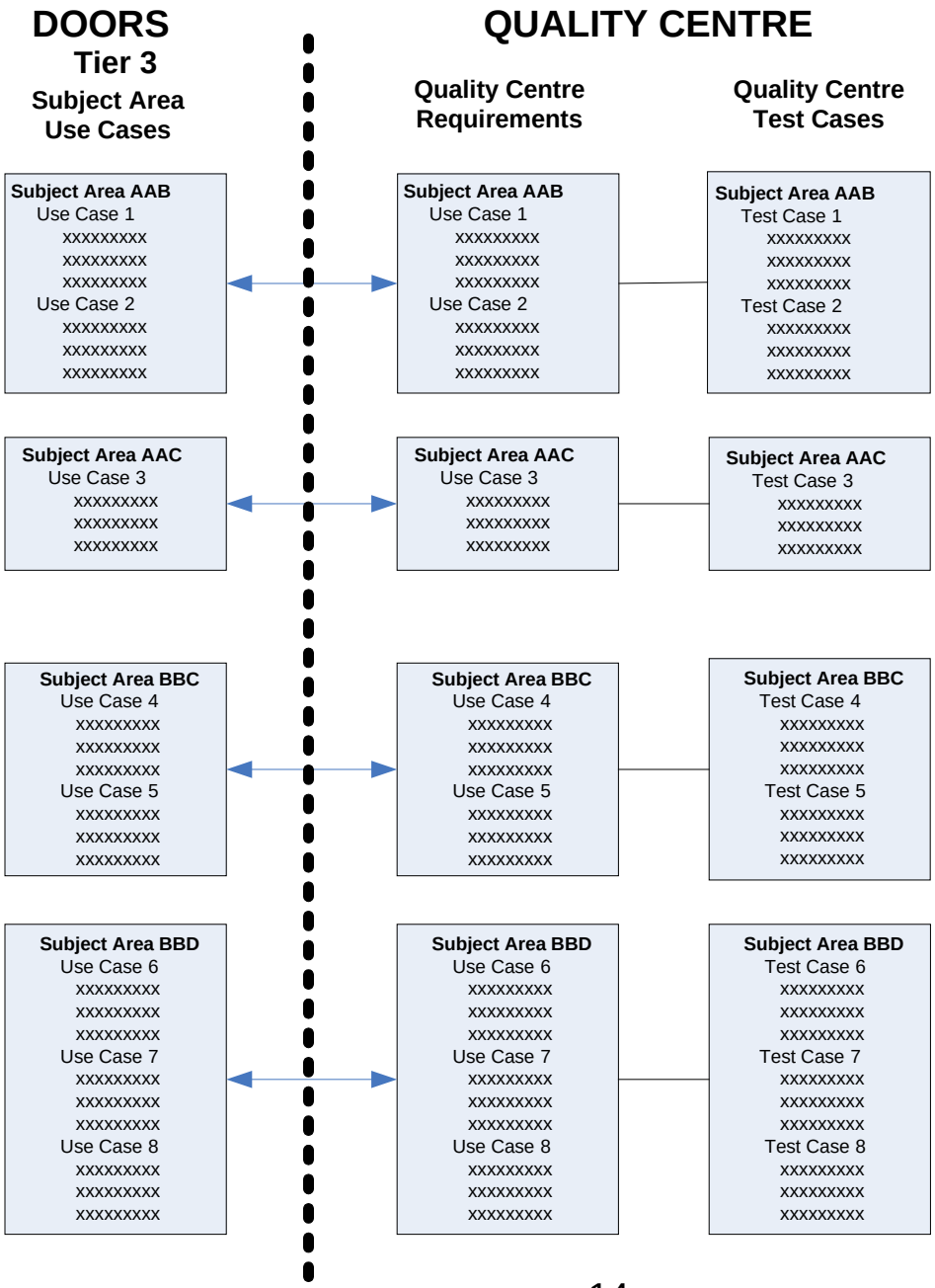


Figure: The activities within the Requirements Management process unit showing the inputs and outputs.

MAPPING PROCESS MENTOR TO DOORS and QUALITY CENTRE

- **Process Mentor** – Document Centric
- **DOORS** **-** Requirement Centric
- **Quality Centre** – Testing Case Centric




DOORS
Tier 3
Subject Area
Use Cases
QUALITY CENTRE
Quality Centre
Requirements
Quality Centre
Test Cases
Subject Area AAB
Use Case 1
xxxxxxxxx
xxxxxxxxx
xxxxxxxxx
Use Case 2
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Subject Area AAB
Use Case 1
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Use Case 2
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Subject Area AAB
Test Case 1
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Test Case 2
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Subject Area AAC
Use Case 3
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Subject Area AAC
Use Case 3
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Subject Area AAC
Test Case 3
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Subject Area BBC
Use Case 4
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Use Case 5
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Subject Area BBC
Use Case 4
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Use Case 5
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Subject Area BBC
Test Case 4
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Test Case 5
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Subject Area BBD
Use Case 6
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Use Case 7
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Use Case 8
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Subject Area BBD
Use Case 6
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Subject Area BBD
Test Case 6
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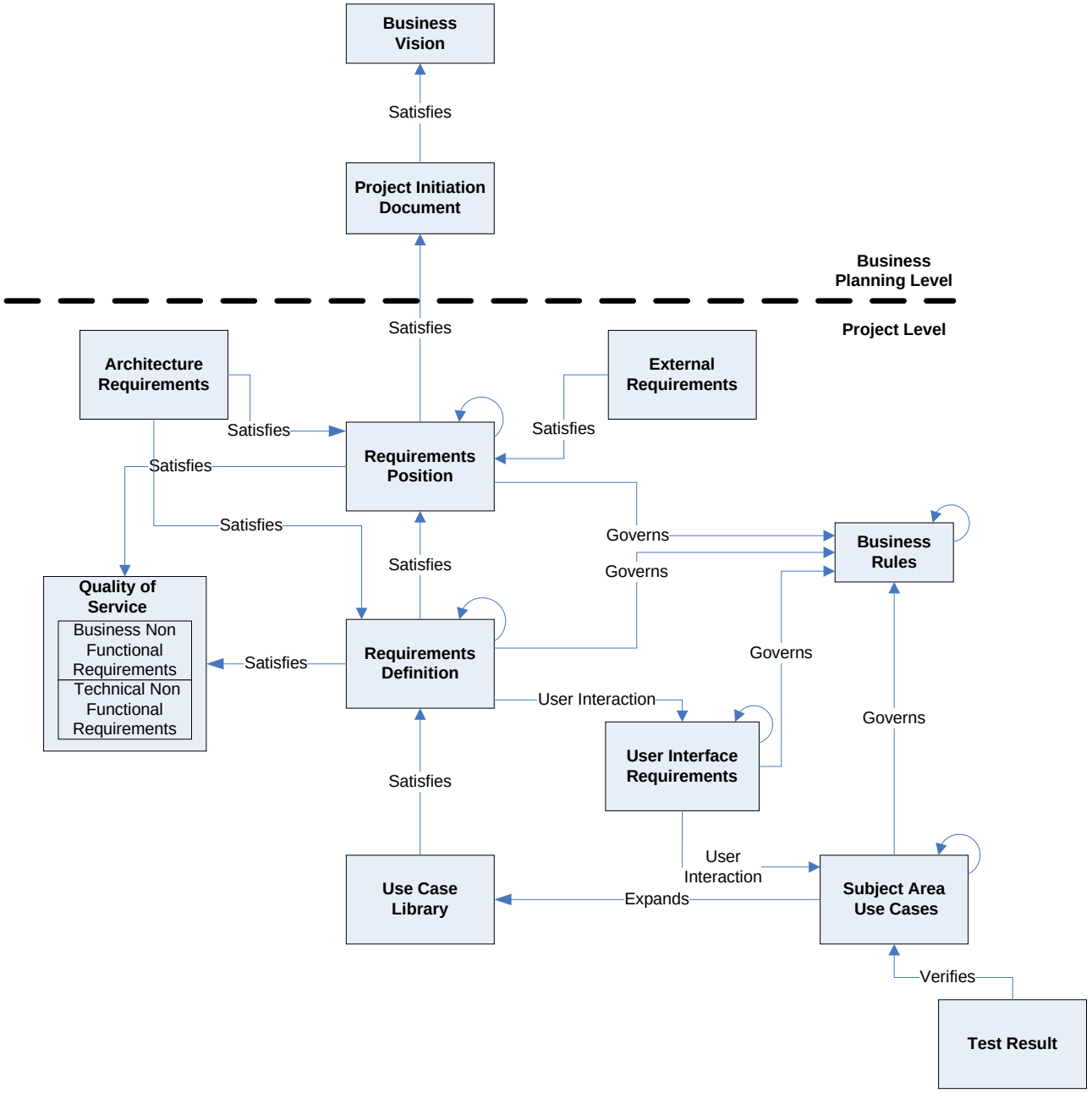
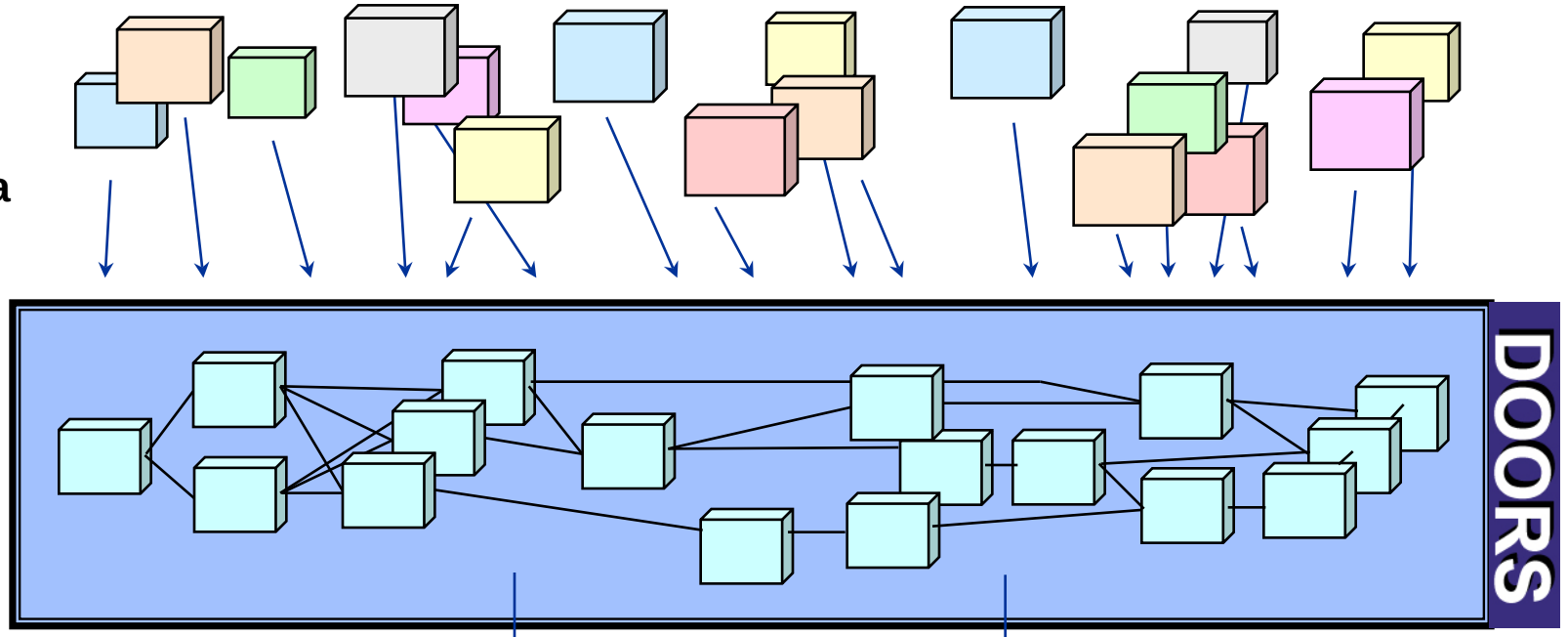

Business Vision
Satisfies
Project Initiation Document
Business Planning Level
Satisfies
Project Level
Architecture Requirements
External Requirements
Satisfies
Satisfies
Requirements Position
Satisfies
Satisfies
Satisfies
Governs
Governs
Business Rules
Quality of Service
Business Non Functional Requirements
Technical Non Functional Requirements
Satisfies
Requirements Definition
Governs
User Interaction
User Interface Requirements
Governs
Satisfies
Use Case Library
User Interaction
Expands
Subject Area Use Cases
Verifies
Test Result

Structured approach to enterprise requirements definition

Non-integrated project data

is imported, structured, linked and traced,



User requirements for SUV 4x2	Links to Technical Requirements	Design	Links to Tests
3 Requirements			
This section contains the user requirements.			
3.1 Capability Requirements			
3.1.1 Carrying Capacity			
3.1.1.1 Number of People			
Four average size adults shall be able to travel in comfort for a period of 3 hours. This level of comfort is defined as being equivalent to the standard of comfort provided by the top 40% of cars produced in 1999.	SR-104 2.14.1.0-1 from /Sports utility vehicle 4x2/Requirements/Functional Requirements The car shall be able to carry 4 average size adults in average comfort for a period of 3 hours. Last modified 11 February 1997	D-342 Full seats shall be created for two passengers in both front and back. D-344 There shall be space for a fifth passenger in the back that will not meet the comfort requirement.	Test Number 18 Market Research Test Result : Passed Test Number 12 Verify Number of People Test Result : Untested
The top level of cars are those in the price range $20,000 to $40,000 at 1999 prices.			

to produce reports of managed collated information

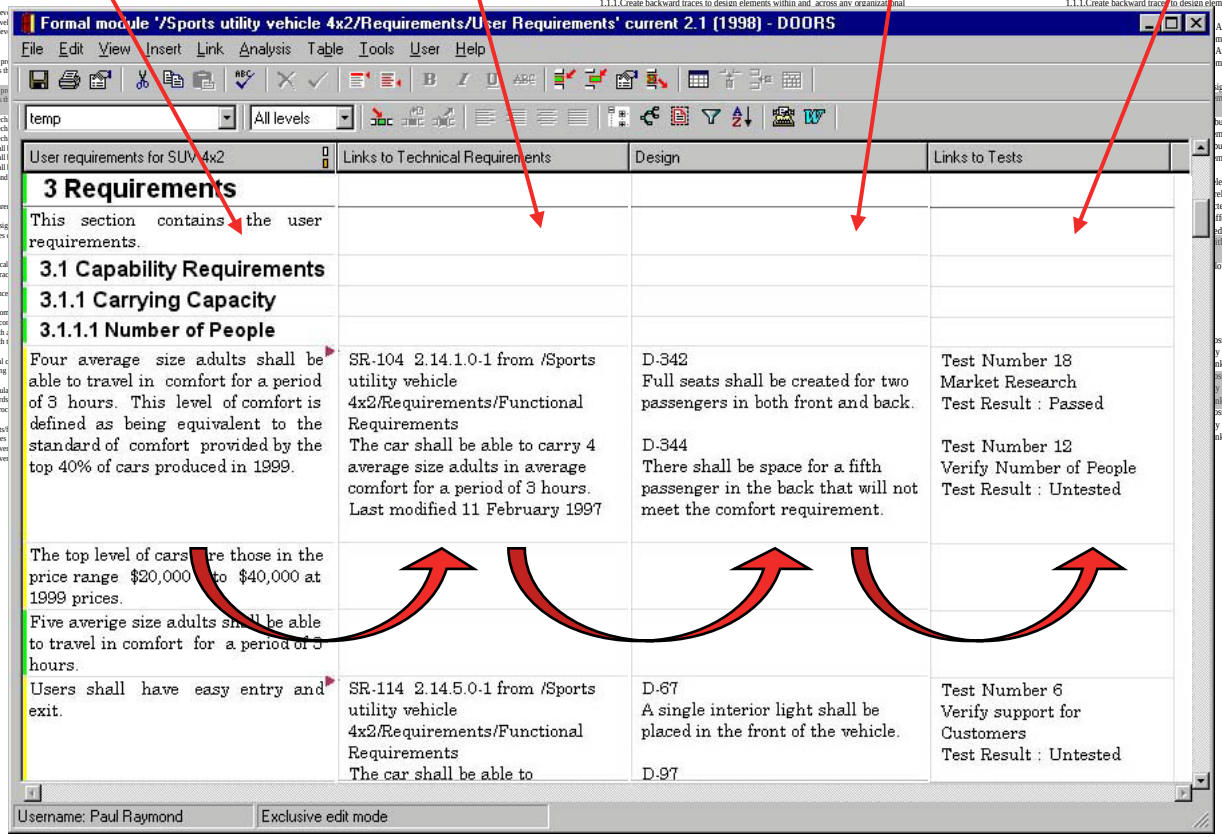
Managing Requirements Traceability in DOORS

Business/User Reqts

Technical Reqts

Design

Test Cases



End-to-end visual validation in a single view

IT Shared Solutions

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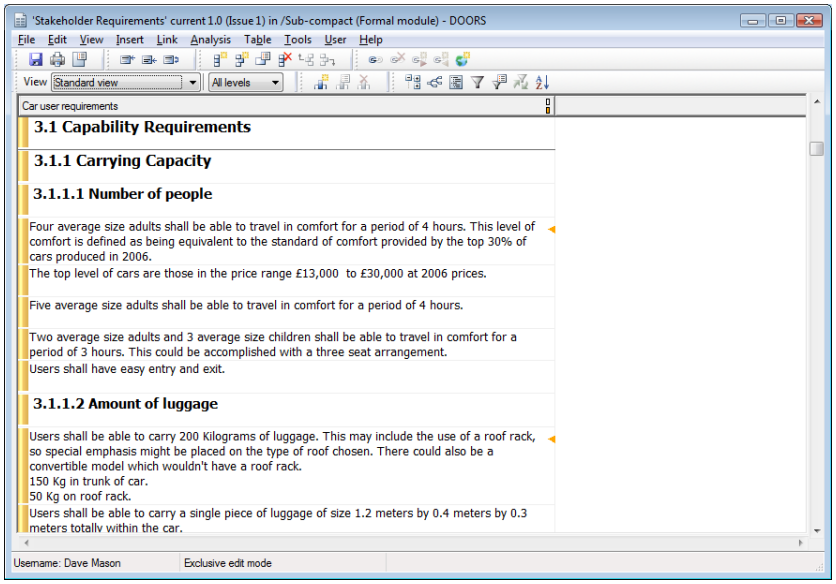
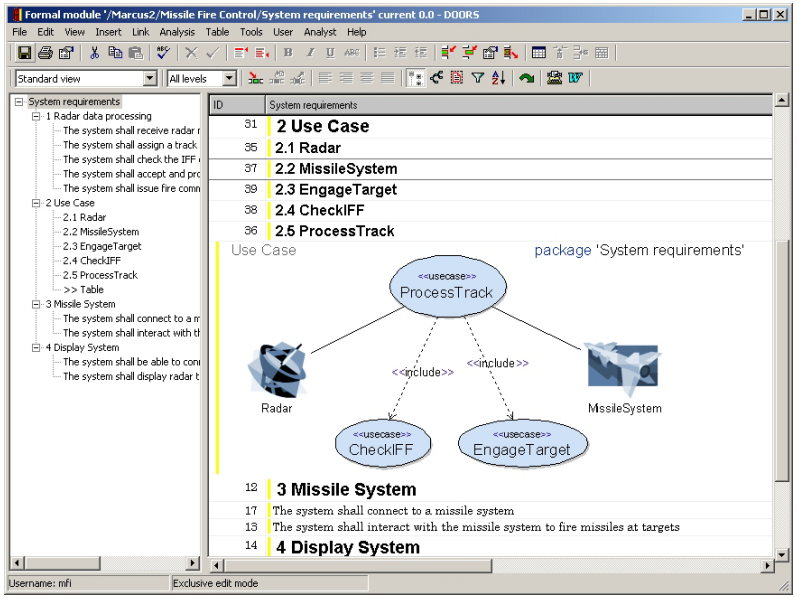
Requirements Definition via Text or UML





Standard Text Based Requirements

- Simply open DOORS and start typing
- Use a pre-existing outline or template
- Can be structured around specific approach or methodology for re-usable requirements process

UML Modelling Using DOORS Analyst

- Easy-to-learn, yet powerful visual modelling Synchronizes and stores diagrams together with textual requirements
- Maintains traceability between text and models
- Provides customizable symbols
- Jump-starts AGILE systems development

MAKING IT ALL WORK
STEP 1

Make sure all SME’s and BA’s know how to write requirements.

Reconcile these two statements

- Anyone with half a brain can write requirements.
- The reason for 44% of all project failures can be traced to poor requirements.

Reconcile these two statements

Project Initiation

- Anyone with half a brain can write requirements.

Post Implementation Review

- The reason for 44% of all project failures can be traced to requirements.

The BA role is a skill set not just a title.

If your business analysts are not trained to at least a level where they could pass the International Institute of Business Analysts CPBA exams your project is a risk.

The ITSS Clown Requirement

A clown *must* wear a bright red and white checked costume with big yellow buttons, a pointed hat with a rainbow coloured pompom. His shoes *must* be large with curly green ends and he needs a red nose, big red glasses and brown belt with a large gold buckle and if he can talk he must tell jokes otherwise he must be able to juggle balls or hoops.

The ITSS Clown Requirement

A clown *must* wear a bright red and white checked costume with big yellow buttons, a pointed hat with a rainbow coloured pompom. His shoes *must* be large with curly green ends and he needs a red nose, big red **OPTICAL** glasses and brown belt with a large gold buckle and if he can talk he must tell jokes otherwise he must be able to juggle balls or hoops.

REQUIREMENT DOWNSTREAM ACTIVITIES

Bookings

Transport

Training

Pants and Jacket

Hats

pompom

Requirement

A clown must wear a bright red and white checked costume with big yellow buttons, a pointed hat with a rainbow colored pompom. His shoes must be large with curly green ends and he needs a red nose, big red **OPTICAL** glasses and brown belt with a large gold buckle and if he can talk he must tell jokes otherwise he must be able to juggle balls or hoops.

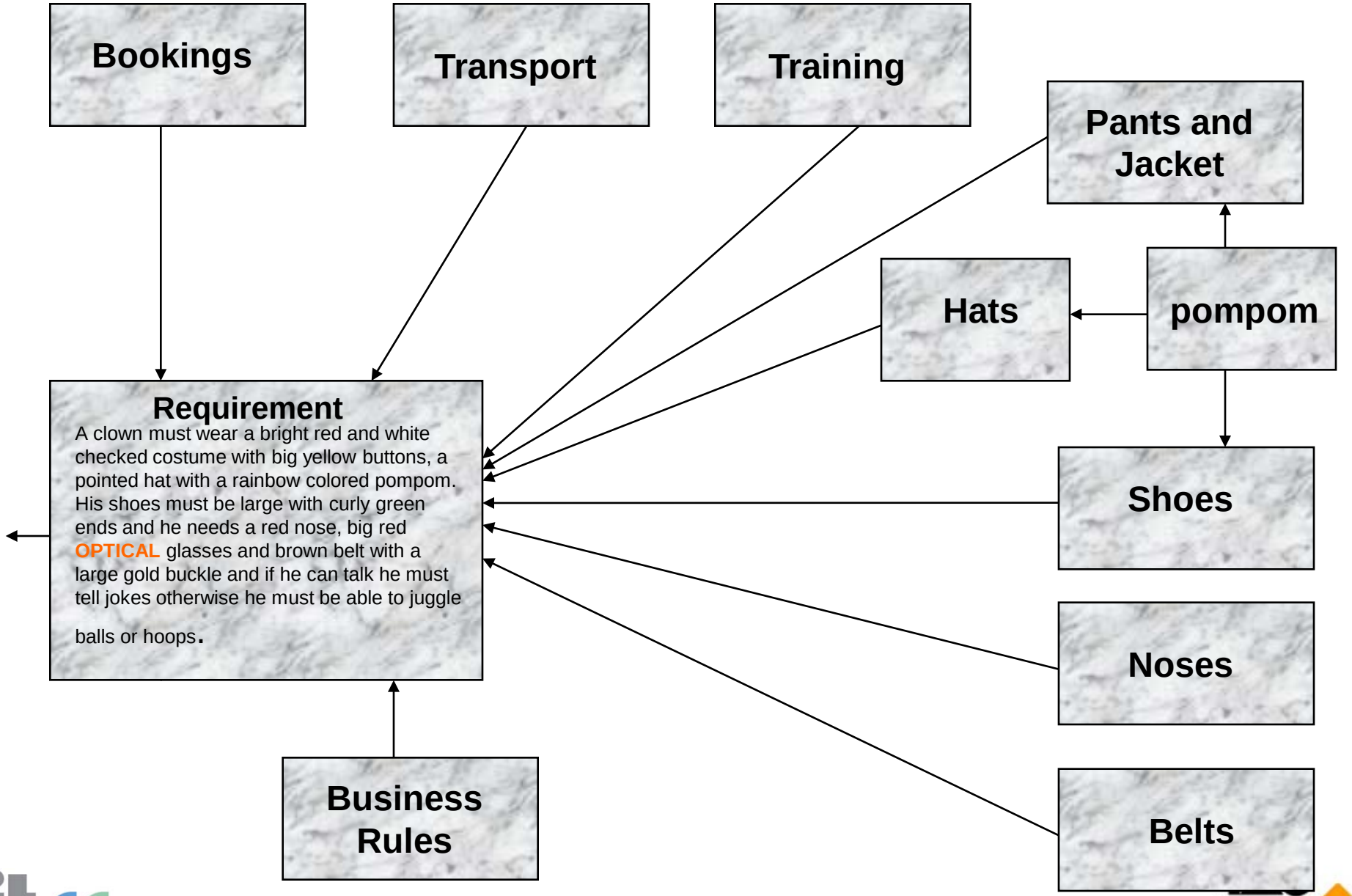
Shoes

Noses

Business Rules

Belts

TRACEABILITY

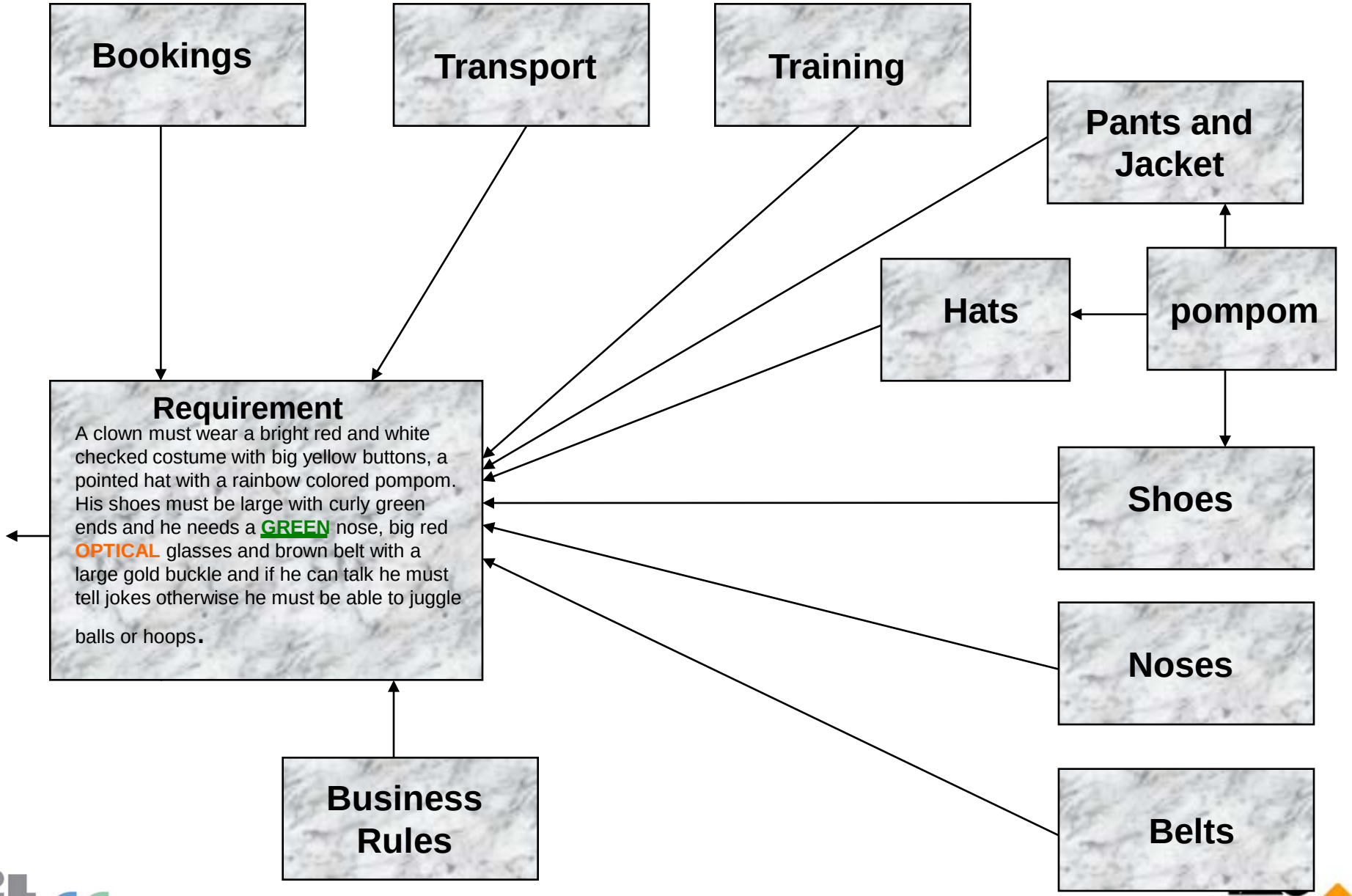


CHANGE IN LEGISLATION

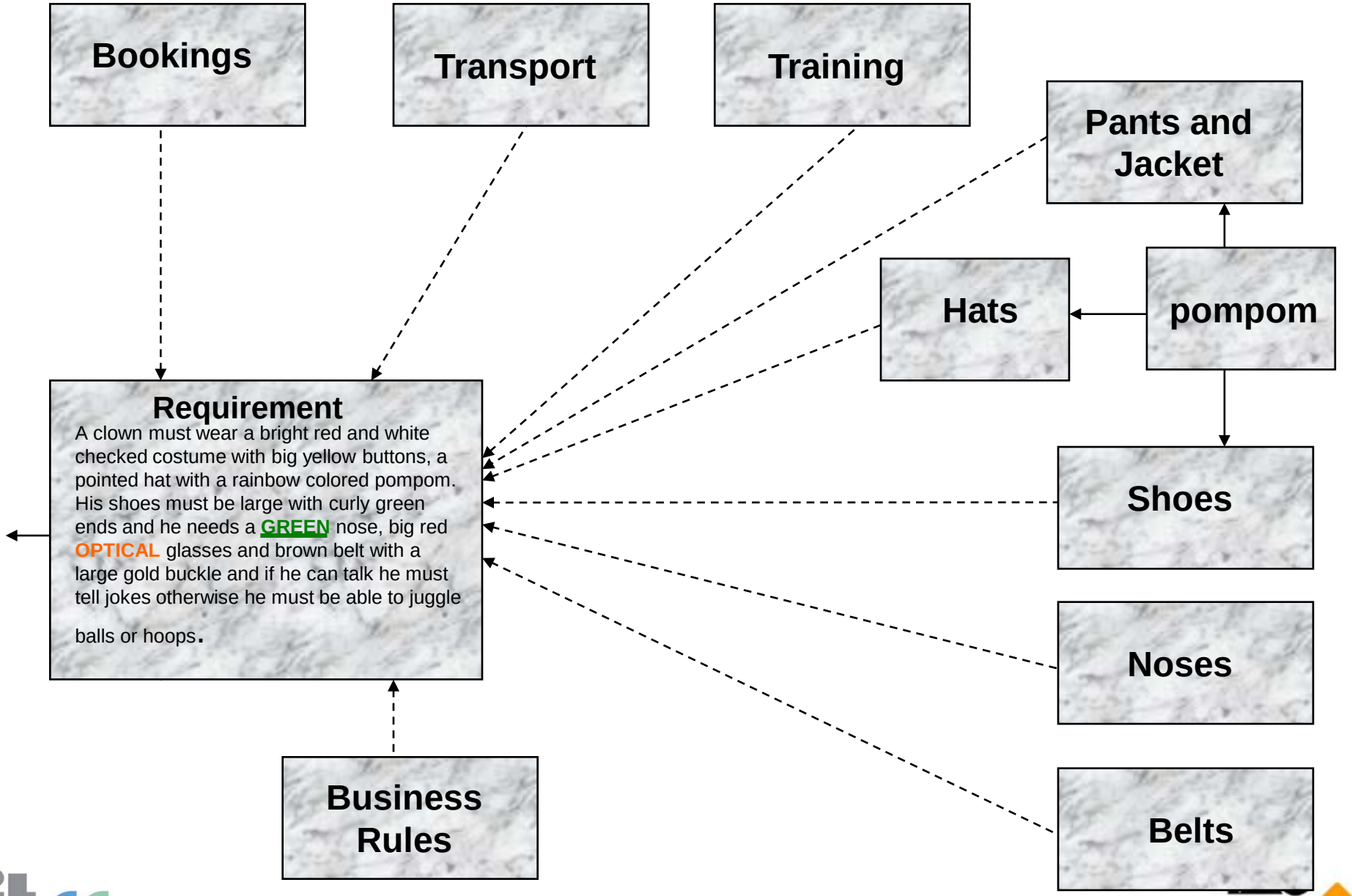
Green ACT

All Clowns must have GREEN Noses

TRACEABILITY



TRACEABILITY (Suspect Links)



A Clown

A clown must:

Wear a bright red and white checked costume:

The clown costume must have big yellow buttons.

The clown must wear a hat:

The clowns hat must be pointy;

The end of the clowns hat must have a rainbow colored pompom.

The clowns must have shoes:

The clowns shoes must be large;

The end of the clowns shoes must be green;

The end of the clowns shoes must be curly.

The clown must have a red nose.

The clown must have big red OPTICAL glasses.

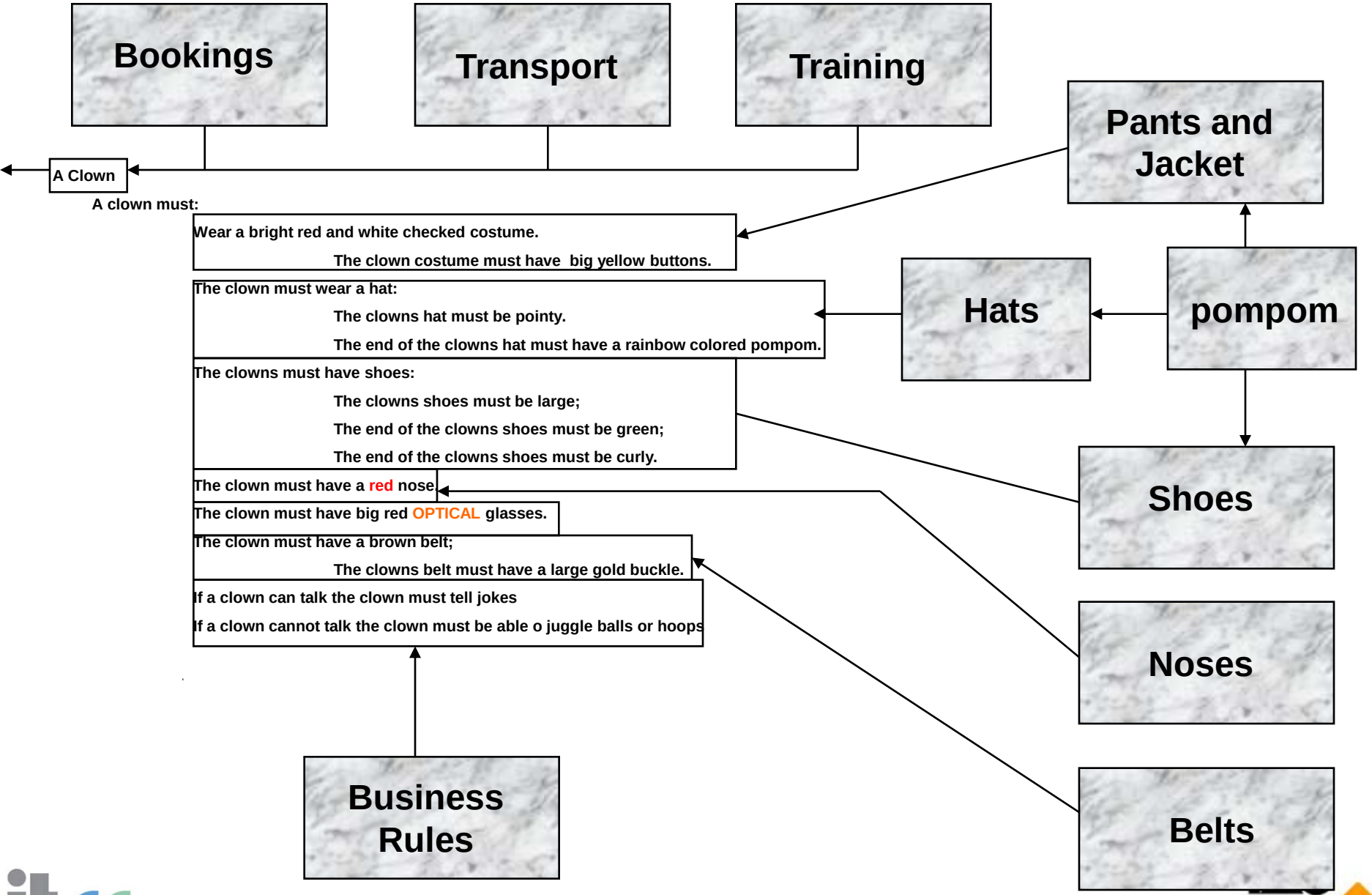
The clown must have a brown belt:

The clowns belt must have a large gold buckle.

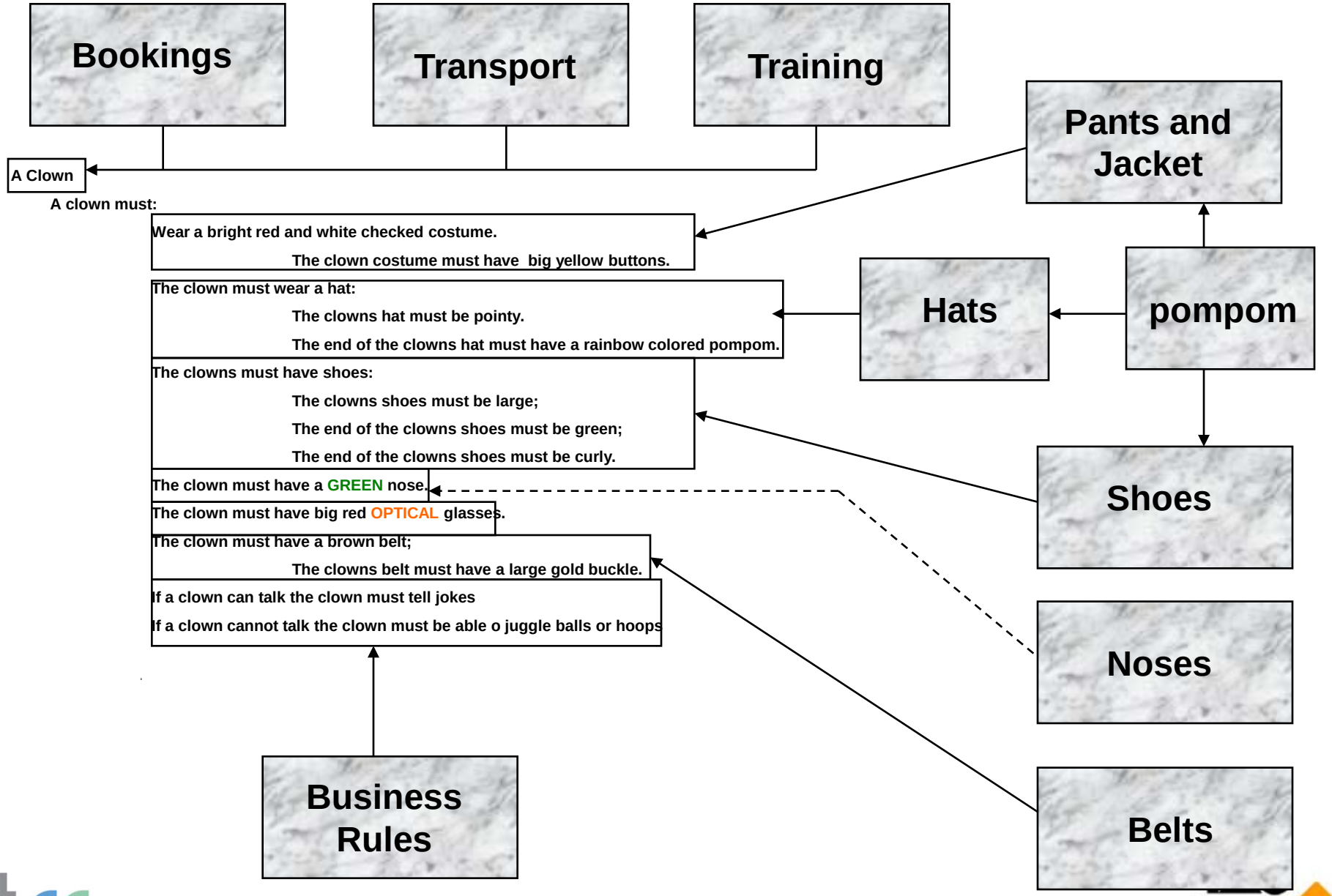
If a clown can talk the clown must tell jokes.

If a clown cannot talk the clown must be able to juggle balls or hoops.

TRACEABILITY



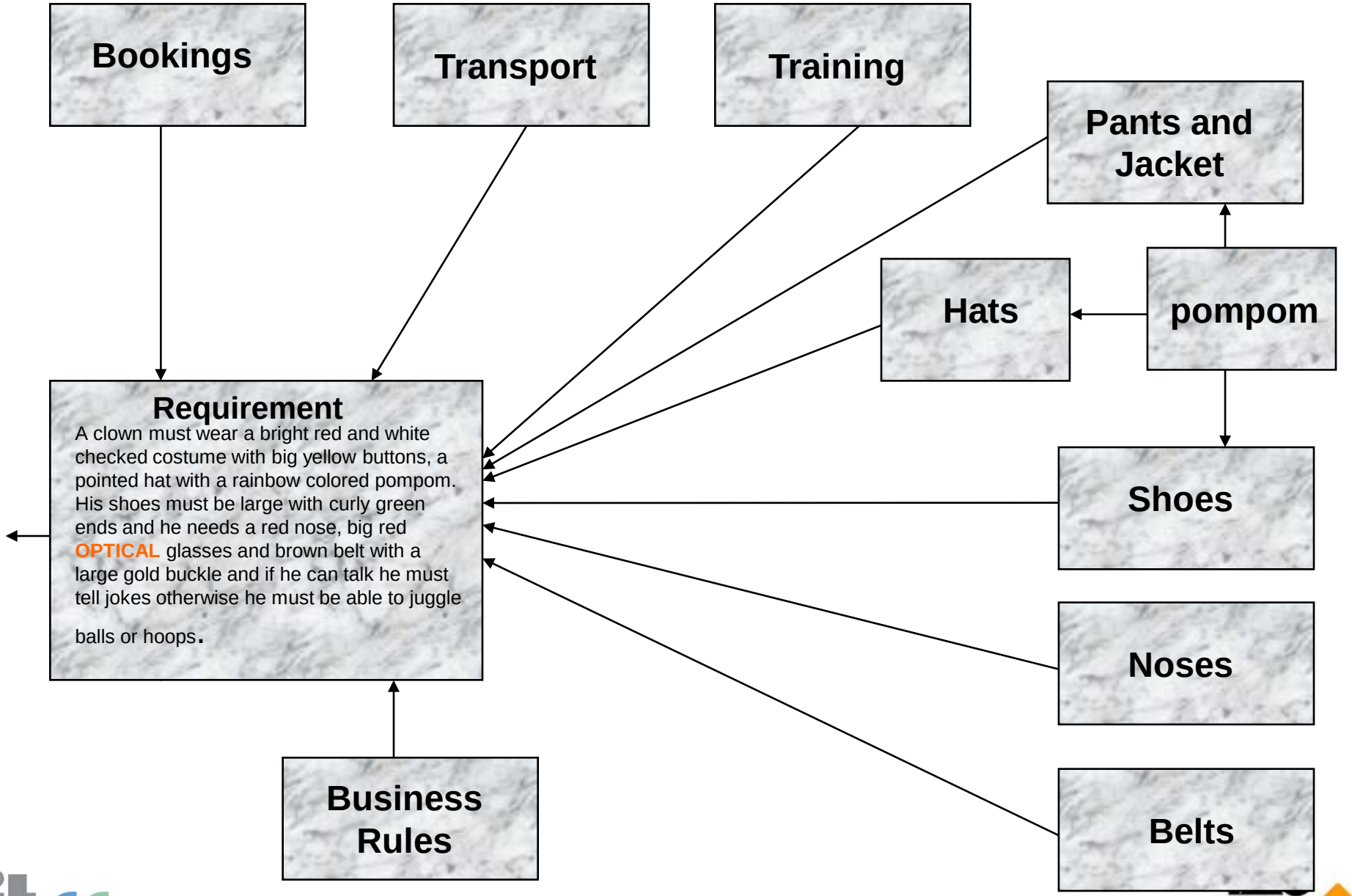
TRACEABILITY



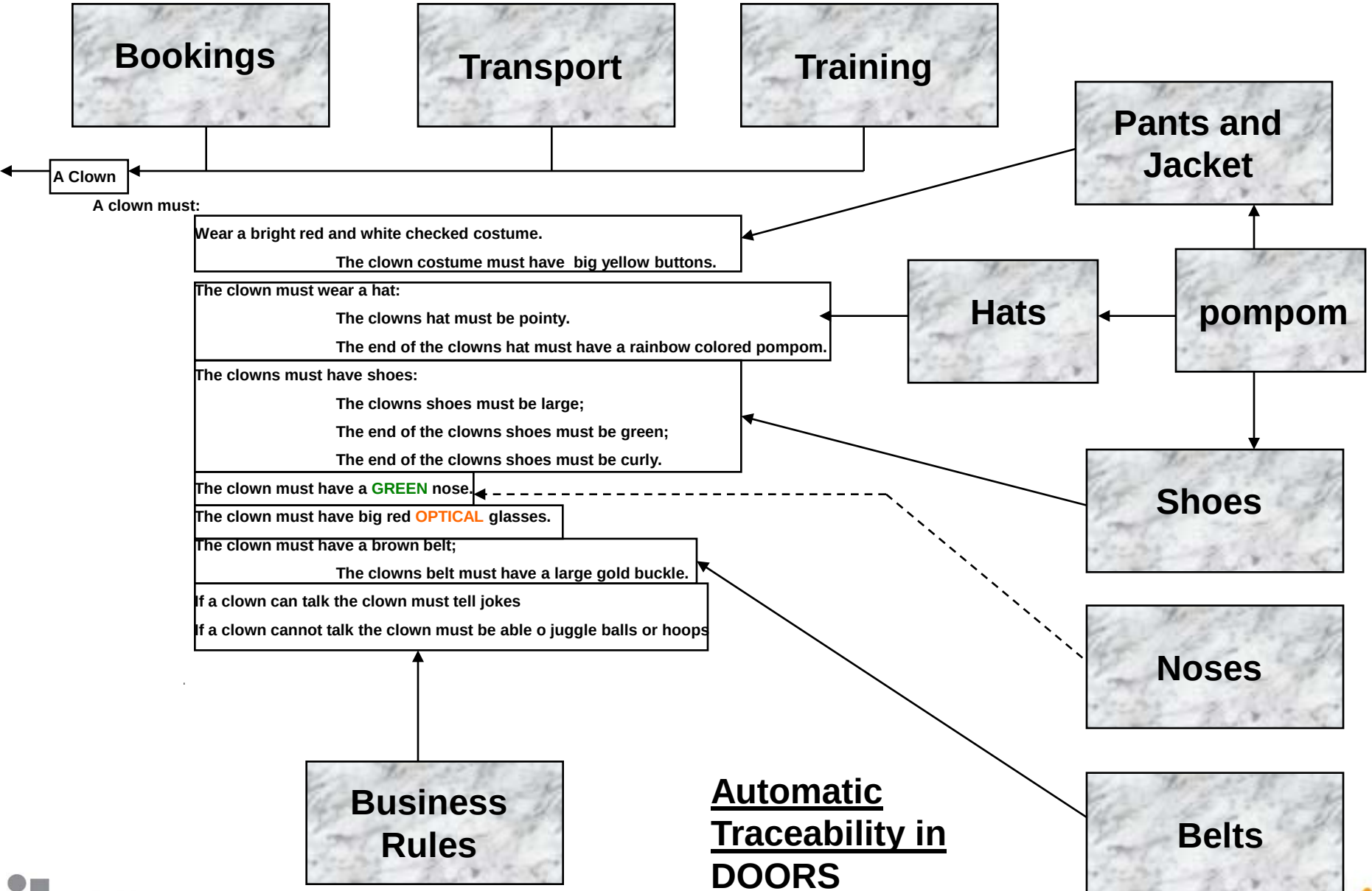
QUESTION

Who will build/make/supply the big red **OPTICAL** glasses?

ORPHAN REQUIREMENT



ORPHAN REQUIREMENT



Automatic Traceability in DOORS

Linking Risks/Issues to Requirements

A Clown

A clown must:

Wear a bright red and white checked costume.

The clown costume must have big yellow buttons.

The clown must wear a hat:

The clowns hat must be pointy.

The end of the clowns hat must have a rainbow colored pompom.

The clowns must have shoes:

The clowns shoes must be large;

The end of the clowns shoes must be green;

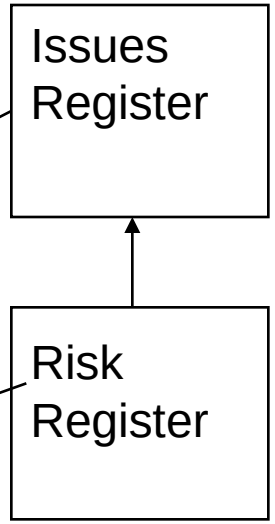
The end of the clowns shoes must be curly.

The clown must have a GREEN nose.

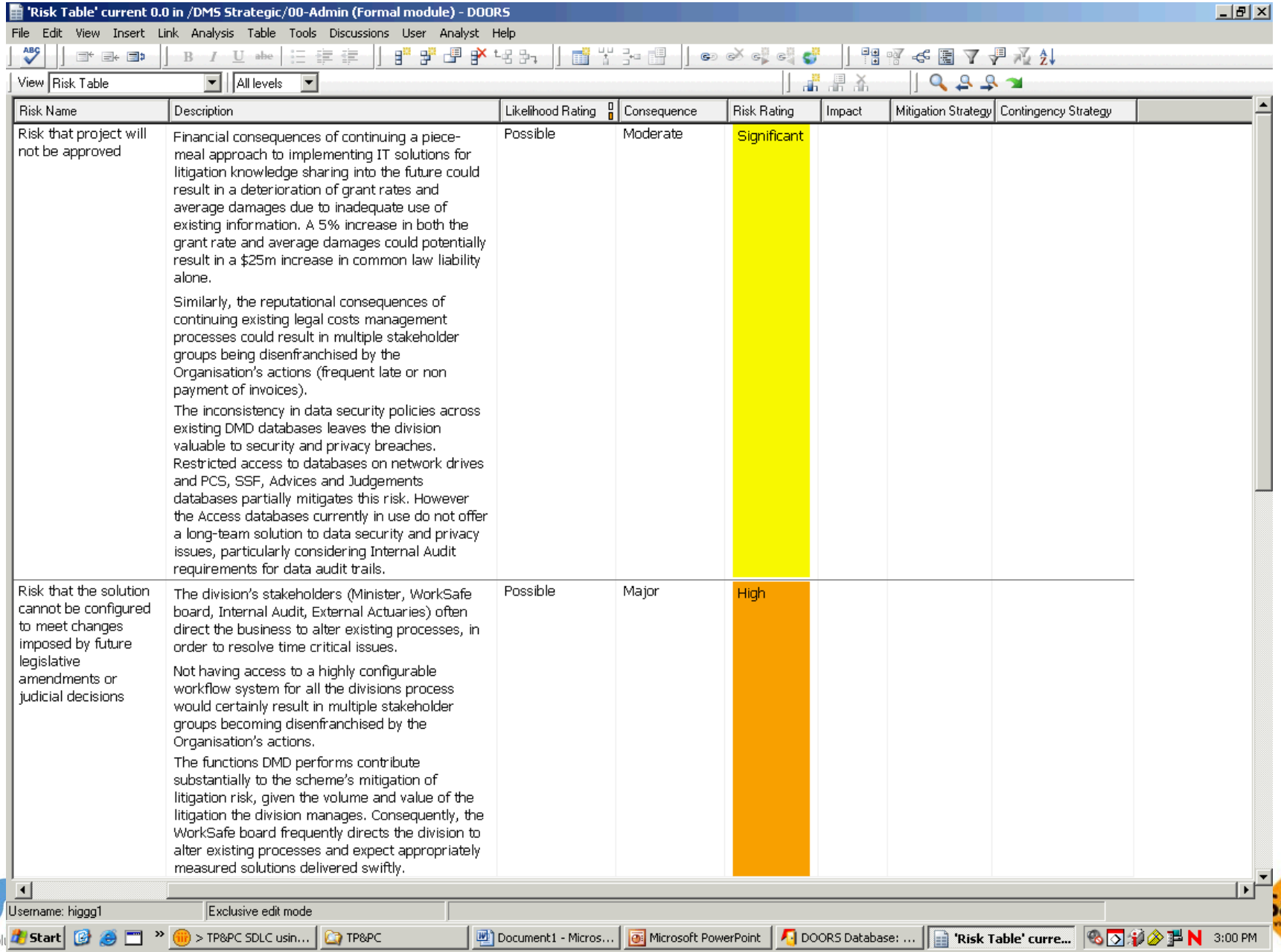
The clown must have big red OPTICAL glasses.

The clown must have a brown belt;

The clowns belt must have a large gold buckle.



Linking Risks/Issues to Requirements



Requirements Acquittal

We must know WHO is acquitting each requirement and to what degree of completeness.

The Supplier/Development Team/etc linked to Requirements

'Document1' current 0.0 in /Sandpit (Formal module) - DOORS

File Edit View Insert Link Analysis Table Tools Discussions User Analyst Help

View: Supplier | All levels

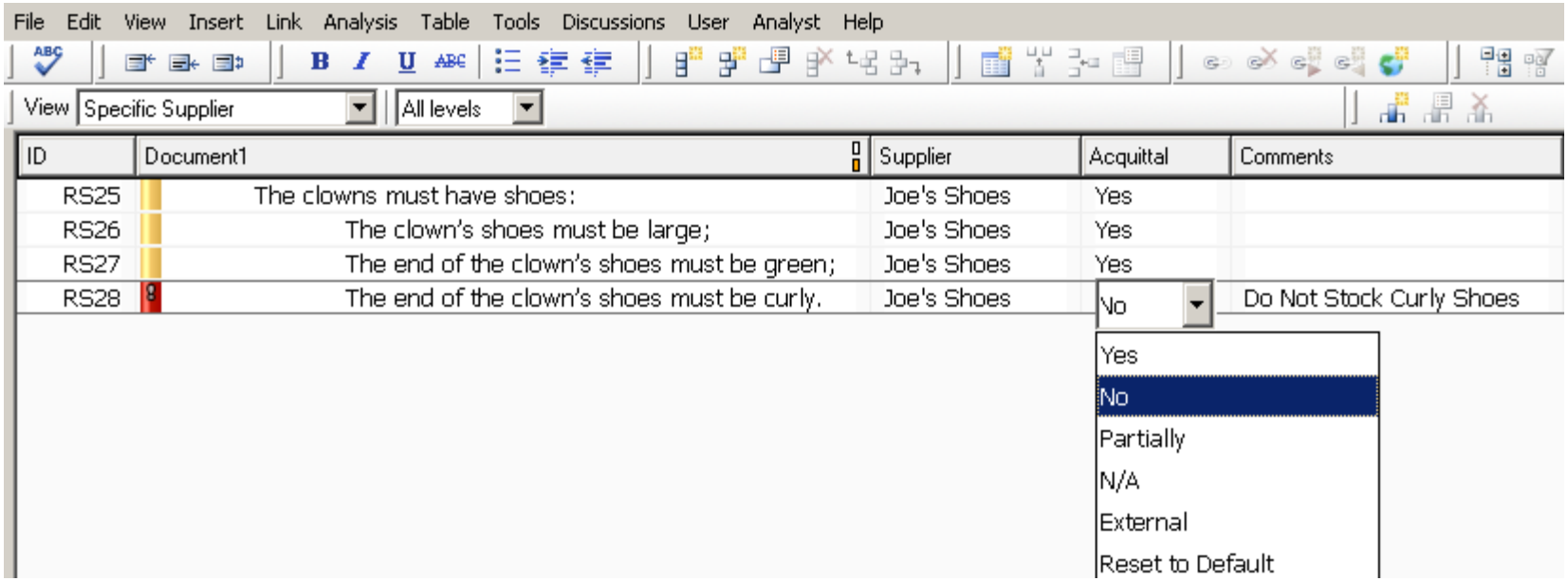
ID	Document1	Supplier
RS18	**1 A Clown**	
RS19	A clown must:	
RS20	Wear a bright red and white checked costume:	Betties Attire P/L
RS21	The clown costume must have big yellow buttons.	Betties Attire P/L
RS22	The clown must wear a hat:	Freds Hats
RS23	The clown's hat must be pointy;	Freds Hats
RS24	The end of the clown's hat must have a rainbow colored pompom.	Freds Hats
RS25	The clowns must have shoes:	Joe's Shoes
RS26	The clown's shoes must be large;	Joe's Shoes
RS27	The end of the clown's shoes must be green;	Joe's Shoes
RS28	The end of the clown's shoes must be curly.	Joe's Shoes
RS29	The clown must have a red nose.	Noses R US
RS30	The clown must have big red OPTICAL glasses.	
RS31	The clown must have a brown belt:	Bills Belts
RS32	The clown's belt must have a large gold buckle.	Bills Belts
RS33	If a clown can talk the clown must tell jokes.	
RS34	If a clown cannot talk the clown must be able to juggle balls or hoops	

File Edit View Insert Link Analysis Table Tools Discussions User Analyst Help

View: Specific Supplier | All levels

ID	Document1	Supplier
RS25	The clowns must have shoes:	Joe's Shoes
RS26	The clown's shoes must be large;	Joe's Shoes
RS27	The end of the clown's shoes must be green;	Joe's Shoes
RS28	The end of the clown's shoes must be curly.	Joe's Shoes

Each Supplier must respond to each requirement



- Suppliers Responds:
  - Online
  - Excel Spread Sheet
  - DOORS

Requirements Acquittals

'Document1' current 0.0 in /Sandpit (Formal module) - DOORS

File Edit View Insert Link Analysis Table Tools Discussions User Analyst Help

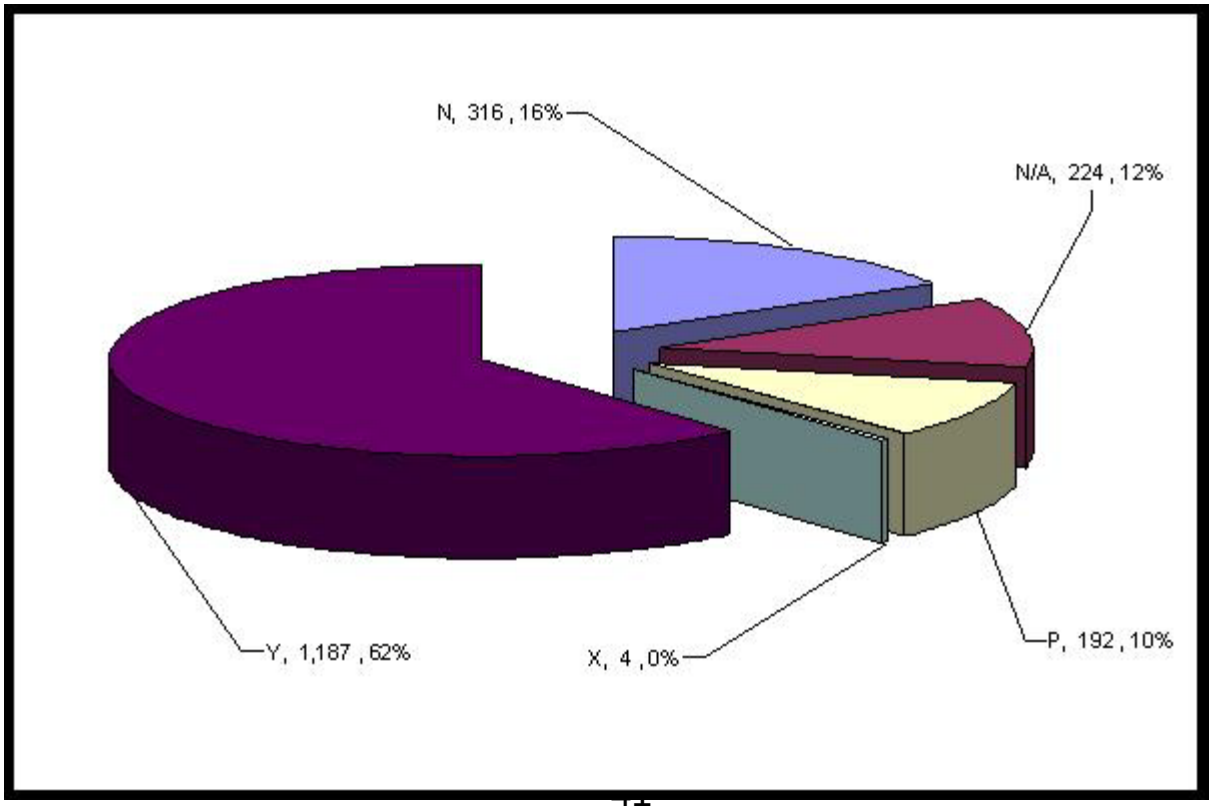
View: Acquittals | All levels

ID	Document1	Acquittal	Supplier	Comments
RS18	**1 A Clown**			
RS19	A clown must:			
RS20	Wear a bright red and white checked costume:	Yes	Betties Attire P/L	
RS21	The clown costume must have big yellow buttons.	Yes	Betties Attire P/L	
RS22	The clown must wear a hat:	Yes	Freds Hats	
RS23	The clown's hat must be pointy;	Yes	Freds Hats	
RS24	The end of the clown's hat must have a rainbow colored pompom.	Partially	Freds Hats	Only Three Colours, Green, Red, Blue
RS25	The clowns must have shoes:	Yes	Joe's Shoes	
RS26	The clown's shoes must be large;	Yes	Joe's Shoes	
RS27	The end of the clown's shoes must be green;	Yes	Joe's Shoes	
RS28	The end of the clown's shoes must be curly.	No	Joe's Shoes	Do Not Stock Curly Shoes
RS29	The clown must have a red nose.	Yes	Noses R US	
RS30	The clown must have big red OPTICAL glasses.			
RS31	The clown must have a brown belt:	Yes	Bills Belts	
RS32	The clown's belt must have a large gold buckle.	Partially	Bills Belts	Buckle is gold plated
RS33	If a clown can talk the clown must tell jokes.			
RS34	If a clown cannot talk the clown must be able to juggle balls or hoops			

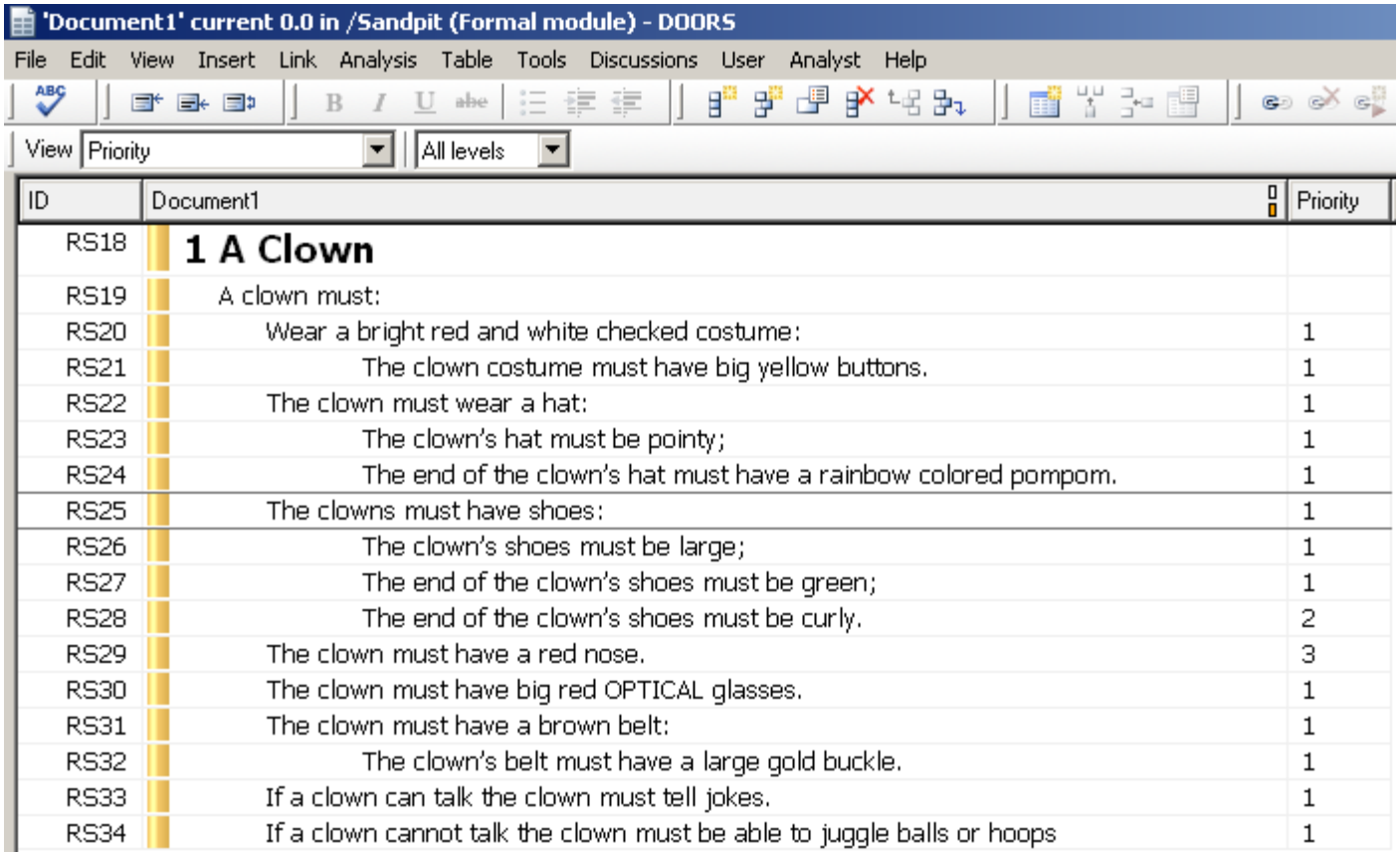
Summary of Acquittals

	Acquittal					
	N	N/A	P	X	Y	**Grand Total**
Total	**316**	**224**	**192**	**4**	**1,187**	**1,923**

Notes:
Y = Yes, complies with requirement
P = Partially, satisfies some of the requirement
N = No, does not satisfy the requirement
N/A = Not Applicable, outside of scope
X = Acquitted externally/in another document.



Requirements Priority



ID	Document1	Priority
RS18	**1 A Clown**	
RS19	A clown must:	
RS20	Wear a bright red and white checked costume:	1
RS21	The clown costume must have big yellow buttons.	1
RS22	The clown must wear a hat:	1
RS23	The clown's hat must be pointy;	1
RS24	The end of the clown's hat must have a rainbow colored pompom.	1
RS25	The clowns must have shoes:	1
RS26	The clown's shoes must be large;	1
RS27	The end of the clown's shoes must be green;	1
RS28	The end of the clown's shoes must be curly.	2
RS29	The clown must have a red nose.	3
RS30	The clown must have big red OPTICAL glasses.	1
RS31	The clown must have a brown belt:	1
RS32	The clown's belt must have a large gold buckle.	1
RS33	If a clown can talk the clown must tell jokes.	1
RS34	If a clown cannot talk the clown must be able to juggle balls or hoops	1

Acquittals by Subject Area & Priority

		Priority 1					1Total	Priority 2					2Total	Priority 3				3Total	Grand Total
Code	Title	N	N/A	P	X	Y		N	N/A	P	X	Y		N	N/A	P	Y		
DOC1	Work Structure	1	1	5		37	44	3		1			4	5		1		6	54
DOC2	Non-Functional Specifications	2	9	20		33	64	1	1	3		5	10		2	1	6	9	83
DOC3	Document Management		21	10		29	60		4	4		3	11						71
DOC4	Business Reporting	2	19	6		1	28		3				3						31
DOC5	Generic Management	24	2	36	2	177	241	32	1	7	1	31	72	4		1	1	6	319
DOC6	Intervention Strategies 1	5	1	1		74	81	4		2		7	13						94
DOC7	Intervention Strategies 2	10	1	5		122	138	3				10	13	1	1		1	3	154
DOC8	Intervention Strategies 3	29	2	8		248	287	2		3		9	14	1				1	302
DOC9	Other Business Functions	39	10	13	1	35	98	4		1			5	2			1	3	106
DOC10	Security & Audit Requirements	5	56	9		36	106	1	2	1		1	5	1	2		3	6	117
DOC11	Architecture Principles & Requirements	74	30	14		16	134	27	11	11		7	56	2	1	1		4	194
DOC12	BR - Access Management			1		24	25					2	2						27
DOC13	BR - Directory Services		1	1		21	23	1	1			6	8						31
DOC14	BR - Portal			3		26	29		3	1		7	11			1		1	41
DOC15	BR - Monitoring & Administration Tools	5		2		27	34	1					1						35
DOC16	BR - MQ	3	2			18	23	1				2	3						26
DOC17	BR - Network			1		50	51		2	2		16	20				1	1	72
DOC18	BR - PC SOE					11	11	1	3			1	5						16
DOC19	BR - Servers & Storage	1		1		20	22					3	3			1		1	26
DOC20	BR - User Administration Application	9		4		36	49					1	1						50
DOC21	**BR - Non-Functional**	**3**		**2**		**17**	**22**					**3**	**3**						**25**

Y = Yes, complies with requirement

P = Partially, satisfies some of the requirement

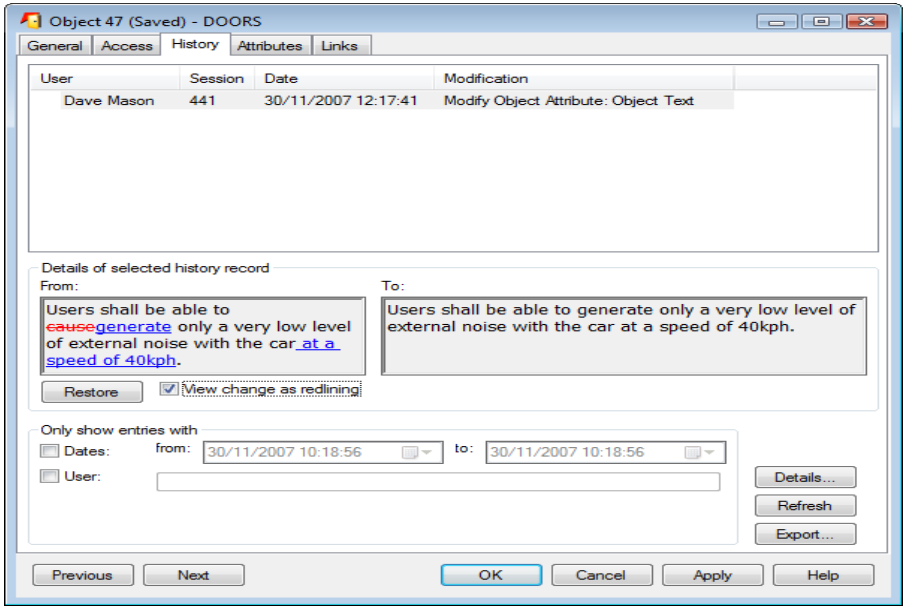
N = No, does not satisfy the requirement

N/A = Not Applicable, outside scope

X = Acquitted externally/in another document

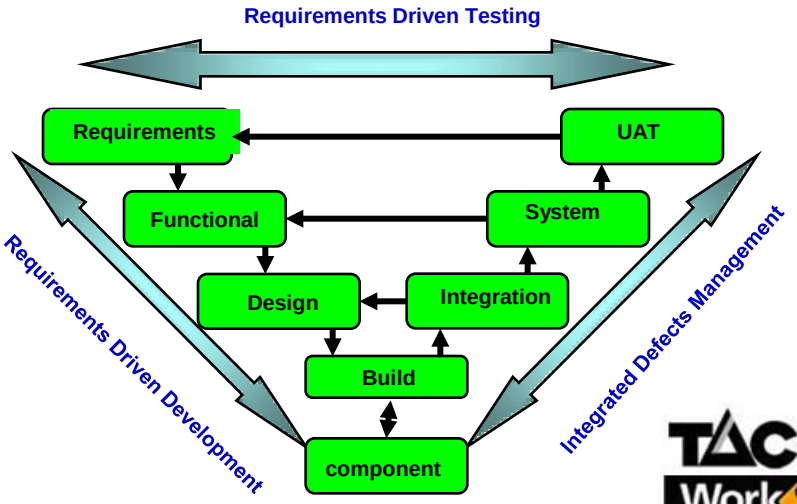
Integrated Change Management & Testing Tools

- To manage project change and requirements updates
- Integrates with market leading Change Management products and contains it's own Change Proposal System



Review and approve changes in DOORS

- Verification and validation to ensure that requirements are met
- Report and Manage entire V-Model
- Contains its own Test Tracking functions as well as integration to HP-Quality Centre

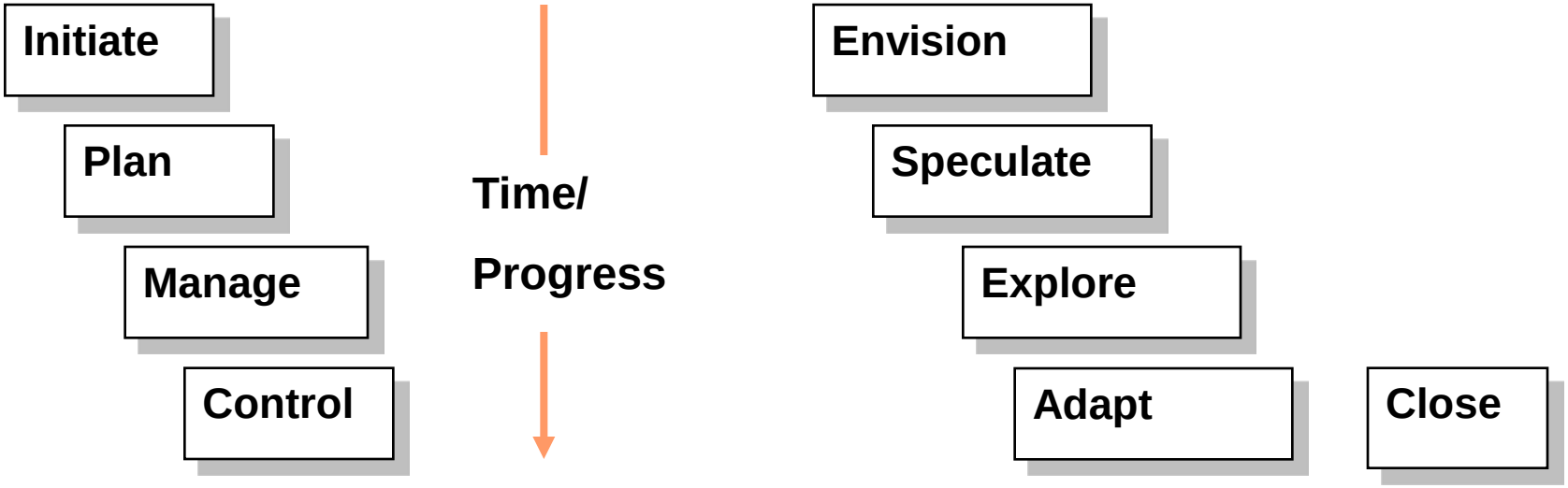


IT Shared Solutions

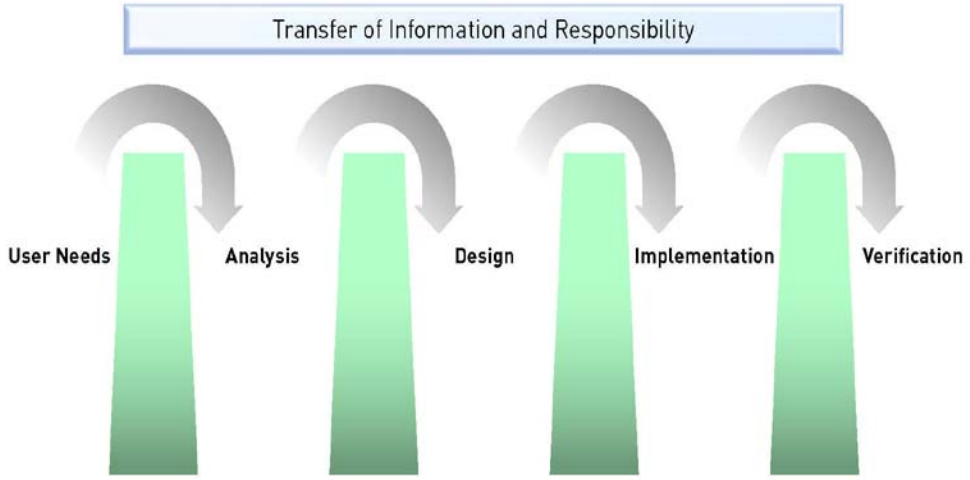
Project Approaches To Solution Delivery

Traditional, waterfall, project management phases emphasize planning and control to reduce risks by uncertainty

Agile project management is based on vision and self-discipline

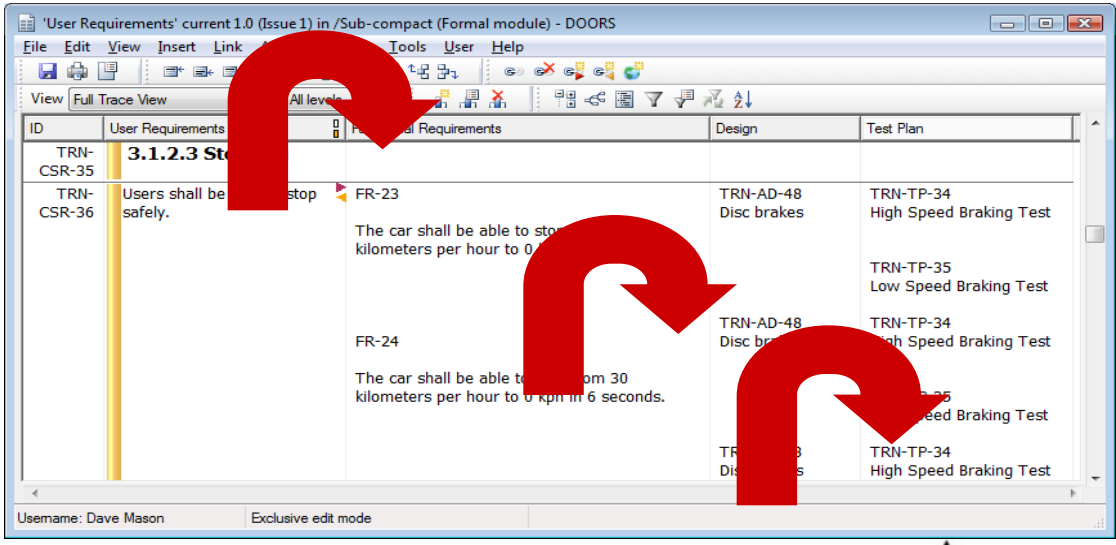


Waterfall Approach Using DOORS



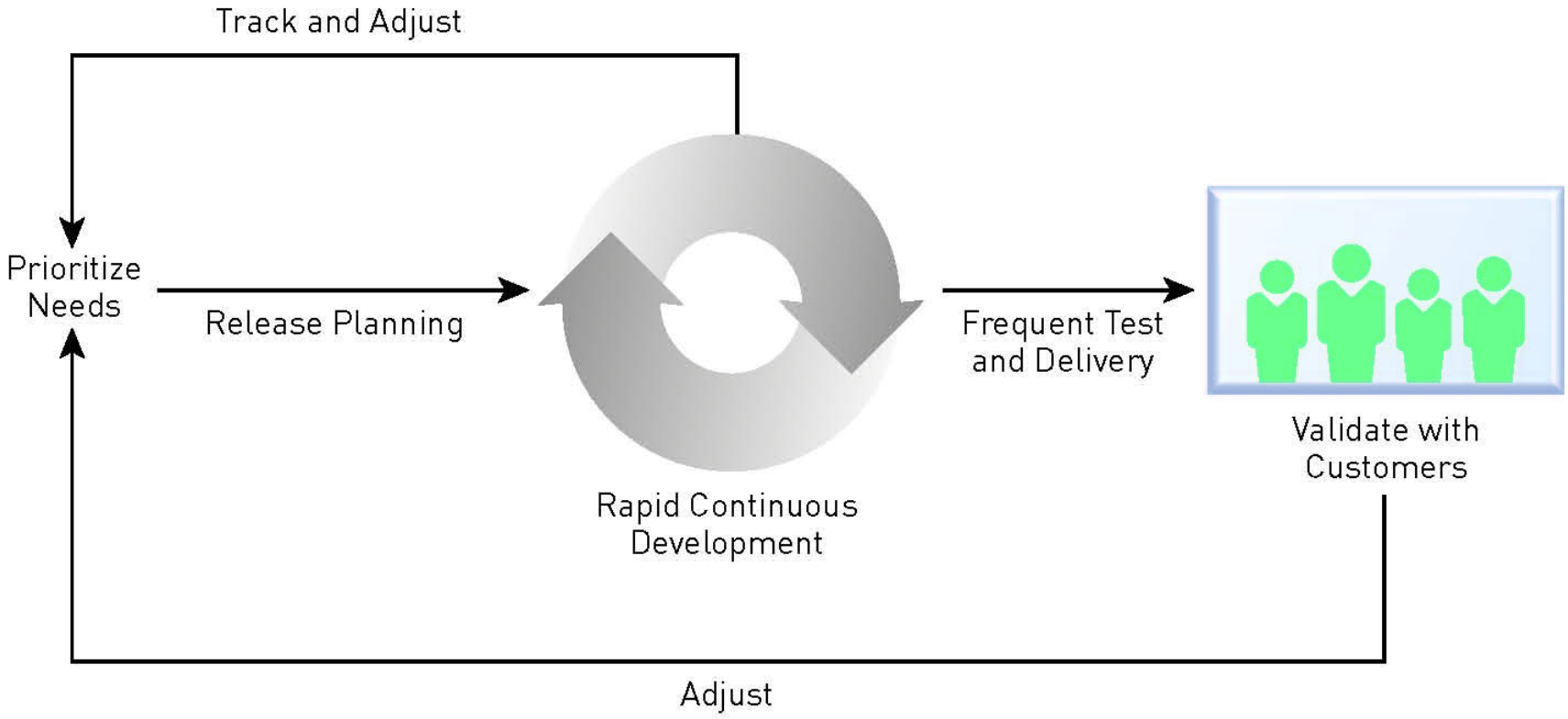
- Each ‘phase’ executed sequentially by different teams
- Key information can be lost which limits the success of the next phase

- DOORS allows for each phase to continue to be worked on separately across different teams
- Each phase is linked in key views or reports to create traceability

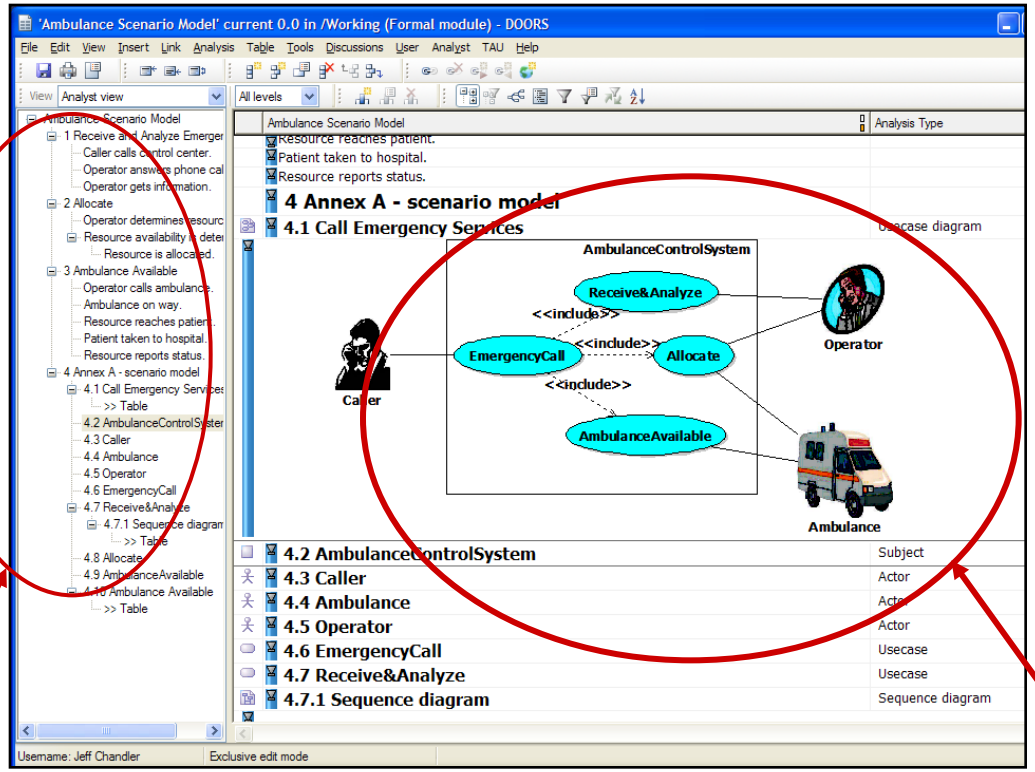


Agile Approach – alternative SDLC approach

Continuous iterations and realigning



Agile Requirements Management using DOORS



Product and Sprint Backlogs structured in repository for management across projects/sprints

Visualise and Model Requirements and Design for each project/sprint

Trace back to Customer requirements

THE AGILE CLOWN

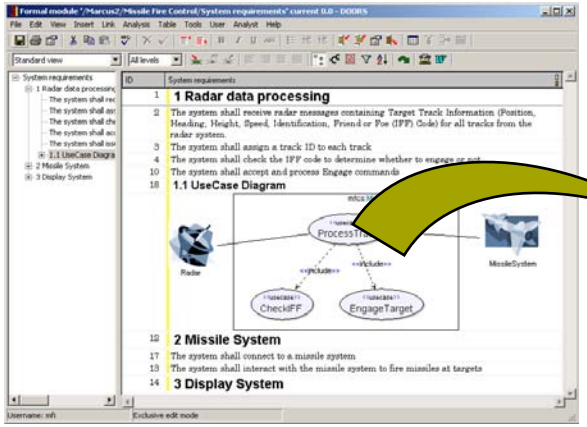
'The Clown' current 0.0 in /Analyst (Formal module) - DOORS

File Edit View Insert Link Analysis Table Tools Discussions User ITSS Publish Tau Help

View: Agile View | All levels

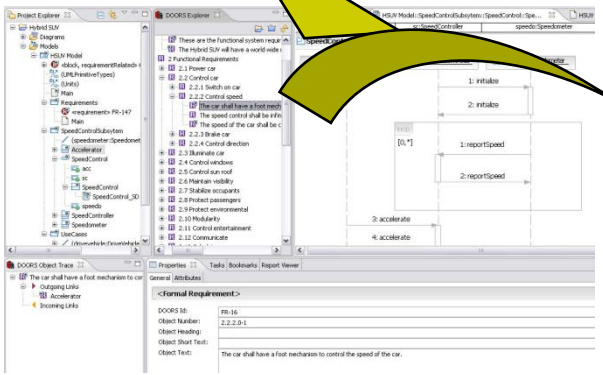
ID		Sprint	Build Order	Priority	Release	Test C'k	Result
RD-2	**1 Subject Area Clown**						
RD-3	A clown must:					Yes	
RD-4	Wear a bright red and white checked costume:	1	1	High	1.0	Yes	
RD-5	The clown costume must have big yellow buttons.	1	2	High	1.0	Yes	
RD-6	The clown must wear a hat:	1	3	High	1.0	Yes	
RD-7	The clown's hat must be pointy;	1	4	High	1.0	Yes	
RD-8	The end of the clown's hat must have a rainbow colored pompom.	1	5	High	1.0	Yes	
RD-9	The clowns must have shoes:	2	6	High	1.0	Yes	
RD-10	The clown's shoes must be large;	2	7	Medium	1.0	Yes	
RD-11	The end of the clown's shoes must be green;	2	8	Mandatory	1.0	Yes	
RD-12	The end of the clown's shoes must be curly.	2	9	Medium	1.0	Yes	
RD-13	The clown must have a Green nose.	2	10	Mandatory	1.0	Yes	
RD-14	The clown must have big red OPTICAL glasses.	2	11	High	1.0	Yes	
RD-15	The clown must have a brown belt:	3	12	Medium	1.0	Yes	
RD-16	The clown's belt must have a large gold buckle.	3	13	Medium	1.0	Yes	
RD-17	If a clown can talk the clown must tell jokes.	3	14	Low	1.1	Yes	
RD-18	If a clown cannot talk the clown must be able to juggle balls or hoops.	3	15	Low	1.1	Yes	

Connecting Agile Requirements and Development

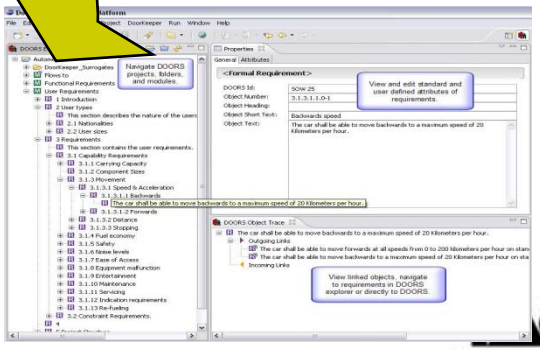


DOORS/Analyst

- Transfer model to Rational Tools
- Refine model, simulate and verify architecture
- Define audit trail back to DOORSAnalyst
- Transfer model to RSDP/Eclipse
- Refine model, simulate and generate final application



Rational SDP



Eclipse


Welcome to Innovation 2009
IBM Rational Software Conference