



Requirements Quarterly

The Newsletter of the Requirements Engineering Specialist Group of the British Computer Society

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

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RE-soundings

From the Editor

The main job of this issue is of course to remind everyone to come along to the AGM and Networking Evening, which this year will be held in style with live piano music and wine in the University of Westminster, not to mention live soapbox oratory: heckling is mandatory. The throwing of wet sponges at the speakers is however not encouraged.

It is also the right time to start thinking about coming to RE'07 which will be in New Delhi.

RQ has the pleasure of welcoming our able Publicity Officer William Heaven to the ranks of its journalists, especially as he is reporting on the pub event at which I had to think of something to say without the benefit of PowerPoint. Sometimes computers and software come between people and their real requirements. At any rate, it was salutary to realize that it is, in fact, quite a good idea to think what you want to say, say it, and drink a beer afterwards. It was also pleasant not to have to wonder whether the pins on the RGB cable connector were bent.

RQ is delighted to be able to include a fascinating report of a live comparative evaluation event, held by

our colleagues at an INCOSE local branch, ably reported by Simon Hutton.

This issue also discusses variously whether the devil wears cufflinks, why literate poodles may not walk in the park, and the relevance of the philosophy of W. V. O. Quine to requirements. Remember, you read it here first.

*Ian Alexander,
Scenario Plus*

Chairman's Message

At last week's REFSQ'07 (Requirements Engineering: Foundation for Software Quality) working conference in Trondheim, there was a lively session on Value-Based Requirements Engineering. One of the things to emerge was the idea that requirements engineers are too often value-neutral. That is, our discipline has had too little awareness of where value is built and how it is perceived by different stakeholders in the development process. Finding the optimum level of resources to invest in developing a software product before the cost/benefit ratio starts to drop seems to be crucial but poorly understood.

Following this discussion on value was a fascinating piece of meta-research presented by Al Davis¹. Al reported a large-scale analysis of RE literature over a 40+ year period. Al is perfectly placed to do this work, admitting to having been working in RE longer than some of the people then in the room had been alive. Even more significantly, perhaps, has been Al's assiduous collection of RE publications over many years. This RE bibliography has always been an invaluable resource for anyone doing RE research. Now, he and his co-researchers have started to mine it for demographic data about RE publication over the decades. What was reported was very much work in progress but nevertheless revealed information about trends in RE publishing over time. It was possible to see the relative output in terms of numbers of papers by country and by institution. One trend is the relative decline in output from the US compared to that of Europe. Even more fascinating was that a UK University was revealed as the world's most prolific generator of papers on RE. I will not reveal its identity here in order not to make the RESG treasurer blush. If asked nicely, Al is even prepared to tell someone their personal publication ranking!

Clearly, there need not be a strong correlation between number of papers and impact on the discipline (although there must be *some* correlation), and the

relationship with the success or otherwise of the software and system engineering industry is far from proven. What we can hope for from research of this sort, in the short term, is that we'll have a tool to make reinvention of the wheel less common because we'll be able to query Al's indexed data set to search for terms used in publications. There are a number of tools that can compensate for linguistic variances, such as synonyms and homonyms, so maybe we won't even have to be too precise about the query parameters we use when we have an idea and want to see if someone has already thought of it. In the longer term, perhaps it will help people start to look at other kinds of RE meta-research, and to examine the link, assuming one exists, between RE and economic success. Only then will we be able to equip requirements engineers with a real sense of their product's and their own value.

*Pete Sawyer,
Computing Department, Lancaster University*

1. Davis, A., Hickey, A., Juristo, N. and Moreno, A.:
A Quantitative Assessment of Requirements Engineering Publications – 1963-2005,
Proc Requirements Engineering: Foundation for Software Quality (REFSQ'07), LNCS4542, Trondheim, Norway, June 2007.

RE-treats

For further details of all events, see www.resg.org.uk
Forthcoming events organised by the RESG:

AGM & Networking Evening with Soapbox Oratory

4pm – 7pm, 5th July 2007,
The Pavilion, University of Westminster,
115 New Cavendish Street, London W1W 6UW

This will be a relaxed and sophisticated summer evening opportunity to enjoy some lively debating of current RE issues, and to meet other requirements people over live piano music (played by Ivana Gavrić), a glass of wine and a finger buffet after your day's work.

Free to RESG members, but please let Ljerka Beus-Dukic (L.Beus-Dukic@wmin.ac.uk) know you are coming, so she can arrange security passes and the right amount of food and drink.

RE-calls

Recent Calls for Papers and Participation

RE'07

15th IEEE International Requirements Engineering Conference, 15-19 October, 2007, Delhi, India

Formal-Lite Requirements Event

Morning Tutorial and Afternoon Seminar
September 2007, University of York

Some of the world's leading experts in formal specification will introduce the topic and describe the state-of-the-art in this combined tutorial and seminar.

RE Education & Training

5th December 2007, City University, London

This event looks at the problem of how we should work to improve requirements skills. Education of university students and training of practitioners are the two most powerful interventions we have. Can we do better? Can websites, books, conferences and discussion groups help? University teachers and industry trainers meet to compare notes and discuss new approaches.

Understanding Requirements in the Global Economy

As software development is now part of the global economy, requirements engineering is the key bridge between the customer and supplier. Understanding and translating users' needs into effective solutions has

always been vital: however, as development is outsourced requirements have to reflect cultures and languages and local needs. Furthermore, understanding requirements becomes a collaborative activity across time and space.

The IEEE International Requirements Engineering conference provides the premier international forum for researchers, educators and industrial practitioners to present and discuss the most recent innovations, trends, experiences and concerns in the field of requirements engineering.

RE07 focuses on the international context for requirements engineering; as off-shoring and outsourcing become increasingly common, issues of culture and localisation become critical. Requirements engineering itself will change as it becomes a 24/7 collaborative activity across national boundaries. Globalisation highlights the problems and will stress-test the solutions that already exist in RE, so particular emphasis will be placed on:

- RE in the global economy
- Collaborative Requirements Engineering
- Requirements, culture and localisation

<http://www.re07.org/>

Mastering the Requirements Process

24-26 September 2007 and 25-27 February 2008, London, presented by Suzanne Robertson, Atlantic Systems Guild

This 3 day seminar & workshop presents a complete process for eliciting the real requirements, testing them for correctness and recording them clearly, comprehensibly and unambiguously. Delegates will learn to:

- Determine their client's needs - exactly
- Write requirements that are complete, traceable and testable
- Precisely define the scope of the project
- Discover the stakeholders and keep them involved
- Get the requirements quickly and incrementally
- Use up-to-date techniques such as storyboarding and e-collaboration

Visit <http://www.irmuk.co.uk/1/> for full seminar details or contact IRM UK on +44 (0)20 8866 8366 or e-mail customerservice@irmuk.co.uk

Introduction to Requirements

9-10 October 2007,
The IET, Savoy Place, London,
presented by Ian Alexander, Scenario Plus

This 2 day course introduces the requirements process, in the context of engineering a system. Participants learn effective techniques for each stage of the requirements process, through instruction, exercises, feedback and discussion.

The course covers the whole process from launching the project, through discovering the requirements, prioritising, formalising, and validating them.

Throughout the course, participants learn and practise the key techniques such as identifying stakeholders, defining terms and detecting errors, omissions and conflicts. The use of tools to manage requirements is explored, along with requirements reuse.

The course is always a lively mix of explanation and practical exercises to get you familiar with applying effective requirements techniques.

<http://www.theiet.org/courses> for details and bookings.

RE-readings

Reviews of recent Requirements Engineering events.

10 Small Steps To Better Requirements

An RESG Pub Meet, 16th May 2007



The first event of its kind, this informal evening gathering of a mix of people with a common interest proved a popular formula. Comfortably seated in an upstairs room of the Hoop & Toy in South Kensington,

with a bar at hand, Ian Alexander kindly agreed to lead the discussion by reprising his recent IEEE article entitled “10 Small Steps To Better Requirements”. Some had come to learn, some had come to question, others perhaps just to enjoy a drink and a seasoned silver-tongued speaker.

Since Ian’s original IEEE article is readily available to read online (easyweb.easynet.co.uk/~iany/consultancy/ten_steps/ten_steps_to_requirements.htm) there’s little point in fully regurgitating each of the 10 Steps here. Instead, I will try to give a flavour of the topics covered. Indeed, Ian himself stuck to the original article in spirit more than word, ably adapting his rhetoric to the occasion. Enlarging on the article extensively, each Step was expounded through anecdotal examples, gleaned through years of independent consulting experience. Ian’s experience was also apparent in his empathy for those facing the daunting task of requirements identification in a large

project. He repeatedly favoured simple and relevant techniques over “textbook” practices, pointing out at one point, for example, that a straightforward pencil-and-paper context diagram is in many cases more suitable than use case tool-sets. The former identifies not only roles but also the physical aspects and interfaces of a system, of which the software is generally only a part. Similarly, when discussing Stakeholders (Step 2), Ian noted the apparent truism that requirements come from people not from books. However, the value of a workshop in which all those with an interest in the system can say their piece is easily underestimated.

The 10 Steps began with Mission & Scope and the citation of JFK’s “landing a man on the moon and returning him safely to earth” as a brilliant paradigm of a clear mission statement. If the ultimate objective of a project can be summed up straightforwardly and fixed unambiguously in the minds of those working on the project’s requirements, people can always ask themselves what this or that particular candidate-requirement would contribute to the objective. On the other hand, when the overall objective of a project is ill-conceived and uncertain, identifying requirements to achieve that objective is typically a Sisyphean challenge. However, Ian noted that many mission statements do not call for such tangible achievement as JFK’s. The mission statements of certain car manufacturers, for example, call for something (anything) new without reinventing the wheel (or any other part of the car) – the requirements for basic car designs have not changed in decades, but cars are sold on their novel features such as music player (as with the new “mp3-ready Fiesta”) or electric windows and heated windscreen 20 years ago. Hence, the “meta”-requirement that the new model simply have novel features, while looking and functioning pretty much the same as the old model. Finally, since it is intimately connected with Mission, Scope can be defined once the means to accomplish the mission are understood.

Next came Stakeholders, and the observation that overlooking a stakeholder will probably lead to the omission of “a whole chunk” of functionality in the system. But identifying stakeholders isn’t as straightforward as it might seem. In a regulated industry, for example, the regulators become stakeholders in any system that must uphold their regulations, even though it is likely they have no intrinsic interest in the system per se. Moving on, Ian discussed Goals & Goal Conflicts (treated together as Step 3 here, but Steps 3 & 4 in the original article). He pointed out that optimistic goals, though unattainable, may nevertheless still be useful as guiding principles. Goals are unlike requirements in this way, which must of course not only be achievable but verifiable. Again stressing the simple approach, “bubble-and-arrow” diagrams can help make sense of how goals contribute to or conflict with others.

The main point of Scenarios (Step 4) was that a story can more directly convey information about the

requirements of a system than most extensive lists of “shall” statements, not least because the latter assume that each commandment exists and can be implemented independently of the others. However, requirements dealing with time and cost, or quality and reliability, are not easily discovered through scenarios. In Requirements (Step 5) Ian therefore noted the effectiveness of use cases and supporting tools to identify missing requirements of this kind.

Step 6 – Justification – wisely stressed the importance of recording the justification for a requirement. If at any time requirements need to be dropped, and a choice has to be made, priorities alone do not give enough information on which to base a decision. The justification for a requirement allows its place in the system to be more fully considered. Assumptions (Step 7) addressed the importance of stating (in plain text) the assumptions made about the setting in which the requirements are being placed. As with justifications, recording this extra information allows better considered actions to be taken if something goes wrong, i.e., an assumption proves to be incorrect.

Steps 8 and 9 covered Agreed Priorities and Acceptance Criteria, respectively. Discussing priorities, Ian made the simple but important point that priorities must be agreed upon somehow. There are many ways to do this, such as voting or by panel or allocation of notional monies, and again Ian left us with the conviction that simple common sense practices should prevail. The final Step of the original IEEE article, but here bumped one place up the chart, Acceptance Criteria dealt with the fact that requirements only begin to do their job once the specification has been written. Requirements guide the development of the system, but to do so there must be clearly understood criteria for when the system does and does not meet its requirements. Scenarios can help with developing test cases and it is also useful to connect each test case with the requirement it tests so that coverage can be demonstrated.

Some discussion was had over the merits of formal descriptions of stakeholders and goals, and automated analysis tools. While the usefulness of these is invaluable in certain cases, Ian was keen to point out that knowing the time and place for such techniques is key. In many cases, using a heavyweight technique is overkill when the project would instead benefit from other approaches. With Ian’s light-hearted bias towards the truly practical on one side and the prima-facie interests of several academics on the other, there was cause for jovial banter between the two camps. Ian took advantage of having the floor first by throwing out some early jibes such as how academic researchers count to 10 ... differently each time!

But again, this served well to point up the importance of Project Dictionary Terms & Definitions (Step 10). Ian illustrated his final Step with an anecdote from a railway project in which engineers argued at length over whether or not a new switching device was

equivalent to the one it was to replace. It turns out that while it was functionally equivalent (i.e. it did the same thing), its different construction affected those who had to work with it. Whereas the railway engineers could see the interior workings of the old version and thus easily diagnose a fault, they could not do so with the new version. Of course both sides were right – the old and new devices were equivalent in that they did exactly the same thing but did not have an equivalent interface. By stating these two senses clearly in a Project Dictionary the conflict disappears.

Once Ian had set the tone, the discussion continued over a pub buffet. As the varying interests and experiences of those present were unabashedly thrown into the mix, the real value of an event like this became clear. Of course no consensus was made on the requirements for doing Requirements! But everyone surely left with a head buzzing with new ideas, sparked initially by Ian's lucid, insightful and amiably provocative introduction.

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RE-writings

Requirements Elicitation Techniques

A report on an INCOSE local event (in Bristol) by Simon Hutton

The topic for this event was to compare three elicitation techniques and to see how they compared when faced with an identical problem. The problem was chosen to be well clear of the day-job defence/aerospace emphasis of the typical audience, yet one on which everybody has an opinion - road congestion charging for Bristol. The techniques identified were soft systems methods, use cases, and problem frames.

Champions of three different techniques were press-ganged into being tutors and were told the problem topic a few days before, but with instructions not to prepare any material relating to the problem or its solution - merely the technique. Two dozen participants attended the afternoon session and were given a free choice as to which technique to use. Two members of the committee acted as multi-hatted problem holders, Council Treasurer, Police chief, Chair of the Chamber of Trade, Head teacher, Mrs Wiggins from number 34 They gave a two minute oral brief (in the form of a news item) and a one page written brief. After that, the participants could interview anyone they wished. (I say "could" because, in reality - whether the participants were so engrossed in learning the technique that they forgot the problem, or whether they felt that they had more than enough opinions of their own - the problem holders had a very quiet afternoon.)

In the evening, a further dozen participants came to hear the outcome. The three techniques, and whatever requirements had been elicited, were each described and the pros and cons of the methods were discussed.

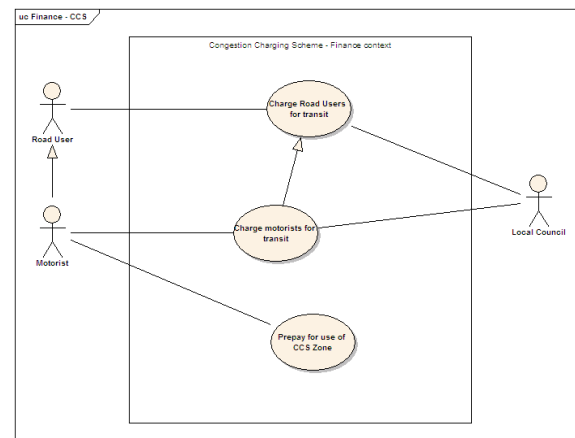
The overall results? The exercise was successful in that people were able to learn or contribute on a number of levels, and, from the feedback, people enjoyed the experience. As to which technique is the best - let's just say that we will be able to drive our cars freely into central Bristol for the foreseeable future.

Technique - Use Cases

The Use Case group led by Ian Gibson of Hi-Q Systems identified the following key points:

Strengths

- Provides a sequential logical method.
- Template is useful to provide structure to the analysis.
- Forces you to focus on system boundaries and stakeholder viewpoints.
- Exposes questions that lead to new requirements, identifying inconsistencies and assumptions.
- Provides a mechanism for buying off stakeholder requirements.
- Can fit in with other tools and techniques.

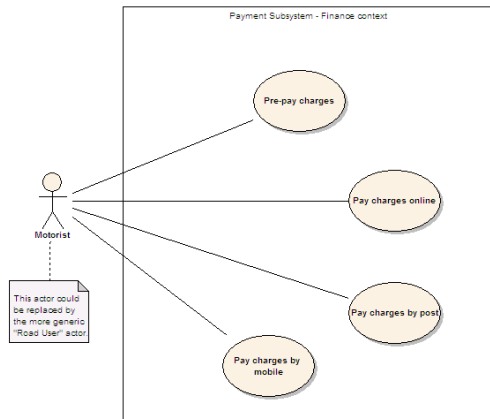


**Use Case Diagram 1:
Congestion Charging Scheme Finance Context**

Issues

- Easy to get drawn into the "solution space".
- Need to understand where the use case is pitched within the system of systems.
- Need to understand the system boundaries.
- You could potentially waste time and effort analysing at a lower level before adequately agreeing the requirements.
- This can be mitigated by enforcing review points once a set of candidate use cases exists.

- It may be necessary to prioritise effort on those use cases that will bring the most benefit (e.g. improve your understanding of the system of interest), rather than simply starting at one end and working through the whole set.
- Use cases are not stand alone. [This is hotly disputed. Ed.]



**Example Use Case Diagram 2:
Payment Subsystem Finance Context**

Usefulness

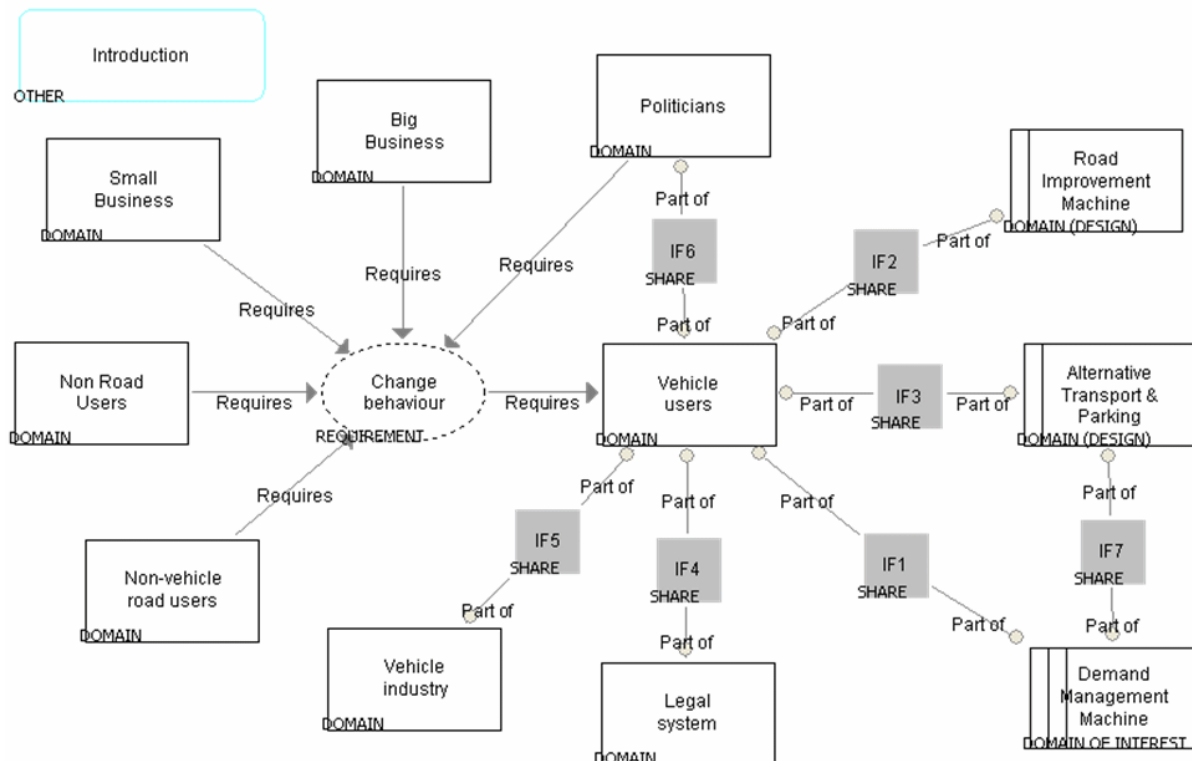
The technique looks as if it should be useful, but we would need further experience to feel happy using it. [Tens of thousands of projects are working with use cases today. Ed.]

Technique - Problem Frames

Colin Brain of SE Validation facilitated the thread using Problem Frames. These have been developed from the Jackson Problem Frame methodology, which is better known in the software engineering community. One of the advantages of this technique is that it focuses minds on reasoning about the problem rather than rushing to think about the solution. This was particularly important when the set problem was a congestion charging scheme for Bristol. Problem frames are also good at handling different kinds of interactions, which is important in a subject such as this where social issues dominate over technical ones.

Although the method is founded on a formal reference model, Colin chose to use it in an informal way and to record the results direct into a graphical-based computer tool (see www.sevalidation.com/tools.shtml). This supported interactive input and display of requirements and interface parameters for the selected domains, but also made it easy to print an output report after the session.

One challenge with the topic, apart from the short time available, is that it was difficult to approach 'top down' – often a feature of real problems. Consequently a 'middle out' approach was adopted, focussing initially on the changes of driver behaviour that were required. Since the method supports 'part-of' concepts, it was relatively easy to start to explore both up and down from this point.



The Jackson Problem Frames Model created by the group

Within the limitations of the workshop the method provided a very useful way of reasoning about the requirements for congestion charging and of recording these in a way that could be easily communicated amongst the team involved.

A graphical view of the network generated is illustrated. The symbology is based on Jackson Problem Frames, with only minimal changes to support the interpretation within the tool.

Technique - Soft Systems Methodology

Simon Hutton of Headmark Analysis facilitated the soft systems syndicate. SSM is a wonderful approach to understanding problems, and can be used in a variety of ways to develop an understanding of scope and requirements. On this occasion we took a very simplistic approach, and used SSM as a staged method to guide our thinking. We developed a Rich Picture, which helped us realise that we were probably looking at a higher level than the original problem – perhaps SSM would have been a useful tool to decide if Congestion Charging is the best ‘solution’ – it certainly isn’t a requirement!

The apparent informality of our rich picture and openness of the approach encouraged the group to exposure new issues and determine their value within our evolving understanding of the problem. Issues such as individual choice for travelling and the conflict with work, schools and the wider infrastructure were unexpected – as were the benefits of extended opening hours for pubs!

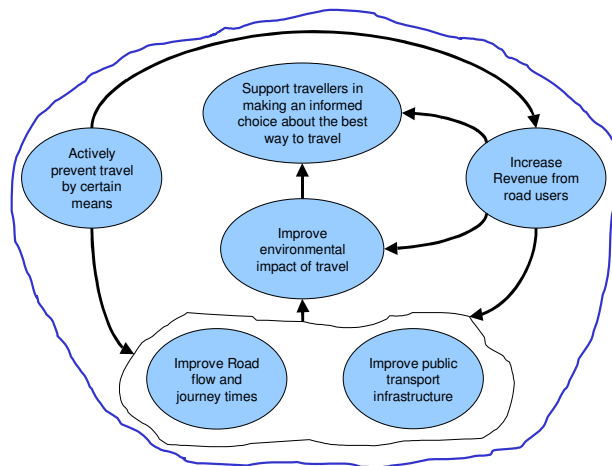
We identified enough Relevant Systems for each member of the group to have a go at a Root Definition, and used this increasing formality to build a conceptual model – simplified version illustrated. Although revenue from road users was identified, other wider requirements for providing information to allow travellers to make informed choices, hot-spots and environmental drivers were identified. It was interesting to see how the group used the evolving model to explore alternatives to congestion charging, and as a result identified some useful stakeholder requirements.

Would it be useful? Undoubtedly at the start of a programme, to identify business change and acquisition projects that will contribute to improving the situation. The danger with applying SSM too late in a project is that it can question the basic validity of the founding assumptions. The moral – look to use early in the project, to ensure all the softer issues have been explored.

The one thing that did become very clear as a result of the workshop was that when undertaking requirements capturing exercises, it is vital to focus on requirements and not get carried away thinking about solutions. A useful reminder for those of us working at the coal-face!

One attendee noted that the overview of SSM and Use

Case methodologies given in the evening was very good and brought out the strengths of the two methods - SSM for filling the blank sheet at the start and Use Cases as a formalised means of capture.



I shall leave the last word to another attendee: “Whilst all the methods seem to be converging to picking out the same issues that bedevil congestion charging in Bristol, the way their results were presented gave different insights into the problem. The soft systems method produced an overall picture that we could easily relate to. The use cases showed how to derive and concentrate on the different issues to make sure we had bottomed them out properly. The use of frames gave order and grouping to the issues that brought order to trying to derive a solution. No one method was the best.

This area is worthy of an extended detailed study to streamline the derivation of user requirements. Somebody’s PhD perhaps? Or something that INCOSE should look into so they can give best advice to us worker bees? Who knows? Whatever the long term outcome from this workshop is, the Bristol Group did a brave experiment in setting up and running this workshop. It worked, and that really is all an engineer can ask for.”

© Simon Hutton 2007

The Devil Wears Cufflinks

Why Good Design Is Not About Following Fashion

By Stephen Nolan

I recently watched the movie ‘The Devil Wears Prada’ starring Meryl Streep and Anne Hathaway. In the movie, despite having no interest in fashion, Hathaway’s character begrudgingly takes a job at a fashion magazine where Streep is the editor.

In one scene, Streep lectures Hathaway about her poor clothing choices. You see, Hathaway tries very hard to be anti-fashion as a reaction against the preening fashionistas who work for the magazine, so she is wearing a cheap supermarket sweater in a particular

shade of blue. Streep's character gloats that the shade of blue had provenance in a designer's choice of that colour for a particular season several years previous, after which it was picked up by other designers, and so on, until finally the colour choice filtered down to supermarket clothing. Her thesis is that Hathaway would not have had that choice to make were decisions not agonised over further up the 'decision chain'.



“Your design methodology is simply 1970, my dear”

Why do I tell you this? Well, as a consultant specialising in requirements I am very often faced with the dilemma of how to sell designer clothes (textbook requirements engineering) to clients who want supermarket sweaters (an Excel spreadsheet of 'system shall...' statements). Requirements are often seen as 'just a bit of business analysis' at the front of a project and so are commoditised to the point where the client decides how much of a requirements consultant's time he or she is willing to buy. We, as consultants, are then faced with the dilemma of how to select and implement the right requirements methods, but at the same time persuade the client that requirements management is a full-lifecycle activity.

I have been to a number of conferences recently where large requirements projects that are run in the university sector with private sector collaboration, such as SeCSE, have presented really quite wonderful, detailed analyses of how requirements can contribute towards project success. Often, these large projects involve a number of graduate students, who have a need for their research to continue for a number of years before concluding in that corollary of a functional specification: the PhD thesis. This contrasts starkly with the often compressed time periods devoted in private sector projects for requirements-related work.

So how does a consultant take the best practices defined by academic studies of requirements and persuade a client that they are worth investing in? I believe a direct translation of the academic approach to the private sector is not intended – it is there to influence, to direct, to recommend. Academic study can be likened to the 'designer' end of the 'decision chain'. It helps define the future methods and techniques precisely because things happen more slowly, people have more time, and the quantitative and qualitative analysis that defines scientific progress can occur within a nurturing environment.

None of these things characterises projects in the private sector. We face time-poor, price-conscious buyers who want results and want them fast. Our job as requirements managers and engineers is to assess the situation, to decide upon an appropriate plan of action and then recommend this to the client. In order to do this we need to have an appreciation of the breadth and depth of methods, techniques and tools that are available to help with requirements work. We are like buyers for clothing stores, or like personal shoppers: making choices for our clients because they have neither the time nor the inclination to do these things for themselves.



It's where we add value (to coin some consultancy-speak). And the wardrobe that we pick and choose from, our skill-sets, our tool-kits, are only available because somebody, somewhere had the luxury of the time to develop them. As consultants we're lower down the 'decision chain', but we have our friends in academia to thank for keeping us one step ahead of our clients, and for making sure that requirements as a discipline has matured to the point where clients accept that good requirements management is a full lifecycle activity, and not just a 'bit of business analysis'.

Remember that next time you spot a client who's chosen to develop some 'run-of-the-mill' use cases, which may not be technically-pure but will advance their understanding of how the proposed development will work. They were only able to make that choice because Ivar Jacobson, the father of UML, had already made it for them in 1986. So read papers, go to conferences, make friends with an academic – we owe it to future generations of requirements managers.

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Stephen Nolan is a senior consultant with Charteris plc, a business and IT consultancy specialising in helping leading organisations transform business performance through the strategic application of technology.

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Literate Poodles Forbidden



“I cannot enter” says the Italian sign at the park entrance, next to what seems to be a finely clipped pregnant Poodle, but which inexplicably is wearing a muzzle.

Italian has the same problem as a specification language as English here: the same word (posso, I can) is used to mean “am able to” and “am allowed to”.

In English, “I may (not)” is also ambiguous: it means both “I will decide later” and “I am (not) allowed to”. Thus, “may” is no better than “can”: the requirements-facing auxiliary verbs are hopelessly compromised.



Willard Quine
1908-2000

The philosopher of science W. V. O. Quine (<http://www.wvquine.org/>) discussed at length the difficulty in interpreting references to the real world by pointing, or ostention as philosophers prefer to call it.

When you visit a remote island and you see a rabbit, you hear the natives shout “gavagai” as it disappears. But do they mean “rabbit”, or “young rabbit”, or “delicious meat”, or “the hindquarters of a rabbit” or what?

Any specification in natural language or a more formal notation has somehow to indicate which parts of the real world it applies to. Michael Jackson calls such references “designations”, as opposed to “definitions” which connect one defined term to another.

Quine is surely right that the problem with designations is that an ostensive gesture can always be misinterpreted. The hope of symbol-writers everywhere is that the drawing, UML diagram, icon or image will somehow convey the message unambiguously.

We “know” for cultural reasons that the circled symbol means “no dogs”. People of other cultures could take it to mean “no domestic dogs”, “no poodles”, “no manicured dogs”, “no animals that need to be muzzled” or even “no pets of any species”.

Of course, since only literate poodles would observe the sign (Pitt bull terriers not being known for their scholarly abilities), it might have a much more limited operational meaning.

You think all this wouldn’t cause any problems in practice, eh? Ok, then, here are some “unambiguous” icons for you to work out (answers below).



What do these icons mean, and what real-world entities and operations are they ostending at?

© Ian Alexander 2007

Answers:
fit;
best
actual size;
close this
program
and open
the image
for editing.

RE-flections

Essential Requirements

In France, every small town is equipped, somewhere nearby, preferably on top of a hill, with a handsome water-tower. These passively maintain the water supply at a constant pressure. Every French water engineer will tell you, presumably, that this is the logical way, no, the best and only way, to ensure the safety and continuity of the town's water supply. *C'est logique.*

The only thing is, nobody else actually does it. Somehow, Dutch and Swedish and Spanish water engineers can manage just fine without sprinkling their countrysides with tall phallic watery landmarks. They think that the French have gone clean round their collective hydraulic U-bends, or 'Harpic' as RAF types used to say. (Harpic was a toilet cleaning substance that 'cleans right round the bend', interpreted with typically British *double entendre* - but I digress.)



Chateau d'Eau

In Germany, every hotel breakfast table is equipped with a small plastic bin, which you will discover, should you look inside, to be empty. If you look around at your fellow breakfasters, however, you will soon observe its purpose. It is the *TischAbfall*, the 'table-rubbish'. When you unwrap your miniature pat of butter, or peel your business breakfast tangerine, you can throw the wrapper and the peel into the *TischAbfall* bin.

It's tidy. It's clean. It's, well, *Alles in Ordnung*. *Praktisch*, in fact. A German engineer would probably describe it as both necessary and sufficient to meet the requirement.

Only, nobody else's hotels have ever felt the slightest need to follow suit.

In Britain, proud home of the world's oldest Democracy, you can hardly step out of your door without being recorded on CCTV (and, if you're at all famous, seeing yourself on YouTube a short while later - but I digress).

If you venture into a car, take it easy - you are on camera, and if you break the speed limit or ignore a red light, a camera will flash angrily, and a stiff bill will arrive at your democratic door not too much later. It's for safety, every Brit agrees. Give us more cameras on our buses! Our tube stations! Our High Streets! And the gantries and pillars pop up in every public place. The only thing is, every other nation thinks it extraordinary. Only a people so confident in their own liberty would tolerate, nay, insist upon such a degree of optoelectronic intrusion into every aspect of their lives. Only the nation that produced 1984 and Brave New World could have spread the Gatso camera and CCTV quite so profligately.

A requirement is something that is, well, required, necessary, essential for some purpose. Only, it seems that most of these requirements are anything but. They're an *idée fixe*, the product of a warped *Weltanschauung*, as eccentric as Morris Dancing and warm beer and cricket.

Requirements for Infant Care

The Inuit (you probably call them the Eskimos) believed that babies should be kept healthy by letting them lie naked on some animal skins. In Papua New Guinea, the people reckon that a healthy baby needs a nice smooth hardwood board to lie on - naked of course, so as to enjoy the nice breeze.

In America, popular wisdom is that a baby must be wrapped tightly from neck to toe, its head covered with a woolly hat, and laid on its back in a crib well padded all round with cushions and soft furnishings so as to keep out any draught.

In Britain, naturally, babies must at all costs be kept safe from cushions which could cause immediate suffocation. (My grandfather believed that it was good for babies to be put outside in the garden in their prams, as the rain helped them grow - right as rain, you might say - but I digress).

From this, you may conclude that babies are remarkably robust, or else they'd certainly not survive the strange things that their parents are sure are essential to their well-being.

You might also wonder whether this doesn't mean that well-tried methods, tools and techniques are more likely to be effective than the home-grown variety. I well recall having to develop parts of a complicated hierarchical traceability method in an RM tool. The rules were, like gallic water-towers, perfectly clear, logical, precise, capable of being made to work correctly - and utterly extraordinary.

As Gerry Weinberg says, consultants get to see more than their fair share of the irrational, as businesses that are working sanely and rationally (presumably) don't call in consultants. We got the RM method into service, case-hardened against all the likely user mistakes we could anticipate.

The kit was complete with user and maintenance documentation, test data, test harness and even a script to verify automatically that the set of test results was correct! But a little bird told me a year or two later that the method and supporting kit would continue to be supported - on sufferance.

Basically, everybody in the organisation except the department that created it thought it somewhat strange.

System Admin said that as it was an agreed standard it would stay in place: resplendent in its glass case, like the lovingly-reconstructed Dodo (all those thousands of glued-on, pink-dyed turkey feathers) in the Natural History Museum.

So, next time you hear a talk about their new, infallible and universal method for handling requirements, or read a polemical article about the right way to approach the life-cycle, just remember the babies and the water-towers and the table-dustbins and the street-cameras, and reflect that there may possibly be other ways of

doing things.

Or again, you may wonder whether old-fashioned things like finding out who your stakeholders are, holding interviews and workshops to find out what they want, and taking time to work out a coherent set of requirements, may not still be just what you need to do.

By all means talk to yourself about goals and scenarios and exceptions, as long as you're sure no-one is listening. But in the presence of normal people, don't talk too much about the best way to pressurise the town water-supply, or whatever your personal professional madness is, or they'll think you've gone hydraulic.

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RE-partee

A Fisherman's Requirements



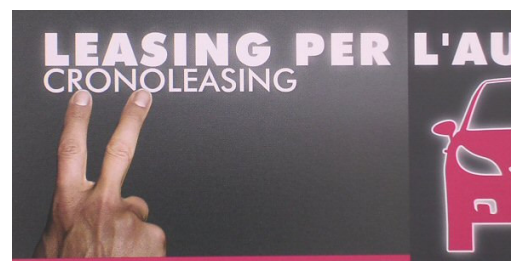
An Attractive Offer

RE-definitions

- PEBCAK – Problem Exists Between Chair And Keyboard
- Partitioning – way of splitting a simple problem into four complex problems.
- PowerPoint Engineering – way of avoiding serious design work by creating impressive diagrams, and talking a lot about Architecture (see Architect) and Systems of Systems
- Vet – to check over thoroughly, to inspect with professional care and skill (cp Doctor)
- Doctor – to sabotage, to mess up, to emasculate (cp Vet)
- Engineer – to cause to work, to construct cleverly (cp Architect)

- Architect – to draw up grandiose plans, especially for software; to make elaborate, complex, or unworkable models (eg UML) (cp Engineer)
- Holy Roman Empire – obsolete honorific title; “neither holy, nor Roman, nor an empire”
- Knowledge Management System – “neither knowledge, nor capable of managing it, nor a system” (cp Holy Roman Empire)

An Inviting Leaflet



“And if you don’t like our auto leasing terms and conditions, you can eff off!”

Not sure this ad would work too well in the Anglo-Saxon world.

The intended semiotics of the gesture is unclear but may be weakly connected to Winston Churchill’s V-for-Victory sign.

RE-sources

Books, Papers

RQ archive at the RESG website:
<http://www.resg.org.uk>

Al Davis' bibliography of requirements papers:
<http://www.uccs.edu/~adavis/reqbib.htm>

Ian Alexander's archive of requirements book reviews:
<http://easyweb.easynet.co.uk/~iany/reviews/reviews.htm>

Scenario Plus – free tools and templates:
<http://www.scenarioplus.org.uk>

CREWS web site:
<http://sunsite.informatik.rwth-aachen.de/CREWS/>

Requirements Engineering, Student Newsletter:
www.cc.gatech.edu/computing/SW_Eng/resnews.html

IFIP Working Group 2.9 (Software RE):
http://www.cis.gsu.edu/~wrobinso/ifip2_9/

Requirements Engineering Journal (REJ):
<http://rej.co.umist.ac.uk/>

RE resource centre at UTS (Australia):
<http://research.it.uts.edu.au/re/>

Volere template:
<http://www.volere.co.uk>

DACS Gold Practices:
<http://www.goldpractices.com/practices/mr/index.php>

Software Requirements Engineering Articles (India):
<http://www.requirements.in>

Media Electronica

RESG Mailing List

Subscribe: admin-mail-list@resg.org.uk with text "subscribe" in the subject line.

RE-online

<http://www-staff.it.uts.edu.au/~didar/RE-online.html>

Subscribe: majordomo@it.uts.edu.au with the body of the message set to "subscribe RE-online <your email address>"

Requirements Networking Group (RQNG)

www.requirementsnetwork.com

RE Yahoo Group

<http://groups.yahoo.com/group/Requirements-Engineering/>

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Contributing to RQ

To contribute to RQ please send contributions to Ian Alexander (iany@scenarioplus.org .uk). Submissions must be in electronic form, preferably as plain ASCII text or rtf. Deadline for next issue: 7th September 2007

Joining the RESG

Visit <http://www.resg.org.uk/membership.html> for membership forms, or email membership-RESG@open.ac.uk