



Requirements Quarterly

The Newsletter of the
Requirements Engineering Specialist Group
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Contents

<i>RE-soundings</i>	1	You Know Your Life is Out of Balance	8
From the Editor: RQ's Soft Issues Edition	1	When...	9
Chairman's Message: RESG Membership is Changing	2	<i>RE-flections</i>	9
<i>RE-treats</i>	2	The Right Way Round is Back to Front	10
Scenarios Day	2	<i>RE-verberations</i>	10
RESG Party, Soapbox and AGM	2	Requirement Evolution by Natural Selection	11
RE Education & Training Workshop	2	Red in Tooth and Claw	11
Ubiquitous Requirements	3	Creative Harmony	11
So You Want to be a Requirements Analyst	3	<i>RE-readings</i>	12
PhD Student Event	3	Weinberg on Writing, by Gerald Weinberg	12
Creativity Tutorial	3	The Stuff of Thought, by Steven Pinker	13
<i>RE-calls</i>	3	<i>RE-partee</i>	14
Introduction to Requirements	3	Acronym Expansion	14
REFSQ'08	3	Military Acronyms	15
CAISE'08	3	Do Not Verify This	15
RE'08	3	Mr Brunel's Requirements	15
Mastering the Requirements Process	3	<i>RE-sources</i>	16
<i>RE-writings</i>	3	Books, Papers	16
Improvisational Theatre: an Approach to	3	Media Electronica	16
Soft Skills for Requirements Engineers	3	RE-actors: the committee of the RESG	16
Soft Issues in Requirements Discovery	6		

RE-soundings

From the Editor: RQ's Soft Issues Edition

This issue showcases “soft” issues, starting with **Martin Mahaux’s** improvisational theatre approach to soft skills for requirements engineers that he presented at RE’07. Every trainer, consultant and workshop facilitator must have had the thought that what they were doing was quite like drama: acting a part, getting an audience response, improvising on the spur of the moment. Drama, of course, comes with a long history of skill, techniques, training methods, and the intentional use of improvisation to inject life into what would otherwise be lifeless repetition from one performance to the next. Sounds like some of the management training you went on, eh? See Martin’s article in *RE-writings*.

Continuing the “soft” theme, **Sarah Thew** – a researcher with a practical background in industry – writes about her experience looking at emotional issues when discovering requirements from stakeholders.

Still on the theme of soft issues, *RE-writings* this month also branches out with requirements consultant **Jeremy Dick’s** thought-provoking, and perhaps even life-changing survey of people’s views on life balance. It seems that people found it easy to think up a wide range of ways in which their lives were out of kilter. Engineering innovation is supposed to be to help make life better. It is sad if all that this effort achieves is to make us, consumers, everyone, steadily more unbalanced. Perhaps an organisation’s goals must be one-sided: commercial concerns, pressure groups, charities and so on all quite rightly have their own axes to grind, their own shareholders to satisfy. But that

does not mean that our personal goals should not be balanced. Fortunately, as Jeremy so gently reminds us, we don't need requirements engineering techniques to document and trace our own goals. But we might need a bit of time, and perhaps a pencil and paper, to reflect on them a little.

Even the book reviews are a bit softer than usual this quarter: at least, they are about the vital human skills of thinking and writing, and RQ welcomes **Haim Kilov** to the *RE-readings* column.

Ian Alexander, Scenario Plus

Chairman's Message: RESG Membership is Changing

As you will know, the RESG is a specialist group of the British Computer Society. Recently, the BCS has introduced a number of changes to the rules that apply to its specialist groups. The most fundamental of these is that from 1st May 2008, all SG group members will be required to be a member of the BCS. This is significant for us because although many RESG members are also members of the BCS, by no means all are.

Full BCS membership gives professional recognition and access to the BCS's learned society activities. BCS have decided that membership fees for 2008/9 for new members will be waived for SG group members if they join the BCS before 30th April.

Joining the BCS (www.bcs.org) is easy, at least at the minimal qualifying levels, and can be done on-line. RESG membership will therefore be open to those holding Affiliate Memberships of BCS and above, and to student members. As a matter of interest, the BCS website shows the current annual cost of Affiliate membership as £25, and £20 for student membership.

Let me emphasise that despite the change of membership rules, the services that we offer to RESG membership will remain unchanged, and in fact we have plans to improve the resources we offer through our website (www.resg.org.uk). Attendance of events will continue to be free or available at substantially reduced rates to RESG members. Non-members will still be able to attend RESG events, although BCS require that the number of events non-members can attend per year is capped at 40%. Members will still get the RESG newsletter, RQ. The RESG mailing list will continue to be maintained and open to members and non-members. BCS's financial muscle may even make it possible for us to operate more ambitious, more financially risky events in the future.

If you are not already a BCS member, I do hope that you feel the RESG offers you sufficient benefits for you to take the trouble to join the BCS, and continue your membership of the RESG.

Remember to take advantage of the free BCS membership offer before 30th April.

Pete Sawyer, RESG Chair

RE-treats

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

Scenarios Day

10 June 2008, Northampton Suite, City University, London

Scenarios Day is always one of the RESG's most popular events.

The morning will be a **Tutorial** on how to write effective Use Cases, given by Ian Alexander and Neil Maiden.

The afternoon will be a **Seminar** on the use of scenarios with speakers from industry and academia.

Speakers will include Paul Grunbacher & Norbert Seyff of the University of Linz, who will talk about mobile scenario walkthroughs with PDAs. Professor Jon Whittle of Lancaster University will share experiences of using scenarios in an industrial case study. Alistair Mavin of Rolls-Royce will speak about using scenarios in aerospace.

Contact Neil Maiden

RESG Party, Soapbox and AGM

10 July 2008, Imperial College, London

Contact Pete Sawyer

RE Education & Training Workshop

at RE'08, September 8/9, 2008, Barcelona

Effective Requirements Engineering is increasingly recognized as a critical component in the success of a software development project.

This has led to a growing identification of the importance of incorporating significant RE components into the curriculum of university degrees in Software Engineering, Computer Science, Information Technology and other related areas. Furthermore many industrial organizations are recognizing the need to develop RE related training programs as part of their ongoing process improvement initiatives. This workshop will address issues related to RE education, both as part of a formal university degree and as ongoing skills training within the workplace.

Contact Will Heaven and Lucia Rapanotti

Ubiquitous Requirements

15 October 2008, London

Computers are becoming ubiquitous and so are the requirements for the applications that they run. To date, related areas of ubiquitous, pervasive and ambient, computing have been technology-led. The technology is maturing very fast, however, and we are starting to see real applications. But is RE ready? This event will explore what is special about ubicom for which RE needs to find the answers.

Contact Pete Sawyer

So You Want to be a Requirements Analyst

2pm, 5 November 2008, University of Westminster, London

Maybe you are thinking about becoming a requirements analyst. Do you know what kind of life can you expect? What your biggest joys and deepest sorrows will be? How you will spend your days? What skills you will need? Are the things that are taught in universities and described in books actually useful? During this event, several practising requirements analysts will tell you what their job is really like.

Contact Emanuel Letier, University College London

PhD Student Event

December 2008, London

Contact Dalal Alrajeh, Imperial College

Creativity Tutorial

March 2009, London

Contact Neil Maiden

RE-calls

Recent Calls for Papers and Participation

Introduction to Requirements

2 days, 15-16 April 2007, The IET, London, presented by Ian Alexander, Scenario Plus
<http://www.theiet.org/courses>

REFSQ'08

June 16-17, 2008, Montpellier, France
<http://www.refsq.org>

CAISE'08

June 16-20, 2008 Montpellier, France
<http://www.lirmm.fr/caise08/>

RE'08

The theme of this year's conference is RE for a sustainable world.

September 8-12, 2008, Barcelona, Catalonia, Spain
<http://www.re08.org/>

Mastering the Requirements Process

3 Days, 15-17 September 2008, London
<http://www.irmuk.co.uk/1/>

RE-writings

Improvisational Theatre: an Approach to Soft Skills for Requirements Engineers

Martin Mahaux – Inno.com Consulting, Belgium

This short piece is adapted from a paper presented at the RE Education and Training workshop, part of the 15th IEEE international conference on RE, Delhi, October 2007.

Position. Soft skills for requirements engineers can be approached by practising improvisational theatre exercises under the supervision of a proficient coach. It can be compared to a Problem Based Learning approach of these skills. Two sessions of three hours each can be an effective way to let engineers discover a fresh view on their skills.

Soft skills for requirements engineers

Macaulay and Mylopoulos [2] summarized it this way:

“[The requirements engineer must] make himself or herself understood, listen, stay calm and assured under fire, quickly assimilate information, talent for sorting and analysing information, write clear, well structured documents, make presentations, chair meetings, run a group. Also patience, perseverance, the ability to live comfortably in a constant state of ambiguity; both independence and what might seem its opposite, ease with teamwork; negotiation skills, flexibility, open-mindedness, sense of humour; interpersonal skill [and you must also be] analytical, logical and open-minded.”

In addition, authors like Maiden et. al insist on the importance of introducing space for **innovation and creativity** in the requirements process [3].

The *Business Analyst Body of Knowledge VI.6 (BABOK)* [5] also largely takes soft skills into account: Facilitate sessions, active listening, oral communication, teamwork, negotiation, conflict handling, presentation, decision-making, relationship are among the most cited ones, or even form the title of a chapter in the 'underlying skills' chapter.

REers = Innovative team players

In my eyes, "Making requirements engineers good innovative team players" can be seen as a common goal of all these skills. We never meet twice the very same business problem, we never design twice the very same solution, and we never do this alone; this is why we have to innovate in team, which in turn creates the need for the above mentioned skills.



Harlequin, Pantaloon and Scapin
Commedia dell'arte Improvisational Theatre
The Gelosi Company, 1580

Teaching these skills

Approaches to training RE based on traditional learning models tend to emphasise technical knowledge, and focus largely on notations and prescribed processes [1]. Certain research [2] tended to simply ask the question whether such skills were teachable. Vera and Crossan [6] show us that they are.

What is Improv?

Improvisational theatre, or as it's called in theatre, improv, is a practice in which an actor, or a group of actors, write, direct and play theatre at the same time.

In front of the audience, people are acting and building on the moment their own ideas on how to interpret the theme that has been given to them 30 seconds before. They don't know what's in the other's mind, but they must act as if they were in the same imaginary world, knowing exactly what the other is doing, seeing, hearing... Propositions are made by one actor to take the show further, and these are listened to by the others, who take the idea and build upon it, no matter

how bizarre the idea might seem to them. The story goes on building, block by block. The goal is to end up with a great show.

Improv has translated the innovative team playing skills as explicit rules that must be followed by any fellow player. They will form an appropriate context for innovation in the team. They can be found, for example, under the following form [7]:

- Trust your fellow players.
- Don't block, negate, or deny anything in a scene.
- Don't ask questions, or answer the ones you ask.
- Make choices which forward the action in a scene.
- Make assumptions about characters and endow.
- Give and take.
- Listen, watch and concentrate.
- Work to the top of your intelligence.

Clearly, improv is about being innovative in team [6]: one must be able to make acceptable propositions and the other one must be able to hear it, accept it, integrate it and bounce on it to make the things go on. Innovative team playing is the strong link between RE and improv. The improv itself is, in short, a sort of meeting with permanent innovation, negotiation and conflict resolution. If you can understand what makes improv work, you'll learn a lot on how to facilitate your meetings.

In addition, In improv, one must think on one's feet. The player must feel at ease with assimilating information quickly, including by sorting it to retain the essence of a message, and take quick decisions on how to react to it. Improvisers must manage and exploit the pressure; they must take some risks and take profit out of it. The players will be invited to accept mistakes and to learn to exploit these as material to build the show. Improvisers must depict credible characters. Commitment, physical communication, self confidence have to be worked out. Facing the unknown will happen every second in improv.

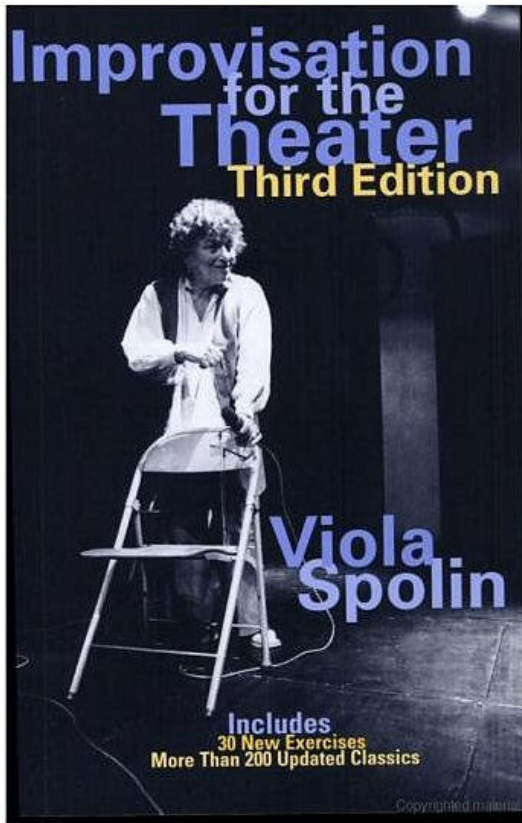
Improv as Problem Based Learning for Soft Skills

Improv rules give us a framework to experiment with the innovative team player skills, and can be compared to a chemistry laboratory equipped with the needed infrastructure to learn the science. Gradually playing the game, under the supervision of experienced coaches and in this safe context will put us in situations where we will feel and see the skills in action, nearly as if they were concepts as basic as $\text{Acid} + \text{Base} = \text{Salt} + \text{water}$. Talking about the game will help us to find easy words for talking about the soft skills we work on. And, above all, this will be FUN. The feeling of playing like children is a great enabler for learning and a great motivation factor for trainees.

A possible training form

The training is two to three sessions of 3 hours each. It consists in practising improv exercises, so it is nothing like sitting on a chair and listening to the 'teacher'. It is

difficult to imagine what a session can really be like by reading these lines, as this can only be achieved by attending a hands-on session...



Books of Improvisational Theatre Exercises
have become bestsellers

Introduction: 10 minutes. Firstly I introduce improvisation. I explain the skills targeted and for the rest of the session I will not insist too much on the relation with the skills at work. The idea is to let the trainee feel it. During all exercises the coach will have the chance to explain and illustrate many of the improv golden rules in the debriefings.

Mind clean up: 10 minutes. The goal is to directly experience that this is not yet another training, to forget the day of work, and to switch the mind to his new mode: awareness of oneself, of the others, concentration.

More energy, more fun: 10 minutes. It is now time to break our first taboos, we will let our energy exteriorize and feel the fun it can be.

Trust: 10 minutes. Players must remain on some trust...

The myth of "No Ideas!": 10 minutes. Now let's get rid of that fear that we have no ideas...

Endorse characters: 10 minutes. Trainee must be familiarized with the art of playing characters.

Let's begin to play before the break: 20 minutes. We try now to begin a classical improv, for one minute or something.

Break: 20 minutes. Then, do again 20-30 minutes warm-up, characters and/or ideas generation exercises. Lot of exercises combine them...

Clear communication, active listening: 10 minutes. Before the break you will surely have had the possibility to point out a moment where communication failed. Recall that moment to introduce this exercise now.

Accept and build up: 10 minutes. Again before the break you will surely face one player repeatedly blocking the suggestions of another. Now it's time to address this...

Improvise and debrief: Do improvisations again for the rest of the session (some 30 minutes).

Debrief: *Continuously!* In the debriefings, the coach and the trainees will analyze what happened in the exercise they just did. Did the participants feel good or bad being there with the other? What was hard or easy? Then explain why they felt this way and why the exercise was successful or not.

Conclusion

A set of soft skills is highly recommended to requirements engineers: basically they need to be excellent innovative team players, which requests skills like creativity, communication, adaptation, negotiation, meeting facilitation... This is the essence of the art of improvising too, so playing their fun game can be considered as great a Problem Based Learning for these skills. Many forms could be thought of, one of which I found to be efficient is an after-work training with two or three 3-hour sessions. The feedback from participants is great, but this is for the moment the only efficiency measure I have, I'm afraid...

The author

As a consultant, Martin has been involved in projects at various software life cycle stages in various industries. Married with an actress, improv has been a hobby for 6 years. He is now working on RE top challenges and on tailoring this training program for inno.com consulting, in Belgium.

Invitation

If you are interested in the approach, would like to attend or organize such a training, don't hesitate to contact me! martin.mahaux@inno.com

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Soft Issues in Requirements Discovery

Sarah Thew, University of Manchester

All but the most minor software developments have the potential to change people's roles and ways of working in positive and negative ways, and consequently both software projects and their end results can trigger strong reactions from users. Understanding users' motivations, emotions and personal values can help a requirements analyst in problems associated with soft issues such as politics and people's feelings which are often cited as problems in the RE process [1], although there is little advice about how to deal with these issues. Few studies have directly considered stakeholders' emotions during the analysis phase, although there have been numerous studies which report the impact of negative user emotions after implementation e.g. [2, 3].



Picking up on users' emotions
is not always this straightforward

My interest in this area arises from my own experiences as a requirements analyst. When reflecting on past projects it became apparent that project success was often related to occasions when I had been able to pick up on users' emotions, or understood which aspects of their work they particularly valued, and had been able to use this information within the projects. However, I did not have particular techniques to guide me; rather it was a case of serendipity – users made

remarks or reacted in particular ways and on occasions when I was being particularly perceptive I would pick up on this and learn a little more about my users. As part of my PhD research I have been interviewing experienced analysts to understand whether they have an interest in understanding users' values and emotions, how they go about collecting such information, and how they make use of it within their projects.

So far, I've spoken to 8 business analysts, all experienced in their field, with between 6 and 32 years experience, having varying degrees of formal training in the discipline ranging from short courses to higher degree level training. They worked in a variety of fields, including pharmaceutical research, finance, education and local government.

All the analysts I spoke to acknowledged the usefulness of understanding their users' emotions and values. They were particularly conscious of the need to be aware of anxiety or negativity about their software projects – they were concerned about changes to peoples' work that might be considered negative, and were keen to find benefits or improvements as a way to 'sell' the software development process.

"I was working on a book-keeping system, the first time this office had ever had computers, so way back before you were born! All the women that work there had been employed because they had beautiful copper-plate handwriting – and now they were going to change to keyboards, so you can imagine how worried these women were! I had to work really hard to understand how they were feeling and how we could help them find value in the new system"

Analysts were generally less directly aware of users' personal values, but many of the projects they discussed included examples of systems either conflicting or agreeing with users' values. Fiona discusses developing a system she was involved in implementing for social workers. She comments that the social workers felt that secretarial work 'is not part of their day job', they implied that they value and prioritise other aspects of their jobs, and don't view administration work as part of their role. Consequently they were concerned at the prospect of a new computer based system for case management:

"Social workers I worked with had perceptions around doing secretarial work – they were going to have to start using computer based forms, they felt threatened because they might not do it right, and because secretarial work is perceived by them as less important – "it's not part of my day job"

Similarly Lucy describes the experience of working with someone who was considered to be a 'problem' user, who placed particular value on control and personal esteem:

"I worked with a lady a number of years ago that had the reputation of being a dragon. No one seemed to be able to deal with her. She always found fault with the

requirements, often for the most unreasonable of reasons. When I was assigned to work with her, one of the first things that I noticed was that she wanted to feel in control, that she was the person who had the final say in whatever happened to the application. She wanted to be catered to, to feel important and to be treated as such."

Lucy went on to change the ways the project team interacted with this user, for example modifying the specification format to one this user preferred, and found that by making some minor changes she was able to improve the relationship.

None of the analysts mentioned exploring positive emotions around the users' work or software development, but did remark on users reacting positively and emotionally to a piece of software development:

"She [business representative] tends to put a lot of emotion into her feedback, using phrases like: "you've made me very happy... I believe this lady genuinely cares about the people she works with, and often mixes work discussions with informal chats. She displays a motherly relationship towards myself and the developer."

It also appears that on some occasions the analysts were aware of the dynamics of relationships within a project, and the impact of emotional ties but were not sure how to handle the consequences.

"The developer has a much closer relationship with her than with the other business leads and on occasion, has placed more priority on her requests than requests submitted by other members of the team. This is an almost exact repeat of the previous project. My opinion on this is that while the specifications are likely to meet her needs, this is not necessarily the best use of the developer's time if the resulting product does not meet all the other users' needs."

Several analysts reported occasions when they had made use of their learning about user values or emotions, either in management of the requirements process, or in system design. One of the analysts described her surprise that the scientists she works with preferred an interface that demanded more interaction from them, but discovered they made parallels between clicking around the system researching information and lab-based research. The design 'spoke' to the users' self image as scientists. One of the most experienced analysts I interviewed explained that often her plans for the requirements process were heavily influenced by her awareness of users' anxieties:

"Listening to body language and people's feelings - sometimes you have to slow a project down to let people become ready for it, or take time out to get consensus"

It became apparent that the majority of analysts interviewed see this understanding as something that just 'happens' when they're being particularly

perceptive. One analyst observed that it's something they see other people doing, but they're not sure how.

"I have one colleague who is particularly good at this kind of thing, picking up on what's going on. I don't know exactly what she does; she just knows the right thing to do."

All of the analysts felt that this area of expertise is neglected in their training, a point that has been made by a number of researchers who comment on the neglect of communication skills in undergraduate software engineering courses [4] and on the skills gaps between inexperienced and experienced analysts [5].

"The training courses I've been on have always been about tools and management, change control and so on, which is important, but there isn't enough emphasis on understanding your users."

"I was invited to a business analysis practitioners' meeting. All of us recognised that ultimately the qualities of a good analyst came down to building trust with the users and understanding their values. We all agreed however, that such qualities are difficult to quantify and so we just moved on to the skills that were easier to measure and break down into smaller components and technique)."

Two of the most experienced analysts I spoke to, (each with 20+ years analyst experience) had developed their own methodical approaches to try to increase their ability to pick up on users emotions and values:

"Body language is very informative.. You can't directly ask someone how they feel, the secretaries were very anxious about their jobs, but it was apparent from their body language and our conversations. I think they would have been very defensive if I'd asked them directly. I also pay a lot of attention to what people are wearing, and what I'm wearing."

"I gather the information by observation of both the person's behaviour vs. their words and by their interactions with others. I try not to discuss my suspicions until I have had a chance to test them. I test them by changing my behaviour to reflect the way that I sense the other wishes to be treated. If it works, i.e., I see the results I expect, I continue with more of the same. If it doesn't, I go back to observing until I detect a pattern."

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Invitation

This investigation is ongoing, and I am keen to interview other analysts about their experiences in requirements analysis. If you are working or have worked as a requirements analyst and would be willing to be interviewed (interview takes approximately 1 hour), either over the phone or in person, please email me at sarah.thew@manchester.ac.uk. I am also interested in other readers' views and comments on this subject.

References

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You Know Your Life is Out of Balance When...

Jeremy Dick, Integrate

Recently asked to make a presentation about life balance, I decided to ask as many people as possible to complete the sentence of the title. These are some of the answers I received. It seems that people's concerns cover balancing work with family, personal relationships, debt, technology, health, holidays, spirituality and sex. If you have any further responses, please feel free to email them to me at jeremy.dick@integrate.biz.

So, here goes. You know your life is out of balance when:

- ... your children don't know who you are any more.
- ... your credit card bill exceeds your pay cheque.
- ... you can drive to the office blind-fold but need a Sat Nav to get you home.
- ... you know the office overnight security guard's children's names.
- ... you cannot keep the phone off on your holidays or on your days off.
- ... you begin to take calls while eating.
- ... you email someone in the same room.
- ... your neighbours can offer service to you and you struggle to be of service to them because of so many other things.
- ... you spend 8 hours on the computer at work and another 6 hours on the computer at home.
- ... a hot microwaved dinner feels like a treat.
- ... your cat eats more regularly than you do.

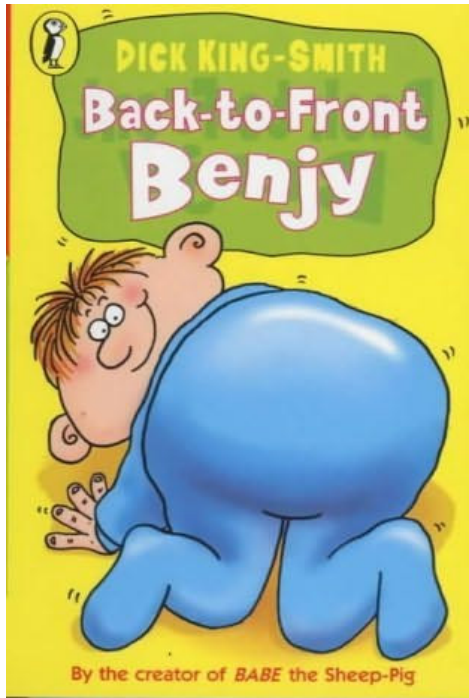
- ... the dog has been fed your dinner yet again.
- ... your dog barks/growls at you when you enter the house.
- ... you can't laugh when you want to, and laugh when you don't want to.
- ... you can't remember the last time you cried laughing.
- ... the only time you smile is when you are supposed to.
- ... you laugh at the boss's jokes because you really think they are funny.
- ... you look forward to business trips.
- ... you know exactly where to find the power outlets at several airports.
- ... you wake up in a hotel, and can't remember which city you're in.
- ... your colleagues know you better than your friends.
- ... you define yourself by your professional achievements.
- ... you forget your wedding anniversary (again).
- ... you send the same birthday card to your wife two years in a row.
- ... you remember your boss's birthday and forget your wife's.
- ... your wife tells you to go sleep on the couch.
- ... you wake up at 3 o'clock in the morning thinking about a business problem rather than about sex.
- ... you sleep less than six hours a night.
- ... you are overweight, not sleeping or exercising.
- ... you only get sick in your own time - weekends and holidays.
- ... the doctor's receptionist greets you by name.
- ... the bank manager calls unexpectedly.
- ... Big Brother starts to become interesting.
- ... the dinner lady starts to become attractive.
- ... you know your fellow commuters better than you know your neighbours.
- ... your computer's memory failure is more serious than your own.
- ... it's 4pm and you still haven't checked your Facebook.
- ... you have 500 friends on Facebook and no one to eat dinner with.
- ... you have been to Athens and never seen the Parthenon, been to Rome but never seen the Coliseum, been to Paris and never seen the Eiffel Tower, been to New York and not seen the Statue of Liberty and been to church but not seen your family.
- ... the things that should feel right feel very wrong.
- ... the glass is half empty instead of half full.
- ... your worldview gives you no peace or direction.
- ... you look at the question and think, "so what are the requirements for a balanced life?"

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RE-flections

The Right Way Round is Back to Front

(Telling Them How to Write *Their* Requirements)



Back-to-Front Benjy, by Dick King-Smith

Have you ever had to write a bit of process guidance for people on a specific project or department? Not just the usual †strictures (I'll use a dagger † to mark approaches that are known *not* to work), but stuff that is really easy-to-use, specific, focussed, exactly for them?

It's much harder than it looks to write a children's book. An introductory text is far more work than a †treatise on Metaphysics and Philosophy.

Why is that? Well, every parent has tried "†Run along children, go and play". The instantaneous and right response from the kids is

*"What shall we **DO**?"*

The needed answer to that is a set of detailed, thought-through, tested instructions that lead reliably to a successful result. Nothing less will do.

Probably the nicest way to deliver a set of work instructions, procedures, standards, templates and processes (all nearly but not quite synonyms, I fancy) is as an Intranet website. You can christen it "Working on Project X" or "Department Y Process Manual" to emphasize its ownership and situatedness (as a sociologist would say). That's the title and mechanism taken care of.

Now, what to write? The natural tendency, as I've already hinted, is to launch into a set of rules:

"Always put a 'shall' in the requirements statement."

Unfortunately, your people are nowhere near a shall-statement at this moment. It isn't that they don't know what a requirement is: it's that they haven't any idea where to start. The toybox is open, revealing a heap of abandoned teddy-bears, a broken-down Big Red London Bus, a set of grubby finger-puppets, three jigsaw-puzzles (minus a few pieces), a bucket of leftover Meccano parts, and a half-deflated football.

*"What shall we **do**, daddy?"*

Thoughts of a quiet half-hour with the paper and a glass of ale fade rapidly into the background. You realize you are going to have to be simple, direct, and definite. This means that you choose a game, and show the kids how to play it.

As Milton wrote in his poem *Lycidas*,

"The hungry sheep look up, and are not fed".

That's how *not* to deal with livestock, write a process manual, or deal with children for that matter.



John Milton, 1608-1674:
your duty is to feed the hungry sheep

The troops on your project, too, are looking up to you, with some questions that are simple, pressing, and hard to answer:

*Where **are** we?*

*What are we trying to **do**?*

*What do we do **now**?*

The cosy discussions in the RESG seem a long way off. These people don't need **Advanced Aspect-Oriented Requirements Elicitation**: they need **First Steps in Project Startup**, like

"Define the Project's Objectives in the Project Objectives Document.

[Project Objectives Document Template](#) ".

Now you're talking. But, they need that in the company's standard document format with cover page, logo, document number, copyright, security notice, table of contents, and company fonts and page layout.

1. Introduction
2. Objectives
- 2.1 Mission

...

That's better! They can almost see what to do now. But, what to write in each section? You'll need to include some

Blue Italic Guidance Notes

(ah, scope for a Word Style here) under each heading.

Hmm (I can hear you thinking), wasn't that what we were trying to do at the beginning? Yes, but now it's framed in something they can use and understand. **Now** it will make sense to put in a hyperlink to

[Writing Goals and Objectives](#) *

for some illustrations, examples, and advice. They are ready for it now, but that wasn't where they were coming from at the beginning.

Rule 1 for dealing with children, troops, farm animals and projects:

Start from where they are: where the need is.

That's the "obvious" meta-requirement, the goal for goal generators, the use case for use case authors, the requirement for requirement writers. Still, meta-requirements are easier said than done: it's a case of taking your own medicine, looking at what people actually do, and designing accordingly: **backwards**.

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* Did you try to click on this 'link'? I did. We're clearly well conditioned (like Pavlov's dogs) to respond to hypertexts. Better use them.

RE-verberations

Requirement Evolution by Natural Selection



The Apple iPhone has changed the rules of UI design, says Honeyball

According to Jon Honeyball in the October 2007 issue of PC Pro magazine, the launch of the Apple iPhone has sent seismic tremors through Microsoft.

"Talking to sources inside Microsoft, it's clear they're in full-blown panic mode. They don't know how to respond", he reports. "I've now played with one fairly seriously for well over a week, and my view has changed [from sharing the commonly-held bloggers' view that the iPhone had failed to live up to the colossal expectations and hype placed on it]. At the risk of the 'mindless fanboy' tag being stuck on my forehead, I have to say it's a remarkable device."

Microsoft, argues Honeyball, has tried and failed to come up with an operating system that works well in a phone. "And the company has kept failing." He specially dislikes the "easily lost toothpick" that you need to move around a Microsoft device's user interface (UI). Finger operation is "nasty on the cramped keyboard, and just plain horrible on the touchscreen." And (now the programmer in Honeyball comes out) you are prevented from customising your device, and the application software is "feeble. And that's being polite."

Just in case you thought his bile was reserved for one company, he adds that Nokia, Sony Ericsson "and the rest" have come up with "baubles", some of them "buggy beyond belief".

In contrast to this pitiful bunch of losers (what is Honeyball like on a bad day?), “The iPhone blows them all away.” It’s functionality is “stunning”.

He admires the new UI gimmicky:

“The auto-rotate, dim, and so forth just ooze quality and thought. The hardware is something that can only be called magical. The touchscreen is a solid glass-like substance, with none of that nasty thin plastic layer required for a toothpick. The build quality is beyond reproach, and it feels like a million dollars.”

Most un-Honeyballish praise, that. He then switches to reflecting on the implications.

“No wonder its competitors are running scared – as a [launch] product, this is a statement that the rules of smartphone .. and UI [design] have changed forever.” The new UI paradigm, based around finger touch, will be ideal for controlling music and security in the home, as a wall-mounted device. With other software such as Voice over IP, it would provide the ideal interface for almost-free telephony.

Where does this leave the competition, wonders Honeyball?

“Up a creek without a paddle.”

The implication is that the forces of nature (that’s us, the market), red in tooth and claw, will inexorably select products with the new, favourable UI mutation, and products and companies (micro-species?) without it will face extinction. Well, who knows.

Red in Tooth and Claw

While on the subject of Natural Selection, there seems to have been quite a shake-out in the RM tools market in 2007.

By RQ’s count, no fewer than six tools have vanished from the radar – it’s always hard to count, as disappearing firms don’t often send us an email. One, apparently, was the daddy of them all, RTM. If confirmed, this would mean that after a series of ever more desperate takeovers, the pioneering product has finally given way to younger and perhaps more highly evolved tools.

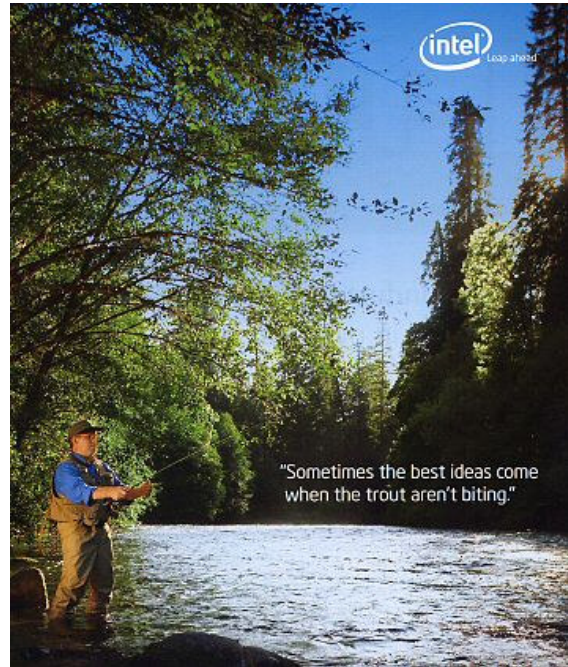
In addition, five RM firms have been taken over, not counting Telelogic who are under what seems to be a firm but long-drawn-out offer from IBM. That will make IBM the proud owners of DOORS, Requisite Pro and Focal Point. Borland too have been busy; they now own both Caliber-RM and Simunicator.

Two further RM firms have changed their names but apparently nothing else, so they may have been taken

over, or may just be hoping they’ll sell better when rebadged.

The Open Process Framework has also vanished – RQ will be pleased to hear any news of it, or of other species believed to have gone extinct.

Creative Harmony



“Sometimes the best ideas come when the trout aren’t biting”

RQ46 reported with a shudder on an advertising slogan that wanted us to squeeze the maximum amount of work out of our time by stopping wasting time enjoying nature or anything like that. In contrast, *RE-writings* in this issue reports on Jeremy Dick’s survey of work/life balance.

RQ is therefore especially happy to be able to report with warm approval on the appearance of an exactly opposite sentiment by Intel.

An Intel ‘innovator’ named Kevin Bross, a Modular Systems Architect, is pictured and quoted as saying

“the river is constantly changing, so you see things a little differently out here”.

That insight

“sparked a fresh look at data center power efficiency”. Stop – breathe – look around – reflect – and the work will “leap ahead”.

RQ does wonder, though, what a Modular architect is. Guess it means that the peopleware module can be separated from the giant-boots-and-waterproofs module, if only with difficulty.

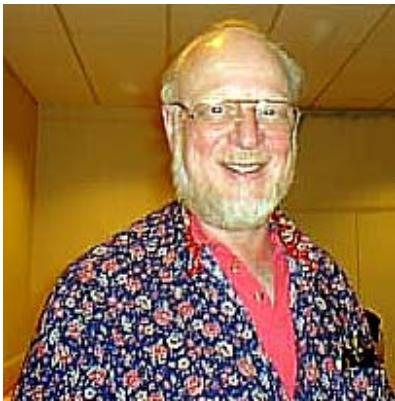
RE-readings

Weinberg on Writing, by Gerald Weinberg

Dorset House, 2006.

Book Review by Haim Kilov

This nicely written short book uses an extended metaphor of building beautiful walls out of fieldstones to explain and demonstrate how to write. The three parts of the Fieldstone Method -- gathering, organizing, and trimming and polishing -- are presented using patterns, advice, and numerous examples. From the outset, Weinberg encourages the reader by formulating and explaining several important writing lessons: never attempt to write something you don't care about; writing about a subject is one of the best ways to learn about it; and good writing is a "no-blood, no-sweat, no-tears job". These lessons apply independently of whether you write a book, a paper, or even a proposal or criticism (when "your job is to take what's given and use your intelligence and creativity to change it").



Jerry Weinberg

Weinberg observes that professional, dedicated writers seldom write one thing at a time, and therefore search and gather fieldstones of "varying size, color, texture, shape, and density" not just for a specific wall. The collected fieldstones (that is, ideas, quotations, diagrams, references, etc.) are put either in various project-specific piles or in a general-purpose pile for subsequent compositions into walls (that is, books, articles, etc.).

Of course, creation of these compositions is not accomplished in the same nice way as their presentation; and there are no specific recipes of such creation. In fact, Weinberg's Chapter 16 is about the importance and role of the subconscious in composing the works (in a somewhat similar manner to Poincaré's schema of mathematical creativity in which the subconscious creates the idea of a solution, while the conscious only does the technical work of realizing this idea [0], although neither Poincaré nor mathematics are mentioned explicitly).

Similarly, there are no recipes for searching for and gathering fieldstones: often the approach may be determined by the need to preserve the composition invariant which states that the (emergent) properties of the composite are determined by properties of its components and by the way they are combined [1]. Note also that there may be, and often are, various composites at different stages of their composition including those the properties of which are not completely clear yet.

Again, the subconscious may play a substantial role in searching for appropriate components (metaphorically, in gathering the appropriate fieldstones). Weinberg does not explicitly use the composition pattern and its invariant, and while the specific audience of IT experts and systems thinkers would probably appreciate their explicit usage both for building walls and for writing books and articles, the intended audience of the book is much more general than that.

Weinberg urges readers to notice their reaction to a book if they cannot find at least one fieldstone per chapter, and similarly, their reaction to conference presentations. (Dijkstra observed that a conference is worthwhile if 5% of the presentations are worthwhile.) Weinberg also observes that different people notice different fieldstones, and that the same fieldstone may be gathered by different people for very different reasons. Moreover, the compositions need not be hierarchical (this was also not mentioned explicitly): the same fieldstone(s) may be reused in different contexts. And he stresses that in order to become an accomplished writer, you do not necessarily need to create new components, but you certainly need to create new combinations "of some things that already exist" (p.138) (that is, new ideas), in a manner very similar to one aspect of the work of an IT expert as an entrepreneur [2] -- creative composition.

Weinberg makes explicit quite a few implicit techniques and concepts used by successful writers, noting the importance of transforming rules into guidelines.

He includes many valuable examples and exercises, and provides important practical advice -- from the need to distinguish between plagiarism and fair use, to the need of having a fieldstone gathering tool (a blank book, a scrap of paper, sticky notes, a computer) so that "it should take you no more than five seconds to get it in your hand".

Weinberg emphasizes the emotional response to an excellent excerpt by means of copying "a sample of writing you admire" and stresses the need to study masters' works to make your writing simple and specific (p.145). He uses Anton Chekhov's story as an example, while the readers of this review would probably also appreciate non-fiction classics -- such as

Dijkstra [3] in the areas of programming, teaching, and writing, Hayek [4] in the area of general systems thinking, or his own (undeservedly less popular) books in the areas of systems analysis [5], information input [6], and so on.

This excellent book will certainly help you to "have fun with your writing" (p.89).

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1. ISO/IEC. *Open Distributed Processing - Reference Model: Part 2: Foundations* (ITU-T Recommendation X.902 | ISO/IEC 10746-2).

2. H. Kilov. *Finding work: An IT expert as an entrepreneur*. Proc OOPSLA 2002 Workshop on behavioral semantics (Serving the customer) (Eds. H.Kilov, K.Baclawski), Northeastern University, Boston, 2002.

3. E.W. Dijkstra. *Selected Writings on Computing: A Personal Perspective*. Springer-Verlag, 1982.

4. F.A. Hayek. *Studies in philosophy, politics, and economics*. Simon and Schuster, 1969.

5. G.M. Weinberg. *Rethinking Systems Analysis and Design*. Little, Brown and Co, 1982.

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The Stuff of Thought, by Steven Pinker

Allen Lane (Penguin), 2007



Professor Steven Pinker

Why should a popular book of linguistic analysis by a Harvard professor of psychology be reviewed here? Because it's a fascinating account of how we all think and communicate, for one; and because the ideal language for specification would be a direct reflection of the language of thought, for another.

But how can we get a handle on how we think? Surely the stuff of thought must itself be inaccessible to thought, just as the miniature silicon switches on a chip are invisible to the software that they run.

Fortunately, patterns of thought leave subtle traces in the structure of language. It isn't that we write subject – verb – object whereas they put the verb last: such things are variable. Rather, it's that everybody agrees that there are subjects: agents, who cause events to happen, and who cause things to change their states. Then again, there are objects: beneficiaries for example, people who receive the results of the actions taken by the subjects.

This does sound useful: here are the classes of entities that the human mind naturally recognises. Could this form a language for requirements? Here is Steven Pinker on the findings of a whole programme of research, not only his own:

“Causation is just one of several meaning-moles that keep popping up across the world's languages in one grammatical slot or another. The slots in the game include classes and microclasses; prefixes, suffixes, and other grammatical words (such as prepositions, conjunctions, and auxiliaries); and “light verbs”, such as *make, do, be, have, take, and go* (which in some languages are the only verbs that exist). The concepts that pop up in these slots fall into a fairly short list, more or less along these lines:

- A cast of basic concepts: **event, state, thing, path, place, property, manner**
- A set of **relationships** that enmesh these concepts with one another: acting, going, being, having
- A **taxonomy** of entities: human vs nonhuman, animate vs inanimate, object vs stuff, individual vs collection, flexible vs rigid, ...
- A system of **spatial concepts** to define places and paths, like *on, at, in, to, and under*
- A **time line** that orders events, and that distinguishes instantaneous points, bounded intervals, and indefinite regions
- A family of **causal relationships**: causing, letting, enabling, preventing, impeding, encouraging
- The concept of a **goal**, and the distinction between **means and ends**.”

(RQ's emphasis.) Amazing, isn't it? At once familiar, and a revelation: with a maddening “why-didn't-I-think-of-that” feeling. This accompanies the knowledge that the result is subtle, invisible to most of us (or to all of us, most of the time), and only discovered by the

likes of Pinker and his colleagues through patient study and experimentation.

For example, why can we as readily say

“I sprayed water on the flowers”

and

“I sprayed the flowers with water”?

Is there a difference? Not much, you think? Ok, so why can we say

“I poured water into the glass”,

but feel discomfort with

“I poured the glass with water”?

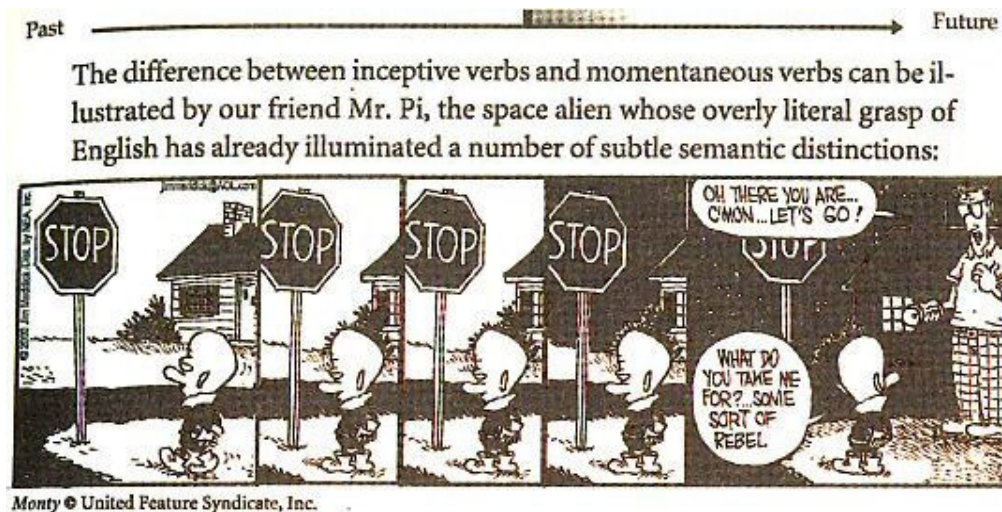
Something more subtle is going on, but if you want to understand the difference between the *content-locative* and the *container-locative*, you’re going to have to read the book: it will take you a few pages to get what’s really going on under sentences like those.

What is remarkable is that similar distinctions are made in languages all over the world: not always exactly the same ones, but they follow a pattern. If a particular distinction can’t be made in one way in a given language, it is always made in another. People feel the need to express causation, and scenario, and goal, and agent and beneficiary and the rest.

Whether or not you feel moved to go and buy Pinker’s book, notice some of the implications. In the previous sentence, I used “moved” and “go” (verbs of motion in space) to mean abstract motion, of intention inside your head. Pinker argues that most abstract thought turns out to be “thuddingly concrete”: thinking is like moving, knowing is like having, and so on.

Perhaps, too, this may suggest to RQ readers that the way to write specifications so that everybody will understand them is to stay with a very small language of basic concepts, like <scenario>, <event>, <goal>, and so on, chosen from Pinker’s list. Indeed, one might wonder whether a Requirements Markup Language™, should not consist exactly of a framework of allowable constructs compiled from the same list. If Pinker is right, such a specification language would be essentially universal and permanent.

Perhaps the seekers of the universal language were right after all, only it wasn’t Esperanto or the pre-Babel Adamic language, nor Latin nor Interlingua. It may not be something that anyone can exactly speak – but perhaps we could write specifications in a way that can be understood naturally and correctly by any English speaker, whatever their first language. Now there’s a thought.



Steven Pinker in full flow, inimitably combining technical minutiae with a humorous appreciation of life and language

RE-partee

Acronym Expansion

- TLA – Three Letter Acronym
- TLC – Tender Loving Care
- ETLA – Extended TLA
- TBA – we’ll get round to it, probably
- TBB, TBC, TBD, etc – see TBA. Why so many acronyms for this? ‘Cos it’s an important element of our specifications. PS: I lied about TBB.
- RAT – Requirements Analysis Tool [This led to the fine if tautologous claim “RAT tool is mouse-driven” – Ed.]
- CAT – Context Analysis Tool (see RAT)

- SAT – System Analysis Tool (yup, we have a pattern here)
- MAT – uML Analysis Tool (well it was the only way they could get the acronym to fit)
- SRD, SRS, SSRS – Spec
- FS, RS, TS – Spec
- URD, URS – Spec. Why do we need so many acronyms for this? See TBB.

Military Acronyms

- LAW – Light Antitank Weapon
- MAW – Medium Antitank Weapon
- HAW – work it out for yourself. These are all real by the way.

Do Not Verify This

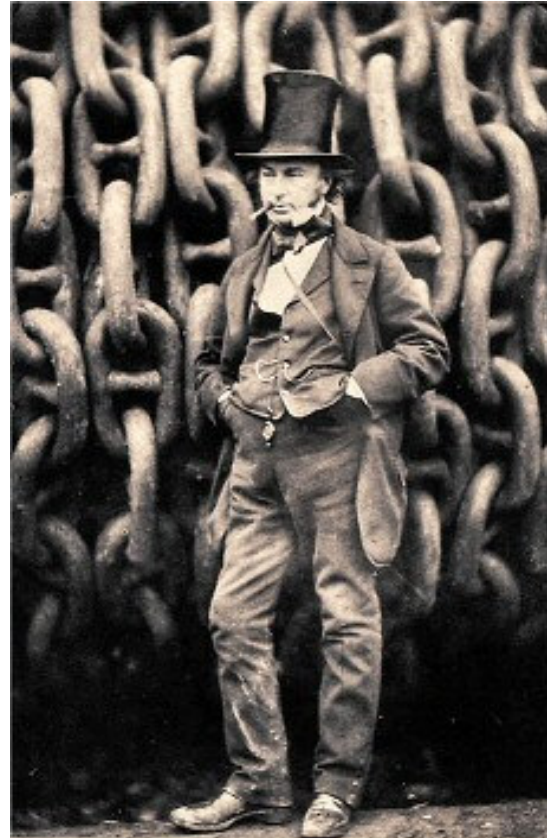


Mr Brunel's Requirements

- Mr Brunel, sir?
- ‘Oo are you?
- I’m the requirements engineer that Mr Smith sent for to help you with your requirements.
- My requirements! I need more money, or we’ll never get this ship built, and Mr Smith knows it, or should as he’s my banker. What sort of engineer did you say you were?
- Requirements, sir. I’m here to have a look at the requirements for the ship.
- Engineering the requirements! God damn. What d’you use – cast iron or steel plate? And how d’you fix your requirements together, eh? With rivets? Where’d you do your apprenticeship, boy?
- Well, sir, I write them on paper, or draw models. And I fix them together with traces – I number each one so I can follow it through all its

connections. I studied at Cambridge, sir.

- A scholar, eh? Paper engineering, eh? I draw models, boy. Trouble isn’t models, it’s getting Mr Smith to stump up the cash. Know what cash is, boy?
- You may be able to have your ship with less cash and less risk of going wrong if ...
- Ah, that’s Mr Smith’s game is it? Send me a young cash accountant to keep an eye on my books? Well I’m not having it.



Isambard Kingdom Brunel (1806 - 1859)
in front of the launching chain of SS Great Eastern

- I know nothing of account books, sir. Mr Smith would like me to have a look at the business requirements, behind the models as it were, sir, to see if you’re building the right ship for the passenger trade, sir.
- The right ship? What do you know of ships and trade, boy? No, don’t answer that. And what does Mr Smith think is the right ship? Build it half the size so it won’t cost too much, and leave out all the furnishings to save a few guineas, I shouldn’t wonder. All right, all right, come into the office. But don’t touch anything, mind.

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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/~wrobins/fip2_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
http://www.resg.org.uk/mailling_list.html

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

ReRequirements 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 Ian Alexander (iany@scenarioplus.org.uk). Submissions must be in electronic form, preferably as plain ASCII text or rtf. Deadline for next issue: 7th June 2008

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