BCS™

Requirements Quarterly

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

 http://www.resg.org.uk RQ50 (January 2009)

Contents

RE-Soundings

From the Editor

A Happy New Year to your all, and welcome to this milestone 50th edition of RQ! Fifty is a pretty good knock, especially by current English cricketing standards, and I am grateful to all those who have contributed over the years to make RQ such a key contributor to the success of RESG. I have taken this milestone as an opportunity to look back to October 1994 when the Newsletter was launched – it appears to have been as much fun then as it is to-day! To reflect the importance of traceability in the first edition, this newsletter features an excellent second article by Olly Gotel on Traceability – you will discover the importance of Y-Fronts and Yorkshire Pudding!

It is encouraging that the hardest aspect to compiling this edition has been keeping track of all the activities we have planned for 2009. There are plenty of RESG events and a tutorial over the next few months to keep everyone happy, and there is the **Annual Summer Party** to look forwards to in July.

If you have yet to make your resolutions for 2009 I would encourage you to aim to attend at least one event this year. These events are a real benefit of RESG membership, and you will discover that participation is time well spent. There is no substitute to sharing ideas with RE practitioners and academics in a friendly, open environment - I look forward to seeing you there!

Simon Hutton, RQ Editor

Chairman's Message

The end of a year is always a time to reflect on change. With luck, it is a quiet and happy time to be with families and friends, to sit back from the rush of events, and to plan (even to make resolutions) for the future. This year has seen the largest ever shock to the western economies. Many famous names have disappeared: others will surely follow.

Even our little world is changing. RESG membership has become free to all BCS members, and each new joiner is free to click on the RESG checkbox. What do people expect from that action? What would you like? We on the committee would very much like to know. Perhaps we should use some, ahem, requirements discovery techniques to find out.

And another thing. Many people who work on discovering what businesses and projects should be doing do not call their work 'engineering', nor do they call what they discover 'requirements'. Process modelling, business analysis, product management, system and software specification, gathering user stories … there seems to be no end of alternative and perhaps more fashionable job descriptions. Not that we're about to change our name to SSSSG or GUSSG: but we are highly interested in the question of what our constituency is.

To return to the end-of-year theme. '*When fishermen can't go to sea, they mend nets'*. Specialist skill and knowledge prove their value when times are hard. To work in winter storms, all your equipment must be seaworthy. Come, share, and learn with us in 2009. Even better, tell us what you would like from the RESG.

Have a very Happy New Year.

Ian Alexander, RESG Chair

RE-Member

RESG Mission

Requirements Engineering (RE) is a key activity in the development of software systems and is concerned with the identification of the goals of stakeholders and their elaboration into precise statements of desired services and behaviour. RE is multi-disciplinary and the RESG aims to provide a forum for interaction between the many disciplines involved.

The objectives of the Group are:

- To promote good requirements practice to the membership and more widely to the software and systems engineering industries.
- To disseminate new developments in requirements practice to the membership and more widely to the software and systems engineering industries and to academia.
- To promote the UK as a centre of good practice and research in requirements work.

RESG Forum Website

Yijun Yu, RESG Membership Secretary, has created a forum website to encourage the sharing of best practice and ideas. There is still some work to be done, such as creating a user list and setting up boards and polls to understand better what members want from RESG, but you can visit the new RESG Forum Website at http://computing-research.open.ac/resg.

RQ Distribution

All members of RESG receive a copy of RQ every Quarter. By default this is delivered as a printed paper copy, although members can elect to receive their RQ as an e-mailed PDF file. There are benefits to the hard-copy, there are also several disadvantages. It takes time and money to print, package and post up to 300 copies, and as a voluntary organisation this takes resources away from other activities that could better meet our objectives. Posting the newsletter also means that it arrives a couple of weeks after it was issued, which may mean you miss a useful event. An electronically distributed newsletter takes less time, costs less, and will reach you at least a week earlier. Nearly all our members have an e-mail address, and you can always print off the e-mailed newsletter if you prefer a paper copy!

We have decided that from RQ51 the default newsletter distribution will be by e-mail, to make better use of our limited resources and to provide you with a more timely service. We will still print some copies should individual members specifically ask for a printed version, and to make available at events and conferences.

So, from now on all RESG members will receive RQ by e-mail, unless you contact the Membership Secretary, Dr Yijun Yu at Y.Yu@open.ac.uk, and specifically ask for a paper copy to be posted to you. To make sure you continue to receive your Quarterly Newsletter you need to make sure Yijun has an up-to-date record of your e-mail address.

RE-Treats

RESG Event - Requirements for Modifications to Large, Existing Systems – Sharing Best Practice

5.00pm to 7.30pm, Thursday 12 February

Main Theatre, Misys plc, One Kingdom Street, Sheldon Square, Paddington, London W2 6BL

A discussion facilitated by Phil Cantor of Misys with an Introductory Talk by Ian Alexander, and an opportunity to continue the discussion afterwards at the Union Bar, Sheldon Square.

Large, existing systems are different and hard. Much of the literature on software engineering assumes a green field, but most people have to add to an existing environment. This session is an attempt to explore what is best practice for capturing and documenting requirements that are essentially modifications.

Some of the issues to be considered include:

- To what extent should/can/must the existing system be documented in the requirement?
- Can agile approaches be used sensibly for these systems?
- What is the level of detail for intrusive but simple changes?
- What level of granularity should be used for a single requirement identifier?
- Can modern requirements diagram techniques be effective in these cases?
- How does it differ if there are 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 and to what extent should non-functional requirements be documented (eg platform, performance, reuse)?

Misys is delighted to host the Requirements Engineering Specialist Group of the British Computer Society to explore these issues at our London office. We certainly don't have all the answers but are willing to share our experiences in exchange for hearing those of other IT professionals.

For those unable to attend a webex and dialup option will be available.

Coffee and light refreshments will be available, and as numbers are limited please register with Johnette Holworthy at johnette.holworthy@misys.com, telephone 02033205148.

RESG Event - Post-Graduate Student Event

9.30am to 5.00pm, 6th March 2009

South Kensington Campus, Imperial College London

- Are you a PhD student doing research in RE?
- Would you like to know what experts have to say about your work?
- Would you like to know what other RE students are doing in their research?

If so then come and join us at a one-day PhD student workshop that aims to give PhD students a chance to describe their current research before a panel of faculty members, RE experts (including Dr. Emmanuel Letier) and other RE students.

We also have invited talks by two leading RE researchers, Professor Anthony Finkelstein and Professor Bashar Nuseibeh.

The workshop will provide an opportunity for attending students to interact with other students in the same research area. Students (PhD, Masters) and fellow researchers who may be working or planning to work in RE are encouraged to attend and participate in the discussions.

We hope you will join us for what we expect to be worthwhile fruitful event. To participate or attend please contact Dalal Alrajeh at dalal.alrajeh04@imperial.ac.uk or Will Heaven at wjh00@doc.ic.ac.uk.

RESG Tutorial - Innovation, Creativity and their Role in Business Requirements

2.00pm – 5.00pm, 30th March 2009, London

James Robertson - Atlantic Systems Guild, London, UK

Neil Maiden - City University London, UK

Writing requirements is often seen as a "stenographer's task" - one where the requirements engineer passively records the stakeholders' needs. However, this approach relies on stakeholders knowing what they need, and what they want. Experience tells us that except for rare visionaries, people cannot know what they want until they see it. Many of the useful products that we take for granted today, did not come about from the stakeholders' requests, but from invention and innovation. The mobile phone, text messaging, the World Wide Web and many, many others are innovations, often built from existing components. Commentators are increasingly in agreement that the businesses which will thrive in the next decade will be

those that make innovation a regular part of their development process. In this tutorial we explain how to use creative and innovative techniques to bring about more useful, usable and competitive products. We provide examples and illustrations from our experience in air traffic management and automotive engineering. We provide a guide for innovation, and show participants how it is used. Finally, we present some examples of software support tools that can be used to stimulate creativity in the context of the requirements process.

James Robertson is a leading proponent of the principle of introducing creativity into the requirements process. His controversial article "Eureka: Why Analysts Should Invent Requirements" in IEEE Software, July 2002, has been widely quoted and discussed. Before becoming a systems engineer, James trained as an architect and his experience in that profession provides inspiration for his work on innovation and creativity. He is co-author of Mastering the Requirements Process, which introduced the Volere requirements techniques, and Requirements-led Project Management Discovering David's Slingshot. His latest book, co-authored with his fellow principals of the Atlantic Systems Guild, is Adrenaline Junkies & Template Zombies - Understanding Patterns of Project Behaviour.

Neil Maiden is Professor of Systems Engineering and Head of the Centre for Human-Computer Interaction Design at City University. He has been directing inter-disciplinary research in requirements engineering for 15 years and has worked on numerous EPSRC- and EU-funded research projects including SIMP, NATURE, CREWS, BANKSEC, SeCSE, APOSDLE and TRACEBACK. He has published over 120 peer-reviewed papers in journals, conferences and workshops. He is the Editor of the IEEE Software's Requirements column.

Attendance at this half-day tutorial will cost £40, and numbers will be limited. To register, contact Rachel Browning at Rachel.Browning@hq.bcs.org.uk, 01793 417416.

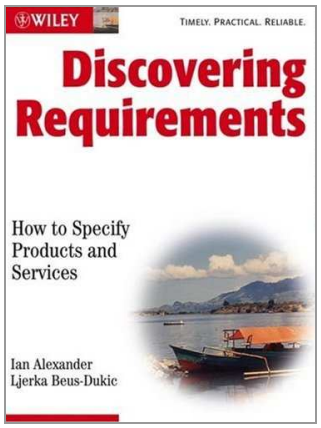
Book Launch - 'Discovering Requirements'

6.00pm to 8.00pm, Thursday 2 April 2009

The Roberts Foyer, University College London WC1E 6BT

Free Talk – Drinks – Food – Bookstall!

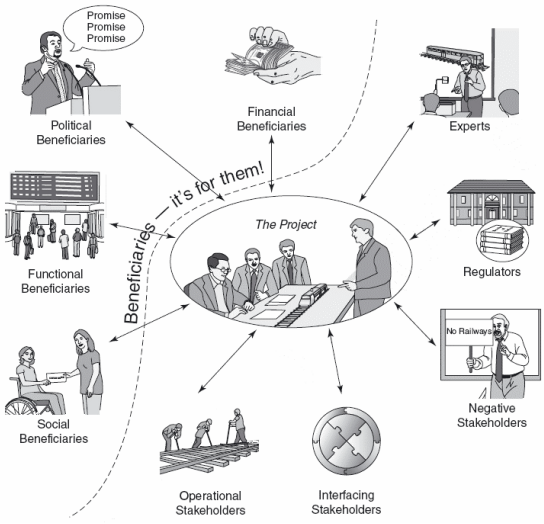
Ian Alexander will give an informal talk about the book. He and Ljerka Beus-Dukic will be on hand to sign copies. Drinks and nice things to eat will be provided. There will be a bookstall of John Wiley's latest books on software development. We hope to see you there!



Registration is free by email to Ian at iany@easynet.co.uk. The Roberts Foyer is the reception area in the lobby of the new building just in front of Waterstone's bookshop on Torrington Place, near the corner with Gower Street.

Maps at http://www.ucl.ac.uk/maps/ucl-maps

Nearest tube is Goodge Street (Northern Line); Warren Street and Euston Square are only a little further.



RESG Event – Birds of a Feather Evening

29th April 2009, Somewhere in London!

Although the Date and Venue have to be confirmed, this will be an informal evening get together to talk about requirements. Robert Halligan of Project Performance International will be priming the discussion with an interactive talk. Robert is known internationally for his involvement in the practice and improvement of engineering projects, having spent the past twenty-two years contributing to major systems projects worldwide as a consultant and trainer. This promises to be a fascinating evening, and details will be provided on the RESG website as they become available – see www.resg,org.uk.

RESG Event - Self-adaptive systems: a solution to managing requirements changes?

May 2009, London

The evolution of software systems in order to accommodate changing needs is often characterized by its huge cost and slow speed of execution.

The problem is particularly important for large-scale systems composed of many interrelated software, hardware devices, and human procedures that are all in constant evolution. Traditional techniques have difficulties keeping up with the pace of changes.

The concept of self-adaptive or self-managed system has been proposed as a way to address this problem. A self-adaptive system is a system that has some ability to modify itself at run-time in order to accommodate changing goals and changing assumptions about its environment. Such system possesses abilities to monitor its behaviour, diagnose problems in its current configuration, identify opportunities for improvement, and reconfigure itself so as to maintain or improve the satisfaction of its goals. In other words, most of the system evolution activities that are typically performed off-line for standard systems are performed at run-time by components inside the system itself. Some of these components would be automated.

This approach to system evolution is likely to transform the nature of requirements engineering activities. In some ways, it will make requirements engineering easier because the self-adaptive system would be able to automatically correct problems caused by incomplete and inadequate requirements in the initial specification. In other ways, it will make requirements engineering much harder because the initial specification for such systems should not only consider the immediate next version to be deployed, but should also consider all possible future evolutions. The addition of components with abilities to monitor and modify the system at run-time may have important interactions with the system stability, safety, security, and privacy requirements.

Interestingly, the implementation of self-adaptive systems will be facilitated by making key requirements engineering concepts such as goals, domain assumptions, and alternatives become first-class abstractions in the software code and architecture.

We are organising an afternoon event of invited talks and interactive discussions for researchers and practitioners interested in self-adaptive systems and their relations to requirements engineering.

The event is free and open to all. It will take place in London in May 2009 (the exact date is yet to be defined). If you would like to participate, contact Emmanuel Letier (e.letier@cs.ucl.ac.uk) or Will Heaven (william.heaven@doc.ic.ac.uk).

RESG Event – Annual Summer Party

9th July 2009, Imperial College

We should have some live music and good food and drink laid on again. The idea is simply for members to pitch up, eat, drink, and meet like-minded folks beneath the RESG umbrella in a relaxed, social atmosphere. Further details will appear in the next edition of RQ. Professor Bashar Nuseibeh will be whetting our appetites with an opening presentation to prime the event, and most of the Committee will be available to talk about the plans for RESG.

RE-Calls

17th IEEE International Requirements Engineering Conference (RE'09)

REQUIREMENTS ENGINEERING:

THE ESSENTIAL BRIDGE

31 August - 4 September 2009, Atlanta, Georgia, USA

www.re09.org

The world is becoming ever more dependent on software intensive systems. They are central to our economy, to our society, to the services we depend upon and, increasingly to the very survival of the global ecosystem. Despite many failures, some of them very well publicized, the engineering of such systems has improved consistently over the past few decades. However many challenges remain. Every computer-based system involves relating the myriad, informal facets of the real world to the intricate and formal specifics of a software system. Understanding potentials or details of software systems is not expected of stakeholders, who have their own specialized concerns. Similarly, the eager and technologically capable developers are not expected to understand the nuances of the many domains where software applies.

Requirements Engineering (RE) is the essential capability that can bridge the two perspectives. The RE activity is multi-disciplinary. When defining the requirements of major systems we must bring to bear expertise from a wide range of specialisms such as Human-Computer Interaction, Systems Modelling, and Security. The RE research field builds the effective bridges between these and other sub-disciplines of the Computer Science and Information Systems fields. The many computer-based system needs of business and society are often contradictory, inadequately defined, and rapidly changing. RE helps stakeholders communicate, helping to reconcile their conflicts, clarify their goals, and reflect their priorities. If our

society is to seek a better future we will need all of the models, methods, and tools that RE can provide.

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

Topics of interest include, but are not restricted to: requirements elicitation, analysis, documentation, validation and verification; requirements specification languages, methods, processes and tools; requirements management, traceability, viewpoints, prioritization and negotiation; modelling of requirements (formal and informal), goals and domains; prototyping, simulation and animation; evolution of requirements over time, product families and variability; relating requirements to business goals, products, architecture and testing; social, cultural, global, personal and cognitive factors in requirements engineering; domain-specific problems, experiences and solutions. There is a particular welcome for papers that cross disciplines, combine paradigms or otherwise address the conference theme.

Paper Categories

We will invite submissions of high quality papers in four categories:

- Technical solution papers present solutions for requirements-related problems that are novel or significantly improve existing solutions.
- Scientific evaluation papers evaluate existing problem situations or validate/refute proposed solutions with scientific means, i.e. by empirical studies, experiments, case studies, simulations, formal analyses, mathematical proofs, etc.
- Industrial practice and experience papers present problems or challenges encountered in practice, discuss insights, innovations in industrial practice, success and failure stories.
- Survey or review papers abstract from the current state of the art and provide insightful observations, fruitful analogies or propose significant and novel research directions.

We also invite proposals for tutorials, workshops, panels, doctoral symposium contributions, posters, videos, and research demonstrations.

Key Dates:

Paper abstracts: February 2, 2009

Paper submissions (all categories): February 12, 2009

Tutorial, workshop and panel submissions: March 9, 2009

Notification to authors: April 22, 2009

Doctoral symposium, poster and other submissions: May 11, 2009

More details will be provided on the conference website, http://www.re09.org.

SICSA Studentships

The Scottish Informatics and Computer Science Alliance invites applications for up to 20 international prize studentships from outstanding PhD candidates to Scottish universities. The studentships are open to citizens and residents of any country.

SICSA studentships cover living costs and fees at the UK/EU level and successful candidates may apply for further fee support. We will consider applicants in any area of computer science and informatics but may give preference to students who are working in SICSA theme areas, including modelling and abstraction and Complex Systems Engineering.

SICSA would particularly welcome applications from students interested in complex software systems engineering and requirements engineering.

Details of how to apply for a SICSA prize studentship are on the SICSA web pages (http://www.sicsa.ac.uk), and the deadline for applications is 8th February 2009.

RE-Course

Mastering the Requirements Process

24-26 February 2009 and 15-17 September 2009, London. Presented by James Robertson, Atlantic Systems Guild

This 3 day seminar & workshop presents a process for eliciting requirements, testing them for correctness and recording them clearly, comprehensibly and unambiguously.

Details at www.irmuk.co.uk/1/

Introduction to Requirements

21-22 April 2009 and 8-9 September 2009, The IET, London, presented by Ian Alexander, Scenario Plus

This two-day course with exercises gives an overview of the requirements process, with practice in techniques for discovering and managing your requirements.

Course details at http://www.scenarioplus.org.uk

Bookings at http://www.theiet.org/courses

RE-Writings

yTraceabilit y – Putting the 'y' First

Dr Olly Gotel, Pace University

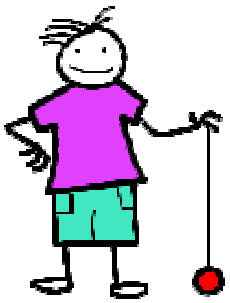
ogotel@pace.edu

In my two-part quest to set the traceability record straight and to engage in some traceability word play[1], I thought I would write up a talk I gave at the International Symposium on the Grand Challenges of Traceability in 2007. The key message of my talk, called *"Losing Track of the 'y' in Traceabilit…"*, was the observation that it is all too easy to lose track of the 'y' behind what we are doing, be we traceability researchers or practitioners. My question to the traceability community was this: how do we get the 'y' put squarely at the forefront of all of our traceability minds?

Traceability is not a goal in its own right, it is merely a mechanism to help us navigate through, filter and access information to support many other tasks. I think that the grandest challenge we all face is simply stopping for a moment to take a serious look through stakeholder eyes – 'y' do they need traceability in the first place? To encourage the traceability community participating in this grand challenges symposium to consider the 'y' question as a precursor to all else, I re-framed some of the everyday challenges we were discussing in order re-iterate this most important of letters. I called these the 'y' challenges and, as always, they were part of my ongoing attempt to bring some fun to this most dry and serious of topics. I offer them for your consideration and amusement below.

The Yo-Yo Challenge

The boredom of a fixed routine



Yo-yos are designed to go down, and then up and down and up and down ad infinitum. What is the point of wheeling a yo-yo up and down like this? It can get a little frustrating after a while and it just makes your arm hurt if you keep it going for too long. With a little momentum it can almost keep going by itself, but physical work is still required to keep it ticking over. Eventually you decide to take a break from all the arm wrestling and so the whole system stops. It is then a lot of effort to get it all wound up and going once again. Have you ever attempted to pass an in-motion yo-yo over to a friend so you can take that break? Can you keep it wheeling up and down together?

Establishing traceability is just like playing with a yo-yo. It is a manual activity that soon becomes a chore, and where up and down translates to click and link and link and click. If you do something repetitive like this you hypnotize yourself and surely forget why you were doing it in the first place. Also, if you cannot hand over a simple yo-yo to a good friend, where it is plain to see what exactly is going on, what chance do you have of handing over the traceability mantle to a colleague when the workings are less visible? People should really be doing things that exercise their brainpower and not their arm muscles, unless they are professional athletes of course. Besides, some games simply aren't designed for two.

The Yarn Challenge

Chaos over time

So you all know how this one goes – you start out with a nice neat ball of yarn in your knitting bag (that's wool for the Brits) and by the end of the day it all ends up in a messy knot. Even if you are not a knitter, I can guarantee that despite your best efforts you get tangles in your iPod headphones every time you put them in your pocket. How do these knots and tangles get in there? It is one of the mysterious things in life that seems to happen by pure magic! The more yarn you buy, unravel and work with, the more of a mess you get yourself into.

Maintaining traceability is just like trying to keep your yarn in order. The more time you spend on a project, the more inevitable the deterioration in the traceability and the more time you end up needing to sort out the mess. Furthermore, like knitting a patterned sweater, traceability will not emerge if it is not planned for and built in. Try getting a big yellow Y embedded on the front of a bright red sweater when you are busy attaching the sleeves. It simply won't happen! If we have to plan for something so simple as knitting to avoid ugly sweaters, why do we assume that traceability patterns can be weaved in later?

The Yankees Challenge

People, training, teams and support

I may be a little biased (I live in New York City) but why are the New York Yankees a leading baseball team? What differentiates these professionals from an amateur team? The Yankees undoubtedly have lots of funding and support – the majority of New York City is

[1] See *"Traceability – Problems in a Word"* in RQ49 (October 2008). This current article is actually a more playful variation on the same theme.

rooting for them – but what is significant is that they have skilled players with well-defined roles and responsibilities (e.g., pitchers, batters, catchers, runners, etc.) In addition, they are trained and coached. Do they win if they don't all pull together on the day? Do they win if they wait until the last innings to do all the hard work? Do they win without exercising a game plan that can adapt to the gameplay?

Likewise, traceability has to be a team effort with the roles and responsibilities needed to do the job defined, and with the necessary skills nurtured and developed. Without a training program, a project-by-project strategy, leadership and support from others, coupled with the all-important drive to succeed, are we really going to reach the traceability major league?

The Yen Challenge

Variable value and return on investment

At the time of writing this article, the value of the dollar was going down against the value of the yen. But, markets rise and markets fall, and we have localized reversals of fortune (even though it would seem that everything is in free-fall at the moment!) How many dollars is my yen worth today? Will it be the same tomorrow? What should I bank on?

Traceability is a really hard sell and most of the time we seem to get away with gambling today on unknown futures. How much does it cost to do traceability and how much do we get back in return? Not only is there changing value over time, the value is also not uniformly perceived by all the parties. Interestingly enough in economics, 'Y' represents income. If we focus on the 'y' in traceability perhaps we will start to understand what stakeholder value actually means, and learn how to monitor and achieve this economically?

The Yorkshire Pudding Challenge

Supplements and miscellaneous side dishes

A Yorkshire pudding is a bland little pie that complements roast beef and gravy, the traditional Sunday lunch for meat eaters in the UK. The Yorkshire pudding is typically the side dish[2], the supplement, and it is only ever really noticed when it is not there on your plate. It gets its entire flavour from soaking up whatever is around it (usually the gravy).

Traceability is also considered the additional extra, the software development side dish. It is not noticed if it does its job well, but it is absolutely noticed if it is missing or substandard. Perhaps we actually need traceability to be invisible, but just like creating the perfect culinary side dish that doesn't overwhelm the main meal, getting to this is going to entail a lot of bad tasting experiences.

The Yorkie Challenge

Noise versus trusted companion

To one person a Yorkie is an annoying and yappy little dog that snaps at every passer-by and nips at people's ankles. To another person a Yorkie is a trusty handbag-travelling companion. The issues of noise and trust are not so unrelated. In a busy world, how do we decide what to pay attention to and what to filter out? Again, much will depend upon personal needs and predispositions.

Can we trust and use the results of our traceability endeavours or is there simply too much noise? This is an issue where the need to understand the 'y' literally barks out! The credibility of and resulting confidence in traceability really matters with ever more reliance on automation and third party efforts.

The Yardstick Challenge

Measures and standards

If we want to know how big it is we measure it. If we want to know how heavy it is we weigh it. We have our recognized and agreed yardsticks or measurement instruments for many things that society has agreed to standardise upon. We agree on the units and scales that we use for size and weight, and we know how to transform between preferred variants.

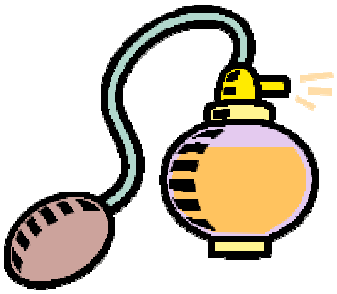
What can we realistically measure when it comes to traceability? The quality? Can we say how good the traceability is on a project? Can we say whether one technique or approach leads to measurably better results than another? Can we predict how

[2] One of my colleagues (Stephen Morris) reminded me that Yorkshire pudding is, if properly prepared of course, one of the great dishes of the world. More importantly in this context, some purists require that it should be served separately, with good gravy in the hollow created by the risen batter, as an independent first course. Food for traceability thought no doubt?

sustainable the traceability is likely to be going into the future? We don't even have a base language for talking about traceability that we all agree upon.

The Yardley Challenge

Image and marketing



My grandmother is from a generation that uses Yardley products, be they perfume, soap, make-up, etc. Yardley is a fragrance authority best known to many for scent that makes you smell like an English country garden. As a company, Yardley has tried very hard over the past decade to re-invent itself and to gain appeal amongst a younger generation. It even hired the offbeat Helena Bonham Carter at one stage as the face of Yardley. However, it has been difficult to shake off its image as being a brand for traditionalists.

For generation Y, traceability is about as cool as yodelling and considered yet another relic from a bygone waterfall era when it comes to software development. Traceability needs to be made more appealing, attractive and interesting if everyone is going to want to do it or (better) simply to have it always there. If configuration management can look sexy with tools named Subversion, and if Google can make search optimisation a household discussion, what are the marketing options for Trendy Tracy?

The Yeti Challenge

Belief versus evidence

Whether you call it the Yeti, Bigfoot or the Abominable Snowman – who believes in it? Who has actually seen it? Is it a myth or a reality? Who truly knows? If you want to see the Yeti then you have to go to where the Yeti has been spotted, be this Yonkers, Yosemite, Yorkshire, Yemen, Yukon or Wyoming (*joke*).

We all believe that traceability is critical to the success of a software development project or we wouldn't be reading this article – but is it really? Where is our evidence? Without evidence to show others we are no different from those who believe in the Yeti! People aren't going to believe it is necessary and important to do traceability just because we say it is so. Why aren't we building up a body of evidence to validate and substantiate our claims? Process improvement is a two-way street and researchers need to visit the shop floor and experience a bit of the pain from a project blizzard.

The Yoga Challenge

Flexibility and change

Yoga is often mistakenly thought to be about sculpting a double-jointed body. It is actually more about developing a supple mind. By practicing yoga we re-learn how to breathe, align our body parts, move with ease, and we strengthen ourselves from within to deal with the stresses of everyday life.

The challenge of having enough flexibility to be able to deal with change is a considerable one for traceability systems. Stakeholders and their requirements for traceability change. Irrespective of our best planning efforts, we cannot pre-empt everything up front, so we have to create a framework to help us adapt and grow as we learn about what is needed, what works and what doesn't.

The Yin and Yang Challenge

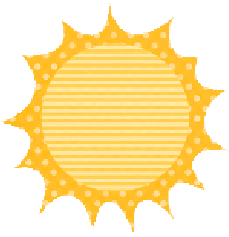
Balancing opposites

Yin and Yang cannot exist without each other. Day cannot exist without night. Light cannot exist without dark. Life cannot exist without death. There are always traces of one in the other. There is light within the dark (the stars at night). When there is an excess of Yin or an excess of Yang, things get out of balance.

Many things change when we attempt to set up and use traceability and we have to keep everything in balance when they do. When we change artefacts, their trace relations sometimes change too and the impact can often propagate widely. Trace artefacts and trace relations are our Yin and our Yang. If they do not keep in balance at all times, they become untrustworthy and somewhat useless.

The Yellow Challenge

Happiness and fun



"We all live in a yellow submarine. Yellow submarine, yellow submarine. ... As we live a life of ease. Everyone of us has all we need. Sky of blue and sea of green. In our yellow submarine."

[The Yellow Submarine – The Beatles.]

Supposedly, Paul McCartney purposely used short words in the lyrics when he wrote this Beatles song because he wanted kids to pick it up early and sing along. It was intended to be a kids' song, a fun and happy song. Yellow is also the colour we use to characterise our smiling and life-giving sun. It is positive and uplifting.

There are many traceability stakeholders to keep happy. Consumers will only be happy if they have what they need and when traceability is an invisible project lifeline to them. Suppliers will only be happy if their work is a joy to undertake and when the traceability sun keeps on shining. Why can't they all dream of a life of ease in the yellow submarine?

The Y-front Challenge

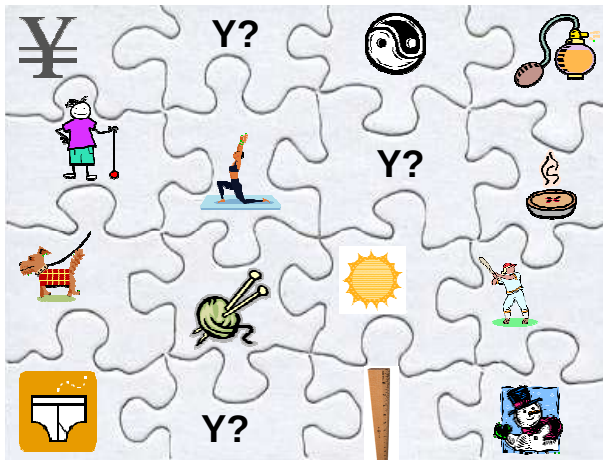
Tailoring to fit

Everyone has his or her own preference when it comes to underwear and we are all likely to have a combination of styles in our closets. One thing we certainly all know is that one size does not fit all! Equally, we all know that we should wear other clothes on top of our favourite underwear to be socially acceptable (except for Superman, obviously).

When it comes to traceability, we have lots of potential techniques and tools to use, but no single one will fit all scenarios. We may need to scale up or scale down for size. We may need industrial strength one day and disposable the next. We may need to combine approaches to achieve different layers and levels of traceability for different parties. We clearly need to embrace diversity and help people and projects find what is right for them.

From !y to y!

From not 'y' to 'y' not?



If we address all of the above 'y' challenges, will we be any better off? Are these all the pieces of the traceability puzzle? Do these pieces even form a comprehensive whole picture? Unlikely – and I did leave some gaps for you to fill in with your own favourite 'y' words.

The so-called traceability problem has been around for many years even though the basic concept of tracing is actually quite simple. Why is that? There are many stakeholders and this is what it probably all comes down to. Who are these stakeholders, why do they actually need traceability and why should other stakeholders trade time in the present to support unpredictable futures? There is no single answer to these more fundamental 'y' questions, but surely these are the core 'y' challenges that need to be addressed first and foremost so as to assist with all the others?

My parting message is this: we must not lose track of the 'y' in traceability, the 'why?' of traceability. 'Why trace?' is the most important question because it leads on to 'trace what?', 'trace where?', 'trace when?' and then, and only finally then, 'trace how?' It is time for us all to put the 'y' first. It is our best way into tackling the many traceability challenges before us.

RE-Flections

Making Your Requirements Knowledge Count: Working in RE

University of Westminster, London, 5th November 2008

Ljerka Beus-Dukic, University of Westminster
Emmanuel Letier, University College, London

This two-hour free event was organised mainly for the benefit of computer science students to give them opportunity to find out more about the professional life of requirements engineers.

Invited speakers were former City and UCL students whose current jobs involve significant requirements engineering activities:

- **Alistair Mavin**, a control systems engineer at Rolls Royce in Derby;
- **Hang Pang**, a project manager within the NHS;
- **Stefanos Zachariadis**, a software engineering consultant at Zuehlke Engineering; and
- **Kristine Karlsen**, a research assistant at City University interested in creativity in software development.

The Panel of invited Speakers

The event took the form of a panel which meant that each speaker in turn said something about themselves and their current work and then they were all responding to questions from the audience.

The event did not attract the big (100+) audience organisers expected. This was mainly due to the bad timing of the event as this was the week the City and UCL students didn't have any scheduled teaching. Fortunately, the event caught eye of students from other London-based universities and, together with sizeable turnout of Westminster students and staff, there were over 40 pundits on the day, providing an enthusiastic and probing audience.

No prompting was needed for the questions; they came thick and fast, directed at all the members of the panel. Responding to the main question of what requirements knowledge is needed in industry, the panellists stressed the importance of communication and interaction with stakeholders in interviews and workshops, the skill which can't be easily thought but can be learnt in practice and definitely gets better with time.

A question was raised: How difficult is to find stakeholders who are willing to talk to requirements engineers? The response was reassuring: once they agree to talk to you they are happy to be heard and tell their views.

There were several questions about processes and methods used in industry for system development. Different panellists responded differently to these but there was general consensus on the need to clarify requirements early and avoid scope creep later. Work in small iterations, Agile and component-based development can help but, most importantly, a longer term give-and-take relationship with a customer must be established.

The Customer is also key to selecting and using different methods, techniques and tools. From panellists' experience it seems that diagrams and models they use in industry are the ones customers understand and these are less likely to be formal. One of the examples mentioned was the requirements specification where customers expect to sign off a text document regardless of the tools used to produce it.

The panel session ended with the audience hungry for more time to ask questions and panellists satisfied with the interest their practical experience raised.

Open Source Requirements Elicitation Workshop

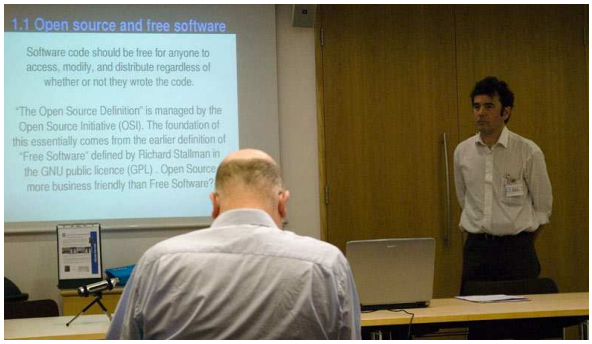
BCS London, 8th January 2008

Mark Elkins, OSSG

This one day workshop was organized by the BCS **Open Source Specialist Group** (OSSG) to explore Open Source requirements elicitation. Five speakers and much participation from the audience ensured there was no let up in attempting to cover a concatenation of the topics of 'Open Source' and 'Requirements Elicitation'.

Mark Elkins introduced the workshop by discussing the state of the art of requirements elicitation for open source software. OS derives from “free software” as defined in turn by the GNU public licence (GPL). **Gerry Gavigan** (the chair of the Open Source Confederation) said the BSD licence had a problem as its value could bleed into the sand, in economics terms

– people can take without giving. In contrast IBM for instance support GPL because it is safe kind of licensing. "Free" is ambiguous in English but not in some other languages.



Mark Elkins (OSSG) Opens the Workshop

Ian Alexander spoke about whether RE applies to Open Source Development (OSD). He first looked at traditional "Cathedral" software development versus "Bazaar" style OSD, following Eric Raymond. He then considered two traditional cases: single client/single supplier/custom system; and mass market/product company/product line. Using a template, these are compared as ways of delivering what people want, leading to the question of how each development approach actually finds out what is wanted. He ended by suggesting ways in which OSD's requirement approach is distinctive.

Conrad Taylor and Kemi Adeboye

Conrad Taylor, Chair of the Electronic Publishing Specialist Group (EPSG) and **Kemi Adeboye**, Southbank University, spoke on *Usability is a Requirement – how easy is it to achieve in Open Source projects?* Usability can be seen as a measurable quality attribute. It leads to a set of goals such as effectiveness, learnability, likeability, usefulness, and reliability. But even if all of these are met, a system will only be used if its functions match the users' goals in their everyday work environment. So, you need to define users and work out how to cater for them. This is hard because of personal, task, environmental, and organisational differences. Usability (said Conrad) is influenced by both HCI considerations (ergonomics, human factors, cognitive psychology) and systems aspects including reliability. But usability must never be confused with functionality – a device may be chosen for having special capabilities even if it's horrible to use. And a device like a camera may look scary with dozens of controls, but in fact make all commands instantly accessible with a twist of a dial and the click of a button: whereas an "ergonomic" device may look really Design Museum-ready with only three controls, but involve a "white rabbit" experience diving down through many levels of menus and screens to put the device into any given mode.

Kemi then asked why OS projects often fall short. Firstly, many are led by developer's enthusiasms (not by eliciting requirements from anyone). Communication is mainly developer-to-developer. There is often no budget for user testing. So, users are on the outside: they don't fit in and they don't own the project. (All of these reasons apply to requirements in general, not just to usability.)

Human interface guidelines can possibly help: eg Apple's User Experience; Vista; Gnome HIG 2.2; KDE and Cornelia Boldyreff's One Laptop Per Child (OLPC) all have freely available documents or Wikis. The Luis Borges / Umberto Eco method can possibly help. "In the best of worlds, the manuals would be written first, then the design would follow the manual".

Cornelia Boldyreff, Professor of Software Engineering, University of Lincoln gave the final presentation of the day – *OSS Software Engineering meets Social Networking: Building Communities*. Cornelia considers that the socio-technical nature of engineering was of high importance and outlined the criteria needed for successful Open Source projects. Successful projects obviously meet users' needs effectively, so there is a symbiosis between developers and users. Successful projects are also open in communication (of software purpose, etc) and networking with other people; transparent in sharing process; intellectually accessible; and they sustain their developer communities. Her take-home message was that encouraging students as researchers and producers rather than consumers has benefits for both the student and the wider academic community as well as for society at large.

It was a stimulating day and a genuine workshop: more time was spent on questions and discussion, and sometimes the thread wandered far from anyone's presentation; but there was deep knowledge in the room, much laughter, and plenty of meeting of minds. Workshop material including papers, presentations, and recordings will be available on the OSSG website at http://ossg.bcs.org/.

RE-Verberations

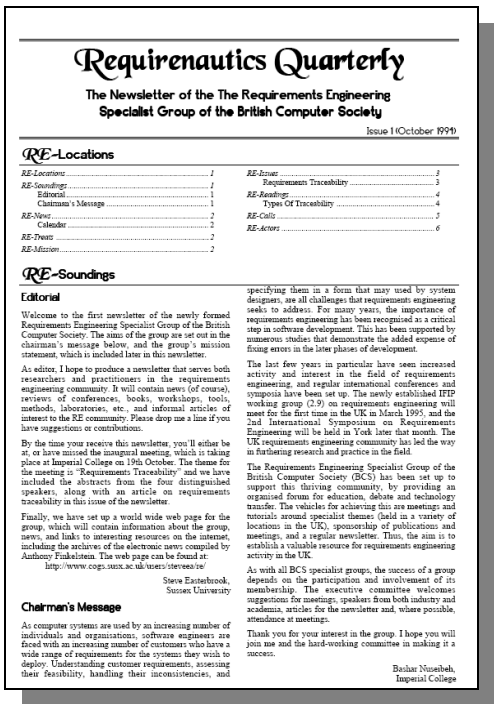
RQ – 50 Not Out and Counting!

Simon Hutton, Headmark Analysis

I am in the fortunate position of being able to report on this significant milestone in the history of our Newsletter, even though I can only take any credit for the past few months! I though it would be interesting to glance over 50 editions of RQ, to look at those early days of RQ to see how much has changed over the past 15 years. It is a credit to those involved in the early days that most are still active re-actors, and I am grateful for their contributions to this retrospective.

The original 1994 committee comprised six pathfinders - we now have at least 18 committee members which must be progress…! **Olly Gotel** was the first Industrial Liaison Officer, and she recalls that the aim was to run events for the community to raise the profile of RE in the UK – and to have some fun! The first Chairman was **Bashar Nuseibeh**, who kept a close rein on proceedings for several years and is still one of our leading re-actors. I am told that **Neil Maiden** was an outstanding Treasurer, having modelled his style on Scrooge, while **Sara Jones** did a formidable job dealing with membership and chasing subscriptions.

Steve Easterbrook was the first newsletter editor, and coined the title *Requirenautics Quarterly*. I was never too sure what a *requirenaut* was, and whether the inspiration was *astronaut* (brave discoverer of new worlds) or *juggernaut* (big and clumsy, difficult to stop once started)! However, the title stuck for at least 10 years, before becoming Requirements Quarterly, or just RQ!



Requirenautics Quarterly

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

Issue 1(October 1994)

RE-Locations

RE-Soundings

Editorial

Welcome to the first newsletter of the newly formed Requirements Engineering Specialist Group of the British Computer Society. The aims of the group are set out in the chairman's message below, and the group's mission statement, which is included later in this newsletter.

As editor, I hope to produce a newsletter that serves both researchers and practitioners in the requirements engineering community. It will contain news (of course), reviews of conferences, books, workshops, tools, methods, laboratories, etc., and informal articles of interest to the RE community. Please drop me a line if you have suggestions or contributions.

By the time your receive this newsletter, you'll either be at, or have missed the inaugural meeting, which is taking place at Imperial College on 19th October. The theme for the meeting is "Requirements Traceability" and we have included the abstracts from the four distinguished speakers, along with an article on requirements traceability in this issue of the newsletter.

Finally, we have set up a world wide web page for the group, which will contain information about the group, news, and links to interesting resources on the internet, including the archives of the electronic news compiled by Anthony Finkelstein. The web page can be found at:

http://www.cogs.susx.ac.uk/users/steveea/re/

Steve Easterbrook,
Sussex University

Chairman's Message

As computer systems are used by an increasing number of individuals and organisations, software engineers are faced with an increasing number of customers who have a wide range of requirements for the systems they wish to deploy. Understanding customer requirements, assessing their feasibility, handling their inconsistencies, and specifying them in a form that may used by system designers, are all challenges that requirements engineering seeks to address. For many years, the importance of requirements engineering has been recognised as a critical step in software development. This has been supported by numerous studies that demonstrate the added expense of fixing errors in the later phases of development.

The last few years in particular have seen increased activity and interest in the field of requirements engineering, and regular international conferences and symposia have been set up. The newly established IFIP working group (2.9) on requirements engineering will meet for the first time in the UK in March 1995, and the 2nd International Symposium on Requirements Engineering will be held in York later that month. The UK requirements engineering community has led the way in furthering research and practice in the field.

The Requirements Engineering Specialist Group of the British Computer Society (BCS) has been set up to support this thriving community, by providing an organised forum for education, debate and technology transfer. The vehicles for achieving this are meetings and tutorials around specialist themes (held in a variety of locations in the UK), sponsorship of publications and meetings, and a regular newsletter. Thus, the aim is to establish a valuable resource for requirements engineering activity in the UK.

As with all BCS specialist groups, the success of a group depends on the participation and involvement of its membership. The executive committee welcomes suggestions for meetings, speakers from both industry and academia, articles for the newsletter and, where possible, attendance at meetings.

Thank you for your interest in the group. I hope you will join me and the hard-working committee in making it a success.

Bashar Nuseibeh,
Imperial College

RQ – Issue 1, October 1994

The first edition of RQ was published during October 1994, a few days before the announcement of the correct proof of Fermat's last theorem, the release of Red Hat Linux 1.0, and the discovery of the chemical element Darmstadtium – no doubt you remember it well! This edition included a preview of the Inaugural Meeting held on 19 October 1994 – the theme was Requirements Traceability, and abstracts from the four speakers were featured in addition to an article on Requirements Traceability by **Mark Alford**. I am quite pleased that this 50th edition has a sense of history and continuity be including an excellent article on Requirements Traceability by a member of that first Committee.

RQ 2 (Jan 1995) records that over 50 people attended the traceability event to listen to presentations from the panellists and to engage in what appears to have been a lively discussion that would probably be as relevant to-day as it was in 1994! The panel was nicely balanced, with two academics (Prof Anthony Finkelstein and Prof David Budgen) and two practitioners (Dr Laurence James of Marconi and Dr Richard Stevens of QSS). I wonder what happened to Marconi and QSS!

Steve's editorial to RQ2 notes that a number of people have asked why the newsletter is not distributed electronically. This must have been a fairly advanced request in 1995, when most were getting interested in file transfers at speeds that would necessitate a complaint to the IT helpdesk to-day! The paper distribution remained as "a printed newsletter is still more convenient to read for many of us" – I would encourage you to look at page 2 of this edition for proof that things do eventually change, for better or worse!

By issue 10 (April 1997) the newsletter format seems to have settled into the format we see to-day, with details of forthcoming events, general news, reports from recent events and original articles. There was even a regular column called CORE-Blimey written by Geoff Mullery of Systematic Methods. This edition included a report on RE97 held in Annapolis during January 1997. I wonder if the comment that "unfortunately there was not much participation from big computing companies like Intel, Microsoft and Sun – their approaches to requirements engineering remain a mystery" would apply to-day! The main themes appear to have been formal methods and object-oriented requirements methods, with some excitement about the offerings from the tool vendors that were exhibiting. From my experience the principles and techniques we use in Requirements Engineering have been around for some time – what has really evolved over the life of RQ has been to ability to put these techniques into practice through the development and availability of supporting tools. Faint praise to the tool vendors - that's enough!

Issue 13 (Jan 98) records a significant event in the life of RESG – the first National Requirements Engineering Awareness Day (RE-Day). This attracted over 200 people, and included presentations, tutorial and a tool vendor exhibition. The reporting of the event introduced the wonderful style of Ian Alexander, providing one of the first of many articles, reports and book reviews that have graced RQ over the years. Olly Gotel has fond memories of RE-Day, recalling Bashar rallying the troops from a custom-made soapbox as she ran around after tool vendors. The articles in RQ13 also featured ideas for certifying and improving requirements management processes, something that continues to be a key aspect of requirements management to-day, especially in the context of systems engineering and process maturity, and probably would benefit from more feedback from industry.

Ten years ago RESG was an established and important element of the requirements engineering community in the UK, something that has been enabled by this newsletter. And that has only happened through the active participation of you, the membership. I look forwards to making a small contribution to the next 50 editions, and in particular to including your ideas, papers, book reviews or comments.

Oil & Water, Practitioners & Academics!

Simon Hutton, Headmark Analysis

Those of you who subscribe to the re-online discussion forum will be familiar with the relatively exciting exchange of views that **Ivy Hooks** kicked-off in December with a deceptive question about the benefit of conferences to practitioners. For those who missed it I paraphrase the discussion below – it raises some fundamental questions about the working relationship between the research and practitioner communities, and perhaps suggests that we could do more to build bridges between the two. I am grateful to those participants who have given permission for their contributions to be repeated in print, and would welcome any further thoughts or comment for the next edition of RQ.

Ivy is an extremely experienced practitioner, and asked for views on the benefits in attending conferences to help her decide if she should go to the next ISRE in Vancouver. Quite rightly Ivy doesn't want to spend money or valuable time "attending a conference at which everything is so theoretical as to be useless in the real world". Perhaps a little mischievously she asks how conferences can be "practical when 99% of the people running the things are from academia".

Professor **Ian Sommerville** responded as an academic but with obvious sympathy for the practitioner viewpoint. He observed that "most papers in computer science conferences are utterly irrelevant to real industrial problems - RE conferences are probably better than most but most of the papers are still of limited use as far as practitioners are concerned". He does justify this stance with four reasons:

1. Academic careers depend on publishing, and it is easier to publish papers about small examples than about real systems. In the time you take to understand a real system, you can publish several papers on toy systems. Academics, like everyone else, optimize their behaviour according to the ways they are measured and are therefore behaving perfectly rationally in doing this. This is understandable but means that most research is useless.

2. Many academics build their careers on one idea and work in this area for many years even when there is overwhelming evidence that what they do will never scale. Some kinds of formal methods are a good example of this. However, they become expert, participate in the community and therefore ensure that papers on their ideas will continue to be published. Personally, I think this is pretty reprehensible behaviour but it is still rational.

3. Industry, in general, is unwilling to provide interesting problems for academic researchers to engage with because this involves them investing a significant amount of effort in explaining these problems and there is no guarantee for any return on this effort. This is a pretty short sighted approach in my view but is depressingly common. Therefore, those academics who are interested in real problems have to spend a great deal of time simply building relationships to get access to problems. Understandably, many give up and go back to the toy problems.

4. Most conferences would like more practical papers - but industry folks don't write them and it is very hard for academics to do so for both career reasons and the lack of industrial engagement.

Nancy Mead supported this by offering two views of why conferences seem to be academically biased, with the benefit of experiences in both camps:

> **"Industry view**: If you are an industry practitioner, publication is usually tolerated, at best, unless you are in a research lab. Most practitioners don't have time to write papers and when they do they don't write them with academic standards in mind - for example, it may be an experience report with no references. Maybe it doesn't look "novel" because they are writing about known problems, from a research perspective, but they are on a much bigger scale than previously published research papers. If you are developing something that is proprietary, it's hard to get clearance to publish. Ditto if it's something being funded by a customer. However, by far the biggest problem is that you appear to have time on your hands if you are writing papers rather than doing the "real" work.
>
> **Academic view**: A large numbers of publications are not just desirable but necessary to an academic

career. Novel results, even if they are on toy problems, are more likely to be accepted for publication. Very often the volunteers who are on committees and editorial boards are from academe, using academic standards, and this just compounds the problem. It is hard to form any kind of partnership with industry. In addition to not having time to explain their problems, sometimes the work is proprietary. One time it took me six months to get a non-disclosure agreement in place with an industry group, and by then there was no longer any interest on their part, which is understandable, but it certainly wasted a lot of my time dealing with lawyers. The other difficulty is that if it really is a large problem, it could be years before you get any kind of publishable results, again undesirable from an academic perspective. Finally it depends on having one or more sympathetic contact points in the industry organization. If the "champion" for collaboration leaves the company, usually the collaboration dries up too."

Ellen Gottesdiener then provided some additional insight to the problems facing the practitioner becoming involved in sharing ideas, reminding us that projects and commercial research are often covered by privacy clauses and non-disclosure arrangements, so it is difficult to share findings or involve academics. Ellen also points out that "many organisations are very sensitive about "opening" and exposing their issues In some cases, they might be embarrassed. In other cases, they are working on efforts that provide competitive advantage and do not want to tip their hat. Still in other cases, they have an image (sometimes deserved) that any academic involvement would be a burden and slow down their real need to deliver."

As a potential solution, Professor **Anthony Finkelstein** offered what he described as a dissident view, proposing that we need practitioner focussed events AND research focussed events (inevitably attended by research professionals). He suggests that the problem is not with ICSE and similar events which meet a real need but with a gap in the provision elsewhere. Ian responded that the dissident view would tend to polarise the community, noting that there are a small number of practitioner focused events (the INCOSE conferences come to mind) and a larger number of academic events. Few academics attend the practitioner events and vice versa. We need more dialogue, not less.

In reply Anthony pointed out that while conferences such as ICSE attract a large proportion of the leading researchers, even the best practitioner events are pitifully small in relation to the size of the community. We should be having events attracting 15,000+ - then he would attend and exhibit each year to access that larger practitioner community. He stressed that he is "not interested in events attended by a small number of 'in-betweenies' who are neither current practitioners nor active researchers".

Olly Gotel, who is actively involved in publicising the forthcoming RE09. Olly points out that the conference committee is a balance of academics and practitioners who recognise the importance of satisfying the needs of both communities. So there are no excuses for not getting involved!

RE-Partee

Car Trouble

A Software Engineer, a Hardware Engineer and a Requirements Manager were on their way to a meeting. They were driving down a steep mountain road when suddenly the brakes on their car failed. The car careered almost out of control down the road, bouncing off the crash barriers, until it miraculously ground to a halt scraping along the mountainside. The car's occupants, shaken but unhurt, now had a problem: they were stuck halfway down a mountain in a car with no brakes. What were they to do?

"I know," said the Requirement Manager, "Let's have a workshop, define some Goals, agree what we all need to achieve, resolve any conflicts and by a structured process of analysis define and document the Critical Requirements. Then we can be on our way."

"No, no," said the Hardware Engineer, "That will take far too long, and besides, that method has never worked before. I've got my Swiss Army knife with me, and in no time at all I can strip down the car's braking system, isolate the fault, fix it, and we can be on our way."

"Well," said the Software Engineer, "Before we do anything, I think we should push the car back up the road and see if it happens again."

Parts Trouble

This story comes from the 9th Edition of RQ – remember it was in 1997!

Apparently the computer giant IBM decided to have some parts manufactured in Japan as a trial project. In the specifications, they set out that the limit of defective parts would be acceptable at three units per 10,000. When the delivery came in there was an accompanying letter:

'We Japanese have a hard time understanding North American business practices. But the three defective parts per 10,000 have been included and are wrapped separately. Hope this pleases.'

RE-Sources

Books, Papers

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

Media Electronica

RESG Mailing List
http://www.resg.org.uk/mailing_list.html

RE-online
http://discuss.it.uts.edu.au/mailman/listinfo/re-online

Requirements Networking Group
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 the Editor, Simon Hutton, at simon.hutton@headmark-analysis.co.uk. Submissions must be in electronic form, preferably as plain ASCII text or rtf.

The deadline for the April 2009 Edition is Friday 3rd April 2009.

Joining the BCS RESG

Visit **http://www.resg.org.uk/** for membership details, or email **membership-RESG@open.ac.uk**