

WHO: Stakeholder Analysis

Ian Alexander,
Scenario Plus, UK

Printed and published by the IET, Michael Faraday House, Six Hills Way,
Stevenage, Herts SG1 2AY, UK

WHO?

Stakeholder Analysis

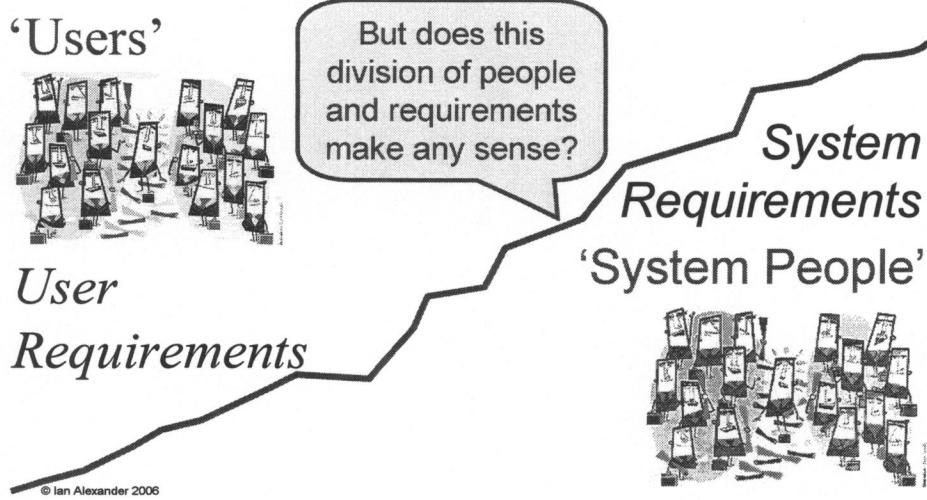
Ian Alexander

ian@scenarioplus.org.uk

IET Seminar: Answering the Six Questions About Requirements

'User' and 'System' Requirements

We rightly don't want to jump in and define the Solution until we know what Problem the relevant people want it to solve



"Invented Requirements and Imagined Customers"

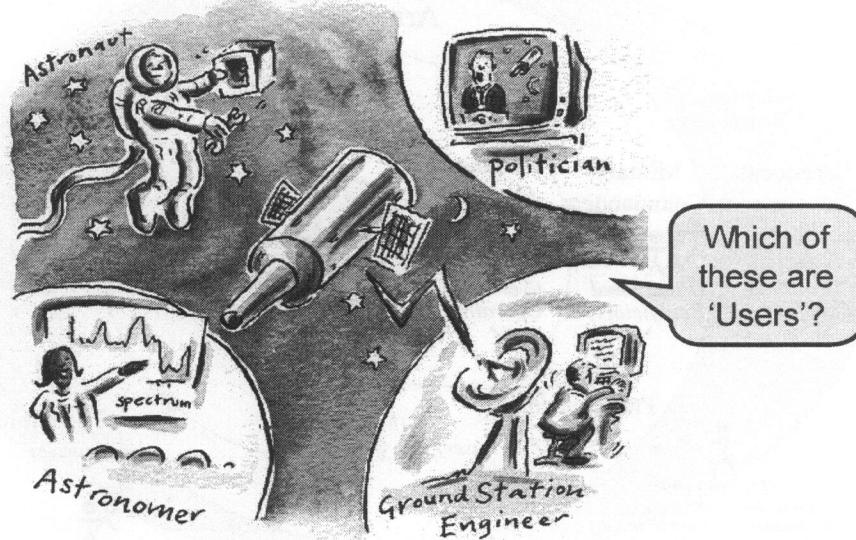
- Title of a famous paper
 - Colin Potts, RE'95
 - Subtitle: Requirements Engineering for Off-the-Shelf Software
- Traditional RE assumes
 - "a clear interface between 'Customer' and 'Developer'"*
- But mass-market products are developed by Mercedes or Microsoft or Mitsubishi ...
- ... without some 'Customer' writing a Spec!
- Only a small % of developments fit the 1 Developer : 1 Customer model
- Perhaps there are more than 2 kinds of Stakeholder

© Ian Alexander 2006

Example: Space Telescope Stakeholders

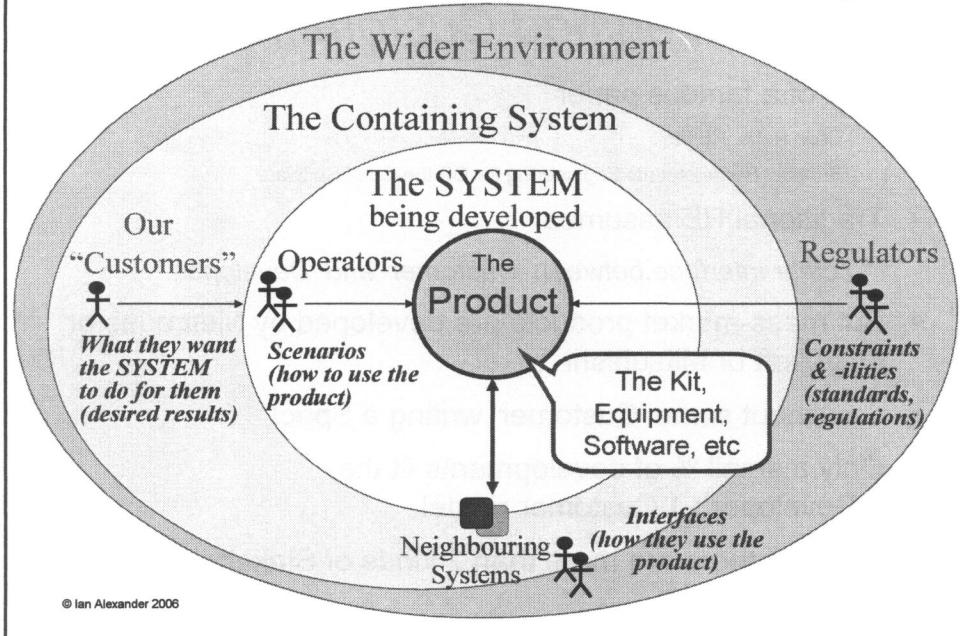
(From *Writing Better Requirements*, by Ian Alexander & Richard Stevens, Addison-Wesley 2002)

Illustration © Beccy Blake 1999

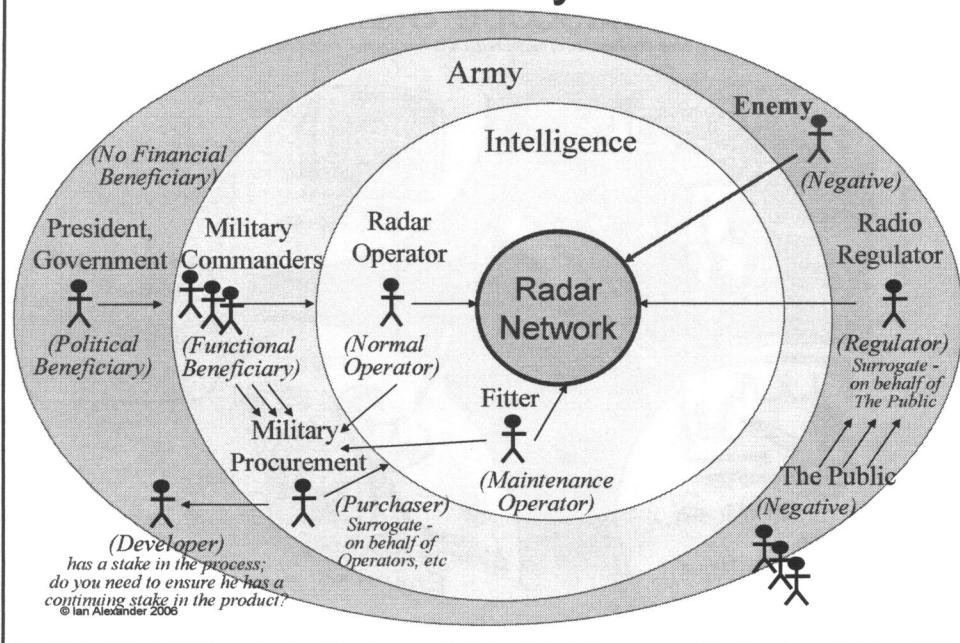


© Ian Alexander 2006

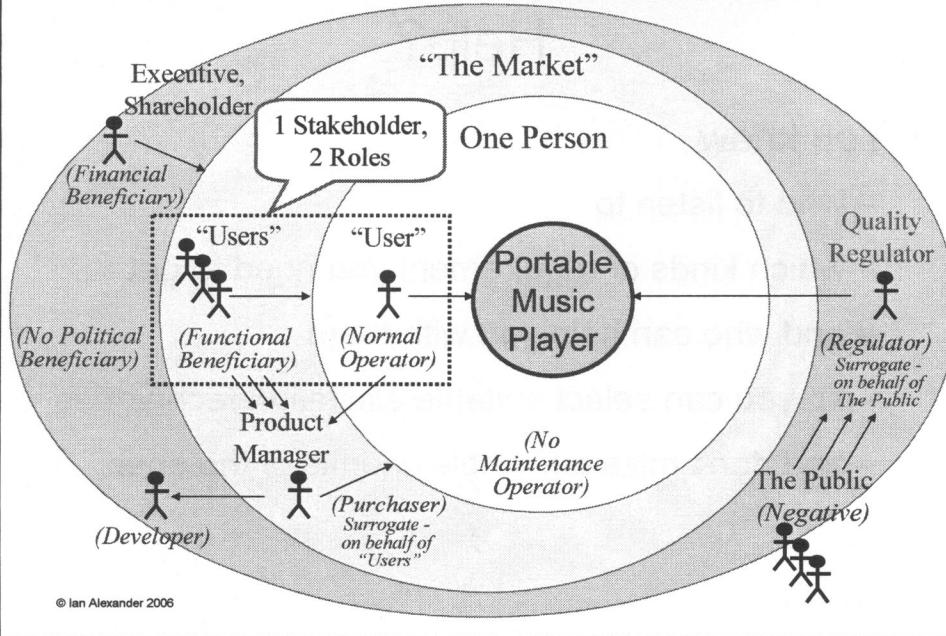
Roles in the System Hierarchy



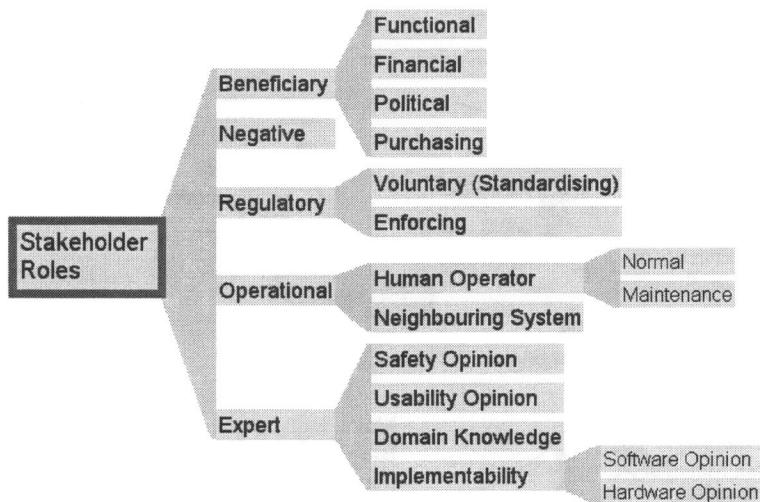
Roles: Military Radar



Roles: Portable Music Player



A Template for Stakeholder Roles



Customise the **Stakeholders** Template

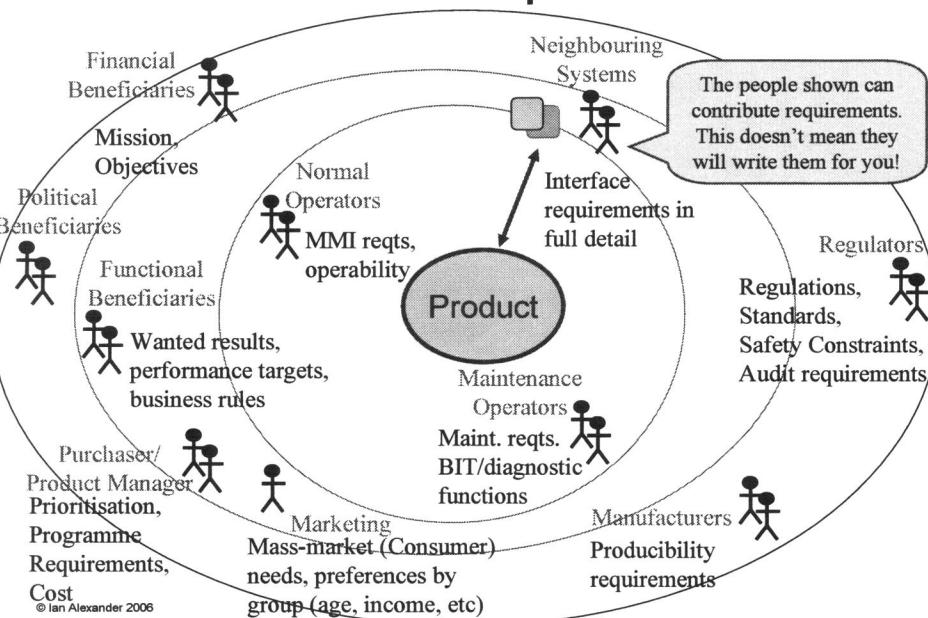
© Ian Alexander 2006

How does Stakeholder Analysis Help?

- You know
 - who to listen to
 - which kinds of requirement you need to get
 - and who can help you with them
 - so you can select suitable elicitation techniques
 - and don't miss out whole chunks of the spec

© Ian Alexander 2006

Sources of Requirements



Stakeholder Roles & Viewpoints

on Burglar Alarm:
Householder

This key Stakeholder
plays at least 2 Roles with
respect to the Alarm

(Beneficiary) – want to be safe in my house, not lose valuables;
(Operator) – want alarm to be easy to operate

Maintenance Engineer

But the Goals expressed in his
Viewpoints can't be guaranteed

(Operator) – want a job;
want alarm to be easy to diagnose/repair

Police

(Beneficiary) – want to reduce crime;
(Negative) – want no nuisance from ringing alarms

IEE, BSI

(Regulators) – want alarm to conform to standards,
be electrically safe

© Ian Alexander 2006

Viewpoints, Conflict, Negotiation

- Viewpoints may show that stakeholders want system to behave **in incompatible ways**
- Much better to find out early...
- ... and negotiate to resolve conflicts before designing system.

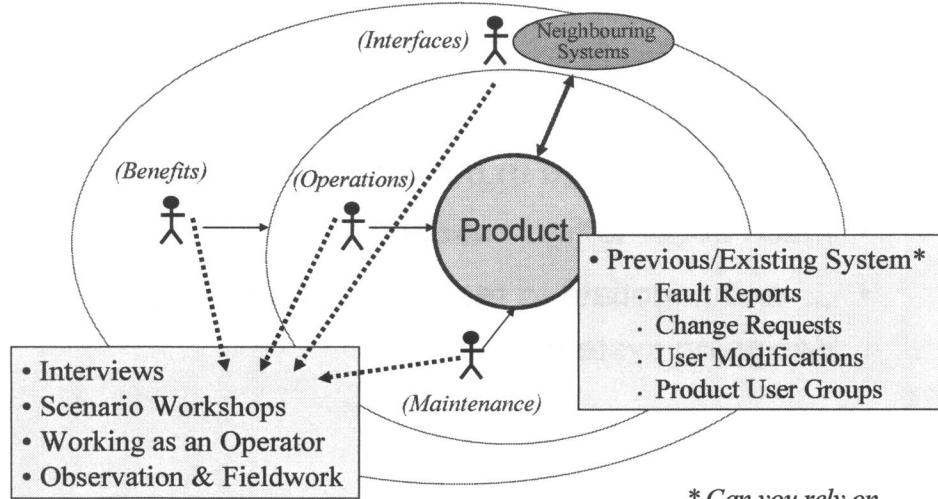
© Ian Alexander 2006

Trade-Offs

- low retail price to achieve sales growth
vs
functionality of household alarm
- simplicity for householder
vs
threat of tampering & impersonation by intruders
- cost of 'smart' self-contained household alarm
vs
communication delay & workload at control centre

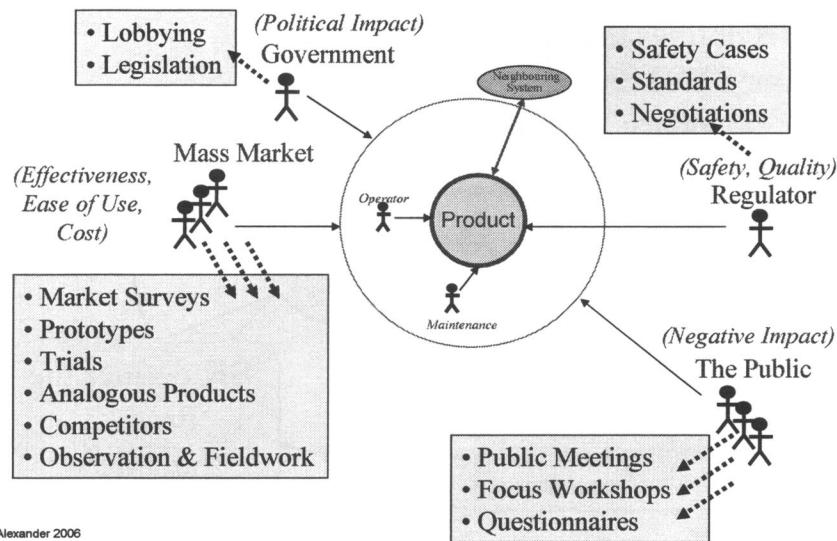
© Ian Alexander 2006

Eliciting from Operational Roles

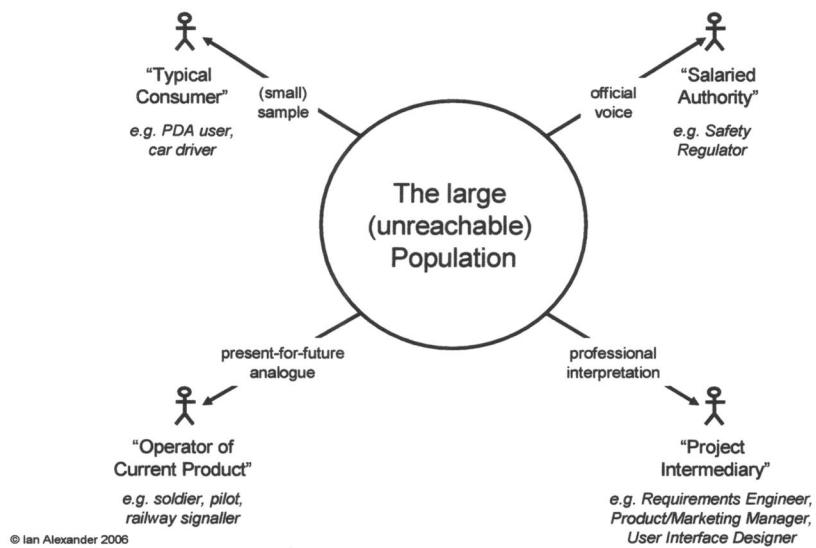


© Ian Alexander 2006

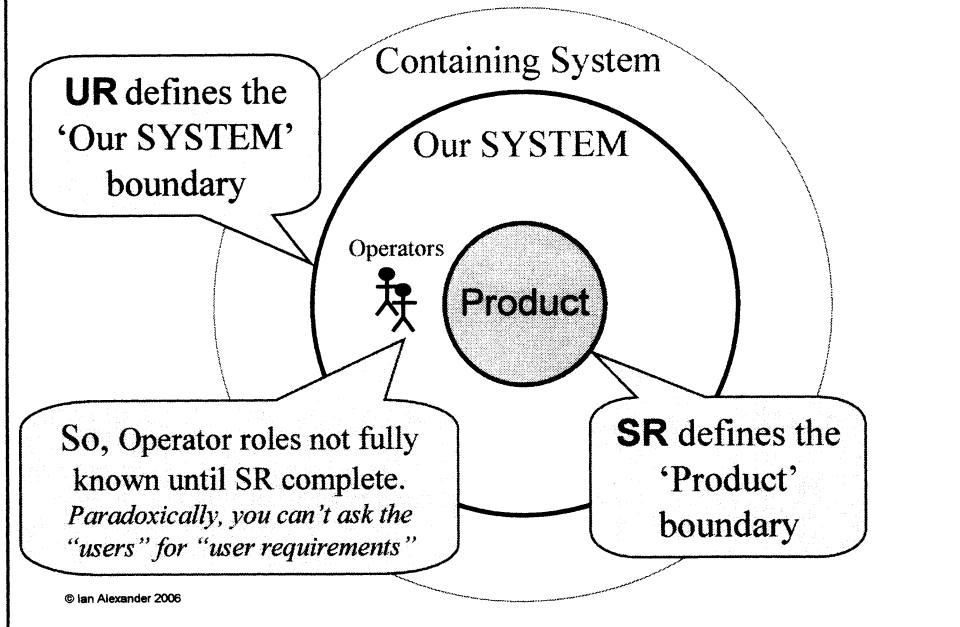
Eliciting from Non-Operational Roles



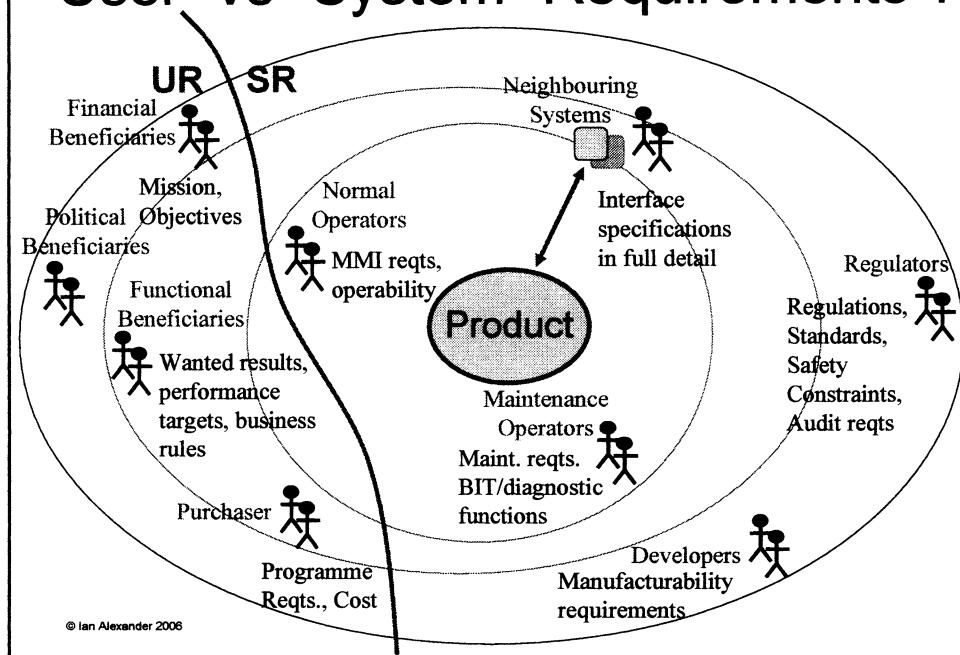
Surrogacy: why it's hard to speak to 'real users'



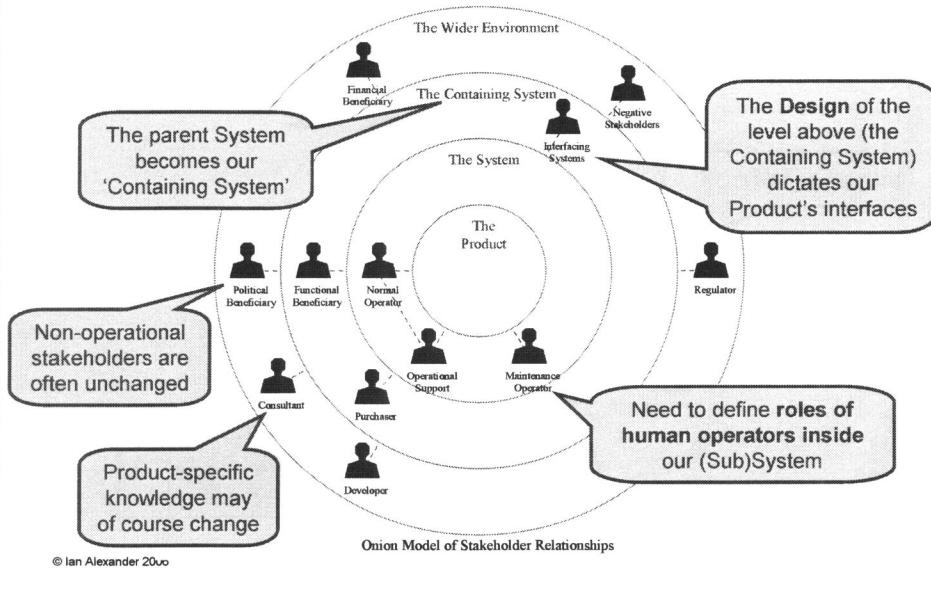
'User' v. 'System' Reqs, Revisited



"User" vs "System" Requirements ?



What if we go down to a Subsystem?

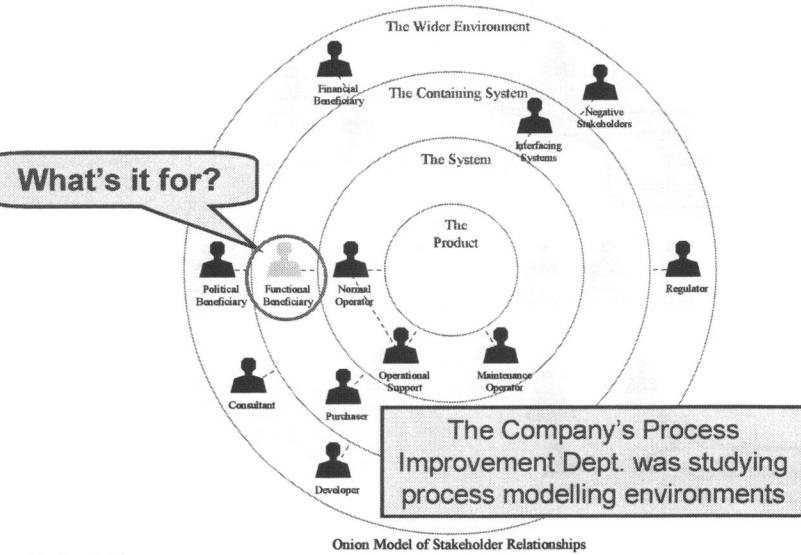


How can I use this?

1. Analyse project stakeholders to catch requirements that could have been missed
 - Empty Slots may indicate areas not covered by project
2. Identify likely conflicts and resolve them early
 - Slots containing 2+ stakeholders may mean trouble
3. Identify negative stakeholders, plan to allay their concerns
4. Identify hostile stakeholders, identify threats they pose, find mitigations
5. Identify contractual “fault lines” that cut across roles and lines of communication, find mitigations

© Ian Alexander 2006

What if a Slot is Empty?



© Ian Alexander 2000

What if a Slot contains 2 Stakeholders?

© Ian Alexander 2000

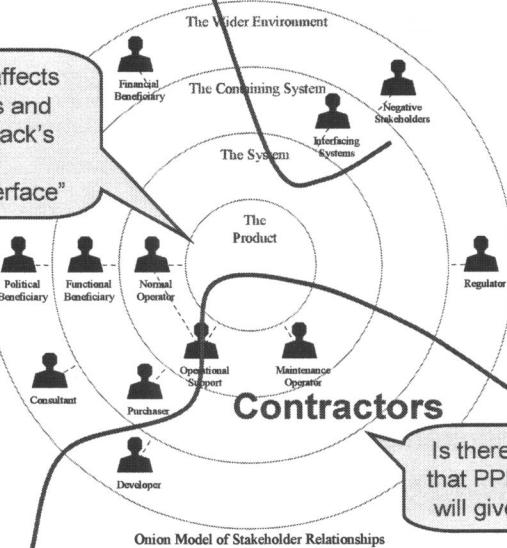
"No man can serve two masters"

Both 'Product Management'
and 'International Marketing'
were responsible for specifying
features of the new car...

Onion Mo

What if Contracts Cut Across the Onion?

Fragmentation affects daily operations and safety, eg Railtrack's infamous "Wheel / Rail interface"



Is there reason to hope that PPP / PFI contracts will give better results?

© Ian Alexander 2000

Tool Support (1)

Unoccupied role

Click to Edit

Occupied role

© Ian Alexander 2006

Onion Model of Stakeholder Relationships to highlight Development Roles

[Save](#) [Export/Print](#) [Insert into Module](#) [PrefDesign](#) [Close](#)

Tool Support (2)

ID	Stakeholder Slots and Roles	Brief Summary of Viewpoint	Polar Angle
SH-37	2.1 The Wider Environment		
SH-55	2.1.1 Consultant	gives advice	150
SH-56	2.1.1.1 Tools and Techniques	advises on efficient use of technology	
SH-65	2.1.1.2 Environmental Impact	advises on likely impact of product on the environment	
SH-39	2.1.2 Financial Beneficiary	stands to profit from system	240

- Requirements Database structure underlying the ‘onion model’ graphics
- Fully traceable using the built-in facilities of the requirements database
 - i.e. Requirements can trace to Stakeholders’ goals
- <http://www.scenarioplus.org.uk> (*free tools and templates*)

© Ian Alexander 2006

Summary: Stakeholder Analysis

- Focuses on
 - Who should be consulted
 - Who the product is for
 - Who is intended to benefit in any way
 - Who may oppose the development
- Helps to prevent
 - Missing whole chunks of requirements
 - Unrealistic or Unbalanced requirements

© Ian Alexander 2006

Ian Alexander:

<http://easyweb.easynet.co.uk/iany/other/vendors.htm>

Requirements Tools

Accept 360° Active Focus Agility AnalystPro Caliber CARE Cradle
CRW DocuBurst Doors Focal Point GMARC iRise IRQA Jalsoft Leap
SE MKS MockupScreens Objectiver Open Process Framework Rally
RDT Reconcile Reqtify RequisitePro Rhapsody Serena RTM Slate
SpecDEV Statestep Steeltrace Team-Trace Truereq Vital-Link WIBNI
XTie

Freeware/Shareware

Gatherspace RETH SEEC Statestep TigerPro WIBNI evaluation version

Free Templates

ScenarioPlus Volere

Accept 360° from Accept Software Corporation

is a requirements management tool that also supports product planning. Tools help users to define and track feature dependencies with tree diagrams, and to relate these to the market, project plans, implementation considerations and competitor analyses.

Active Focus from Xapware

supports the software application life-cycle.

Agility from Agile Edge

is a tracking database for user requirements, issues, tasks and bug tracking, permitting tracing between these items. There is a simple user interface displaying a table of items with status, symbols and text.

AnalystPro from Goda Software

supports requirements editing and traceability, change control, diagrams including use cases, and other features of full RM tools at a low price per seat. *Kris of Goda Software, Inc: Analyst Pro is an affordable, scalable and collaborative tool for requirements tracking, traceability analysis and document management. It is easily deployable and customizable to your project needs."*

Caliber-RM from Borland

is a well-known requirements management tool. It is intended for large and complex systems, and provides a database of requirements with traceability. The company views requirements as part of the software quality management process, which it considers also includes testing and defect tracking. Caliber is Internet-based, and it handles document references, user responsibility, traceability, status and priority.

Chip Carey of Starbase (former owners of Caliber): "The exciting thing about RM and Caliber RM in particular is that it brings all departments together within the software development lifecycle and puts them all on

the same page - it provides a mechanism for communication and collaboration and effectively provides a synergy where before they were perhaps separate efforts and maybe counter-productive."

C.A.R.E. from Sophist Group

is a Lotus Notes-based tool which provides a database-like view of requirements. The website is in German but the tool's GUI is in English. Using the hypertext-like Lotus Notes is an interesting approach to organizing requirements with obvious practical advantages, and the Sophist Group is noted for its Object-Oriented thinking. The tool provides a wide range of features and produces both textual and graphical outputs.

Cradle from 3SL

Cradle is a multi-user, multi-project, distributed and web-enabled requirements management and systems engineering environment. It is intended for all sizes of requirements and systems development projects. Cradle can link to corporate PDM/EDM systems. It offers configuration management, edit histories and version control. It automates document production and can manage the generated documents. Through its web interface, it can integrate disparate stakeholder groups by creating customisable read-write portals to all project data.

Mark Walker of 3SL: Cradle can deliver unlimited requirements and systems modelling scalability to the desktop through web and non-web methods that allow capture and parsing of requirements and their traceability through every part of all C4ISR, ISO, DoD and INCOSE recommended processes.

Clear Requirements Workbench (CRW) from LiveSpecs Software

helps specify, verify, and manage detailed requirements. CRW supports four detailed specification techniques (glossaries, action contracts, test procedures, and precise use cases) for the clear description of definitions, behavior, and usage. CRW is under development, with completion expected in Q2 of '04.

David Gelperin of LiveSpecs Software: Clear Requirements Workbench is the first system to actively support the detailed requirements that put customers, users, managers, marketers, developers, testers, and technical writers on the same page.

DocuBurst from Teledyne Brown Engineering

is a package that discovers requirements and headings in text documents, and structures them into objects for use in requirements and other tools. It runs on Windows, and generates XML, TSV, CSV, and other file types. It is compatible with most tools including TBE's own X Tie-RT.

Sherry Adlich: Using DocuBurst to 'burst' a text document into pieces eliminates days of effort typically spent to analyze documents for information gathering or requirements gathering.

Doors from Telelogic

Doors is a tool primarily for large organisations which need to control complex sets of user and system requirements with full traceability. It provides good visualisation of such documents as hierarchies, and its extension language enables a wide range of supporting tools to be built, and many are provided as menu commands and examples. Further options include DoorsNet which allows controlled interaction over the Internet, and the Change Proposal System which automates the requirement review cycle. There are live interfaces to many CASE tools, and the promise of tight integration with

Telelogic's market-leading Tau toolkit for specification, design, and testing based on UML and the SDT approach to real-time systems development centred on telecommunications. Its use is therefore moving towards integrated project support.

Nancy Rundlet of Telelogic says: With DOORS, we provide worldwide support, Word-like ease of use, scalability from 1 user to several hundred, and ease of establishing traceability and displaying it to multiple levels.

Focal Point (now owned by Telelogic)

is a market-driven requirements management tool. It incorporates customer collaboration, prioritization and visualization and decision-making and planning processes inside a tailorble web-based platform. It links requirements to market segmentation, competitor analysis, release planning and other processes in product life cycle management.

Gatherspace

is a free requirements management and use case development tool that offers multi-user and team functionality. The system is an online solution with different user-tiered packages. There are a variety of reports from basic functionality reports to use case models.

Darren Levy writes:

- 1) *Gatherspace is totally online, no software to download*
- 2) *Designed and coded by analysts and project managers who full understand the process of gathering requirements*
- 3) *With an intuitive GUI, Gatherspace also provides a todolist of "what's next" to create in addition to defining analyst based terms.*

GMARC from Computer System Architects

GMARC was one of the earliest RE methods (conceived 1982) and has been continuously developed ever since. Its development was sponsored by the UK's DTI in 1990 together with the CAA, the MoD, NERC, City University and Kings College London. GMARC is claimed to be unique in its ability to reduce project/programme risk.

Brian Hunt of CSA writes: GMARC was initially developed to be able to accumulate multi-layer generic requirements knowledge for subsequent re-use, via automated elicitation, in any application domain. The latest version is able to use such knowledge to progressively improve its ability to understand the semantics of, and capture new requirements in, each domain. To aid the process of understanding an application, GMARC provides a suite of powerful requirements animation facilities. These are able to be used to verify and explore the functional aspects of any specification. In order to take subjectivity out of the process (a universal problem!), GMARC employs a multitude of objective quality metrics to guide requirements development activity.

iRise from iRise.com

is a tool for previewing or prototyping a software application before doing any coding. In the process, the requirements are "completely and unambiguously fleshed out - including application and page flows, user interfaces, business logic, data structures and other requirements."

IRqA from TCP Sistemas e Ingeniería

IRqA is a Requirements Engineering (RE) tool specifically designed to support the complete RE process. In IRqA the complete specification cycle including requirements capture, analysis, system specification, validation and requirement organisation is supported via standard models.

Antonio Monzón, then of TCP Sistemas e Ingeniería: "with IrqA, we cover the full requirements specification cycle, not only RM and capture but also analysis, specification - features related to the construction of a specification; we have graphical, visual features like State Machines, Use Cases, graphical structuring of specifications - functional, non-functional, test cases, diagrams of review processes, information models, link matrices."

Jalsoft from Jalsoft

is a web-based RM tool. The tool contains a database (DB2, Oracle or SQL/Server) and an ordinary web server at the server end; the thin client is simply a web browser, so installation is trivial and learning is said to be a matter of minutes. The tool integrates with Word, MS Office and MS Project; there is an XMI interface to other tools, and CSV file import and export. The tool can therefore be used 'from anywhere in the world'. RM functions like traceability, history, baselining and reporting are provided.

Leap SE from Leap Systems

Leap SE is a requirements engineering CASE tool that produces object-oriented models directly from a system requirements repository or specification (SRS). A 30-day trial version is available.

Brian Smith of Leap Systems writes: By translating English into logical models for software development, Leap SE achieves RAD from the source, dramatically shortening the systems analysis phase for software projects.

MKS Requirements 2005 from MKS

MKS Requirements 2005 is a 'right-weight' RM tool built as an integral part of a Configuration Management system (MKS Integrity Manager, via its process/workflow engine). It integrates with Microsoft Word, organises requirements hierarchically, provides history, metrics, traceability to source code, suspect links, etc. Low cost of ownership is claimed.

David Martin of MKS writes: "the clear connection between requirements, development activity and development artifacts delivers an unprecedented level of audit-ability, something every IT organization must demonstrate for Sarbanes-Oxley compliance."

MockupScreens from Igor Jese

MockupScreens is a rapid User Interface prototyping tool. You create screen mockups and organise them into scenarios, complete with buttons, fields, lists etc. Free evaluation copy from website.

Objectiver from Cediti

Cediti is a spin-off from the University of Louvain, Belgium (UCL), and the tool is based on the KAOS method of analysing goals devised by Prof. Axel van Lamsweerde. The tool thus has a solid foundation (capable of formal proof) for modelling goals, requirements, agents, entities, events relationships, actions, etc, with all the relationships between them (cause-effect, conflict, instance-of, goal refinement, etc), supported by editable diagrams.

Nicolas Ducourthial of Cediti writes: Key advantages of Objectiver are:

- *it enables analysts to elicit and specify requirements in a systematic way,*
- *it produces well structured, self-contained, motivated, easily understandable, standard requirements documents,*
- *it provides highly effective way to communicate about the requirements,*
- *it ensures traceability from requirements to goals and from high-level, coarse-grained behavioral specifications to requirements.*

OPEN Process Framework (OPF) from Firesmith Consulting

This remarkable toolkit contains a repository of reusable process components for building project-specific processes for software-intensive systems - complete, hook, line and sinker. There are numerous reusable process components including work products (from requirements, diagrams, models, documents to components), work units (activities, tasks, and techniques), producers (roles, teams, organizations), enterprises (projects, programs, enterprises), and stages (development cycles, phases, milestones).

Requirements are supported in detail including document content and format standards, templates, inspection checklists, and guidelines.

Rally from Rally Software Development

This is a tool intended specially to support Agile software development.

RDT from IgaTech Systems

RDT is a relatively simple tool from an Australian company. It is based on Microsoft Office, but with numerous custom forms (pop-up windows) for entering settings, attributes, etc, and for displaying results. Thought has been given to getting requirements in from ordinary Word documents, and to producing documents as reports by filtering, selecting attributes, and formatting. This seems to make it intermediate between 'light' products like RequireIT and Requisite Pro, and 'full' products like DOORS and RDD. 'Capture' is interpreted simply as 'import and extraction'. The tool wisely encourages users to record design rationale.

Gordon Brimble of IgaTech: RDT provides highly capable document handling for parsing input documents and creating output documents, capture of derivations that link derived requirements to record the logic behind requirement flowdown and integration with requirements modeling tools.

Reconcile from Compuware

This is one of a suite of tools focussed on quality assurance and change management.

Reqtfy from TNI-Valiosys

This is one of a suite of tools designed to assist the development of mission- and safety-critical software (in C, C++, Ada) for aerospace, defence, and industry.

Reqtfy is a low-cost traceability & impact analysis tool. It is said to take just 1/2 a day to learn. It interfaces to Word and other word processing tools, the other TNI-Valiosys modelling tools, Simulink, etc. It has been applied on Airbus A380 computer projects (alongside RTM) with thousands of requirements and links. Interestingly, the tool is document-centric: requirements are tagged by the user in the source documents; the tool searches for these tags each time a source document is saved, and makes a snapshot of the requirements so discovered.

Lionel BURGAUD of TNI-Valiosys: For project and quality engineers who need to track requirements across the development cycle, Reqtfy is a low-cost, highly customizable and easy to use tool that manages requirements traceability, impact analysis, filtering and versioning. Unlike other database tools, Reqtfy processes information directly extracted from the source files (text processing, Excel, PDF, UML, analysis & modelling, code, etc.) without requiring any modifications, and therefore can be very quickly deployed even on projects already started.

Requisite Pro from IBM Rational

Requisite Pro aims especially at managing change in requirements, with traceability for software and test specifications. It is closely linked to Microsoft Word, and Rational is a Microsoft Development Partner. The tool permits the use of Oracle on Unix or Windows as the back-end database, and also supports SQL server on Windows. Rational merged with IBM (in 2003) which might mean many things, such as a greater focus on research and consultancy, perhaps.

Jim Heumann of Rational: Rational is about tools but also about services, lots of teams locally that serve people, best practices and thought leadership, and of course our goal is to help people write better software - in a nutshell.

RETH, a freeware prototype owned by Siemens, created by Dr. Hermann Kaindl

RETH (Requirements Engineering Through Hypertext) is a simple RM tool that demonstrates some powerful aspects of RE. It constructs a set of goals, scenarios, and requirements, each fully-documented with built-in and custom attributes, and inter-connected with hyperlinks. Models can be exported to documents and to HTML.

Rhapsody from Telelogic (formerly I-Logix)

Rhapsody is an Object-Oriented Analysis and Design tool for embedded software. The emphasis is rather on design, with analysis using UML to describe objects for subsequent detailed design and code generation. Presumably we can expect to see a range of integrations between DOORS, Rhapsody, and other products, helping to bridge the gap between textual requirements and model-based design and testing.

ScenarioPlus

ScenarioPlus for Use Cases is a set of free add-on tools for use with Doors. It installs as a menu on the Doors menubar, and provides for editing and analysing a set of UML-style use cases. Metrics and checklists are provided. There is a strong emphasis on requirements elicitation with easily-understood graphics, generated automatically. The toolset is closely integrated with Doors allowing for complete flexibility in filtering, traceability and reporting. The site also offers a suite of Microsoft Office templates for scenario-based requirements engineering; tools for editing a range of software engineering diagrams, and tools for functions such as filtering and constructing Doors templates.

Ian Alexander writes: my aim with Scenario Plus is to improve the engineering of systems (not just software) by encouraging the use of state-of-the-art techniques for requirements elicitation, specification, and validation, including means such as scenarios, graphics, metrics, and templates.

Free Prototype Educational Tools for Systems and Software Engineering from SEEC

The Systems Engineering & Evaluation Centre at the University of South Australia (UniSA) offers a suite of free tools that "can be used in the classroom and in the workplace". The tools include the fancifully-named TIGER, ACE, ET, CARP and RAT (ahem. I recall the immortal line from another project back in 1991 "RAT tool is mouse-driven"). These stand for:

- Tool to InGest and Elucidate Requirements (TIGER), ie free text extraction with keywords
- Acceptance Criteria Elucidator (ACE), ie editing the criteria in a database
- Requirement Enhancing documentation Tool (ET), ie attribute editing
- Comparison Analysis of Requirements Priority (CARP), ie prioritisation
- Risk documentation And profiling Tool (RAT), ie risk attribute editing.

It can be seen that these form a single basic RM environment. They have "a similar user interface". The tools and website are being steadily improved (2004 to 2006 ...).

Serena RTM from Serena

is an RM tool providing Word and Web Browser interfaces, discussion threads and change requests, traceability analysis and change management. Any life-cycle method can be supported. The data reside in an Oracle database. The tool forms part of a suite including TeamTrack, a process management tool; ChangeMan, a change management tool; Serena Professional, a configuration management tool; and Collage, a web content management tool.

Slate: see [Teamcenter](#)

SpeeDEV from SpeeDEV

This product takes the approach that requirements in a distributed project need to be developed on the Web. It is claimed to be suitable for hardware as well as software, and covers requirements gathering, "scrubbing", approving, prioritizing, assigning to version releases, task management, testing, bug tracking and other functions. This sounds as if the toolkit will suit some kinds of project very well, but might prove restrictive if the way the tasks are supported isn't what your project wants. The Web is clearly the way more tools will go, so expect hot competition in this area.

Irene From of SpeeDEV: SpeeDEV operates in a completely Web-based environment to promote the free exchange of information and project team participation. SpeeDEV's solution is the only commercial browser-based solution for local or remote software development collaboration, available as enterprise software.

Statestep from Statestep

is a free specification tool based on a state model. The user interface allows required behaviour to be defined in decision tables. The tool helps to check systematically that all unusual cases are considered. The resulting model is a finite state machine, which can be checked automatically for completeness and consistency, e.g. that no undesirable state is reachable. The tool has been used commercially to specify consumer electronic systems.

Michael Breen writes: "As a relatively specialized tool based on creating a model of behaviour, it's a bit different to most of the tools in your list..."

Anyway, one sentence could be:

'Among other things, Statestep features a unique colour-based interface which makes it feasible to deal systematically with (for example) millions of possibilities - and so to find obscure problem cases otherwise likely to be overlooked in a specification.'"

Steeltrace (formerly Catalyze) from SteelTrace

Steeltrace takes a structured view of requirements, breaking them into Functional (in the form of a Use Case-like storyboard structure of main flow, alternative flows etc.) and non-functional requirements (qualities and constraints). These map seamlessly to functional test cases, UML activity diagrams, requirements based milestones in project plans etc. Ease of use is emphasized.

"SteelTrace lets everyone work together easily to define, communicate and understand project requirements so that business, development, and test deliver quality software faster. Reduce over-runs, re-work and time to delivery. Maximise project quality and ROI." -- Tadhg O'Brien

Teamcenter from UGS

includes a requirements tool (formerly Slate): "Industrial Strength Groupware for managing requirements, architecting systems, and accelerating product development". Tools cover design and testing as well as requirements. The examples on the website include radar and aircraft carrier, so there is a perceptible military-industrial orientation. The tool provides for conventional box-and-arrow diagrams, but also allows document and object hierarchies, and arbitrary traceability linking. An interesting feature is a budget which provides a recursively added hierarchical spreadsheet for each attribute ('technical allocatable' in Slate jargon) which is to be budgeted. Slate is apparently genuinely object-oriented and as such should suit large industrial projects that want to use OO analysis and design. Some systems engineers see Slate as a tool that mainly supports the life-cycle after the requirements phases. It provides limited support for requirements capture.

Harold Knight of SDRC (an earlier owner of Slate): Slate is fundamentally different in Systems Engineering because we manage all components of the design in true Object-Oriented fashion - not documents or paper but information, so we are a system design tool - system engineers can design and view systems from any perspective.

Team-Trace from WA Systems

is a requirements management tool released in 2002.

Ben Sutton of WA Systems: We believe that Team-TRACE is a breakthrough in cost-effective requirements management. It offers all of the relevant features found in other tools at a fraction of the cost. Behind an intuitive interface lies an impressive platform that enables you to capture, analyse, evaluate and trace complex requirements.

Tiger Pro is one of the free SEEC tools.

Truereq from Truereq Inc.

Truereq is a web-based requirements management tool. There is an open (XML) data interchange format, and the API permits custom integration and scripting. Currently (Feb 2004) Truereq offer a free single-user license.

Todd Berger of Truereq writes: Using Truereq, you can manage your product development process in a centralized workspace shared by all

your team members. Truereq's integrated toolkit helps you focus on making better products, more quickly, efficiently, and at a dramatically reduced cost.

Vital-Link from Compliance Automation

Ivy Hooks' company produces a database-centred requirements management tool that seems to be well liked.

The Volere Template from The Atlantic Systems Guild

The Volere Template is a comprehensive list of all the components that the Robertsons recommend should go into a requirements specification. It is closely associated with the Volere method described in their book, but contains many useful suggestions that could enhance any requirements method. The template can be used with any general RE tool or simply with word-processed documents.

WIBNI from Project Toolbox

(Wouldn't It Be Nice If ...?) is a very low cost RM tool based on Microsoft Access, (like Requisite Pro and DoorsRequireIT). It records priority, status, type, and other attributes, documents links between requirements, keeps an audit trail, exports to Word, and enables sorting and filtering like much heavier tools. Interestingly it also supports event-driven and use-case analysis. There is a free evaluation version.

John Richards of Project Toolbox writes: "I've been managing projects for many years and could not find a requirements database I wanted to use at a price I could justify. I knew what I wanted though, so in the end I developed it."

XTie-RT from Teledyne Brown Engineering (TBE)

TBE released X Tie-RT commercially in July 1996. The tool was initially developed for in-house use to assist with proposal development, regulation compliance on environmental programs and large complex systems for the US Army and NASA. It encourages users to document the reasons for decisions. Users are equally divided between Government contractors and Commercial industry, and between hardware and software. The tool is claimed to be simple to learn, robust and full featured. TBE consider Doors their primary competitor.

revised 18 February 2006