

# Brown-Field Requirements Engineering

*Introductory Talk*

**Ian Alexander**

Scenario Plus Ltd, and BCS RESG Chair  
<http://www.scenarioplus.org.uk>

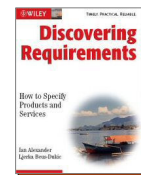
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## Requirements Engineering Specialist Group



- Events on all aspects of requirements
  - Creativity Tutorial 30 March
  - Book Launch 2 April
  - Birds-of-a-Feather 29 April
  - Self-Adaptive Systems May
  - Annual Summer Party 9 July
- *Requirements Quarterly* Newsletter



<http://www.resg.org.uk>

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# This Evening



- *Refreshments*
- A short introduction
  - Background
  - Some Questions
- Facilitated Discussion
  - Phil Cantor (Misys)
- *Adjourn to the pub*

# Background



# Green or Brown?



- **Much RE (& Systems, Software) literature assumes green field**
- **But most projects add to existing brown-field systems**

# New Consumer Electronics

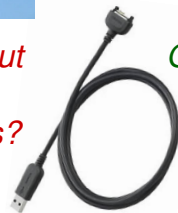


[www.nokiamuseum.com](http://www.nokiamuseum.com)

*What about System Interfaces?*

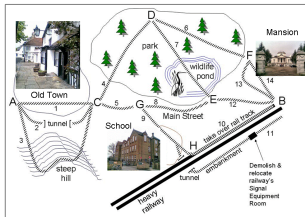
*Green Field?*

*What about Product Line User Expectations?*



***More brown than green, perhaps...***

# New Commuter Railway / Tram



*What about Resource Conflicts?*

*Green Field?*

*What about existing transport/city infrastructure?*

***More brown than green, certainly...***

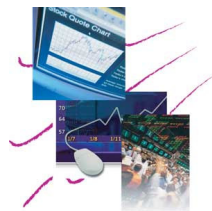
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# New Tasks for Financial System

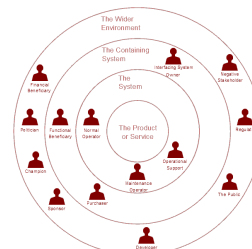


**Existing Codebase**



*New Use Cases...*

***Brown, definitely.***



**Existing Stakeholders**

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# What Colour?



New consumer electronics product	To add to existing product line	Reuse standards, design approach, some interfaces
New commuter railway / tram	To extend existing transport network, city infrastructure	Reuse standards, design, existing buildings, etc
New tasks for financial system	To enhance existing database/network infrastructure	Reuse/modify existing software, data structures

***Do green-field system/product developments exist?***

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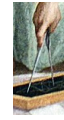
# Some Questions



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# Brown-field Challenges



## Legacy features

Complex requirements,  
many associated details

Multiple constraints  
from existing systems

Troublesome  
non-functional requirements

Pressures from multiple  
stakeholders

Loss of organizational  
memory

Large numbers of  
change requests

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# Possible RE Solutions



## Legacy features

Scenarios,  
Use Cases?

Data  
Models?

Traceability,  
Requirements Tools?

Complex requirements,  
many associated details

Multiple constraints  
from existing systems

Stakeholder  
Analysis?

Context  
Model?

Troublesome  
non-functional requirements

Goal  
Models?

Pressures from multiple  
stakeholders

Acceptance Criteria,  
QoS Measures?

Trade-offs &  
Prioritisation?

Loss of organizational  
memory

Large numbers of  
change requests

Project  
Dictionary?

Rationale  
for Decisions?

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# A Matrix of RE Techniques



<i>Requirement Elements</i>	Stakeholders	Goals	Context, Interfaces, Scope	Scenarios	Qualities and Constraints	Rationale	Definitions	Measurements	Priorities
<i>Discovery Contexts</i>									
From Individuals									
From Groups									
From Things									
Trade-Offs									

What you need to discover and document

Where you can discover those elements

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# Characterising a Project's RE



<i>Requirement Elements</i>	Stakeholders	Goals	Context, Interfaces, Scope	Scenarios	Qualities and Constraints	Rationale	Definitions	Measurements	Priorities
<i>Discovery Contexts</i>									
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Each Project Unique?

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# Characterising a Project's RE



Each Project Unique?

<i>Requirement Elements</i>		Stakeholders	Goals	Context, Interfaces, Scope	Scenarios	Qualities and Constraints	Rationale	Definitions	Measurements	Priorities
<i>Discovery Contexts</i>										
From Individuals										
From Groups										
From Things										
Trade-Offs										

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# What about **Brown-field**?



<i>Requirement Elements</i>		Stakeholders	Goals	Context, Interfaces, Scope	Scenarios	Qualities and Constraints	Rationale	Definitions	Measurements	Priorities
<i>Discovery Contexts</i>										
From Individuals										
From Groups										
From Things										
Trade-Offs										

More from existing 'things'?

More interface constraints?

Distinctively more from trade-offs?

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# Discussion



- Facilitator: Phil Cantor (Misys)

## House Rules:

- Say your name and organisation before your question / answer / point
- Be Brief!



# Issues at Misys

Phil Cantor



- To what extent should **existing systems** be documented in (change) specifications?
- Can **agile** approaches be used sensibly for these systems?
- What **level of detail** for intrusive but simple changes?
- What level of **granularity** for a single requirement?
- Can modern requirements **diagram techniques** be effective for defining changes?
- How to handle **multiple customers** (package) versus a single one (bespoke or in-house)?
- Should requirements be captured per venture, per investment, **per release** or per release component?
- How should **non-functional requirements** be documented (eg platform, performance, reuse, architectural probity)?