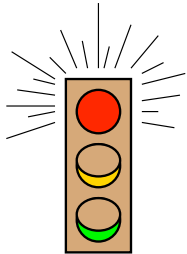


# Requirements:

## Identifying Stakeholders: An Imperative Part of Requirements Engineering



March 2010

Judy Bamberger

Process Solutions  
10 Hobbs Street  
O'Connor ACT 2602 AUSTRALIA

+61-2-6247-6220  
+61-2-6247-6220 (FAX)  
bamberg@eaglet.rain.com

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An Imperative Part of Requirements  
Engineering  
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## Who Am I?

Judy Bamberger has 25 years' experience developing software, leading teams, teaching, and developing organisation-wide leaders. An independent consultant, she specializes in project management, process definition and improvement, quality techniques (e.g., formal inspections, metrics), team building, facilitation, and managing change.

Ms Bamberger has:

- Performed numerous assessments (SPA, CBA-IPI, ARC Class C / B, ISO9001, custom-tailored) and worked with organisations around the world and at all maturity levels.
- Created a CMM / CMMI gap analysis method that is highly reliable and cost-effective. This enables her clients to review their strengths and weaknesses against the practices of the CMM / CMMI, provides a likely maturity/capability level rating, and summarises opportunities for improvement - at a fraction of the time and cost of an appraisal. The CMMI gap analysis method complies with ARC Class B/C requirements.
- Assisted her clients with improvement plans based on assessment results, which enabled them to meet their strategic business goals and increase their maturity levels.
- Trained and coached internal change agents in: basic quality tools, communication skills, managing change and resistance, effective improvement planning, and transition. This enabled her clients to create lasting, positive changes.

A key author of CMM, Ms Bamberger is one of the original Authorised Lead Assessors.

Ms Bamberger teaches project management and an award-winning course that has the students apply basic quality tools in the contexts of a real team, project, and organization. She provides workshops and on-site mentoring in the CMMI, Personal Software Process, peer reviews, process improvement, and other software engineering, management, and leadership subjects.

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## Abstract

- "Stakeholder": "Anyone who, or any organisation that, is affected in some way as a result of a project and / or the resulting product produced or service provided ... before or after the project is completed."
- "Stakeholder analysis": "An activity to identify stakeholders, classify them in various dimensions, identify their "value propositions" ("what's in it for me?")."
- One driver to successful projects is identifying key stakeholders - those involved throughout the life of the system being developed, deployed, maintained, enhanced. Another driver is to understand the benefits (or dis-benefits) and values (or dis-values) the project and system provides to each stakeholder.
- This presentation will provide a hands-on opportunity to practice a small component of stakeholder analysis on a simple example.
- This presentation should provide those new to these ideas with something to take home and start using, and for those with experience, this presentation should re-energise them about the benefits of doing stakeholder analysis.

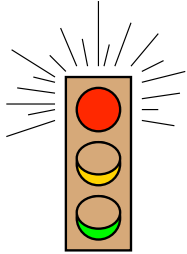
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## Requirements:



# Identifying Stakeholders: An Imperative Part of Requirements Engineering

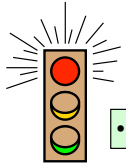
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## Acknowledgements (1)

- This presentation supplements:
  - Requirements: From Stop Light to Guiding Light, presented at the Systems and Software Technology Conference 2009
  - Authors: Joe Thiessens (ITT SENSOR contract), Joe Hanson (ITT SENSOR contract), Judy Bamberger (Process Solutions), David Cook (AEGIS Technologies)
- Together, Joe, Joe, Judy, and David have more than a century of hands-on practice with requirements (producing, reviewing, using, verifying, delivering)
  - The original workshop collected their "lessons learned" to benefit those just getting started and those with experience who want to "stand on the shoulders of others"

## Acknowledgements (2)

- Thanks also to Bram van Oosterhout, who elicited the most important requirement from me nine years ago ...  
... and who, by virtue of excellent peer reviews, ensures each presentation satisfies the 5Cs and is SMART



## Topics for Today

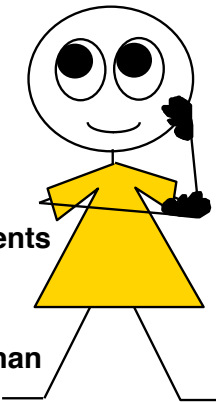
- Introduction and context setting **10 min**
- Identifying stakeholders **35 min**



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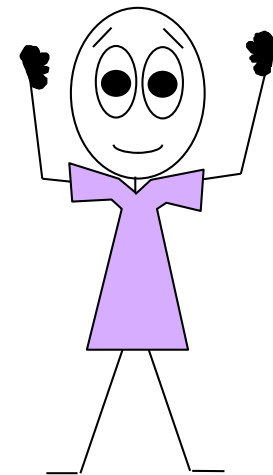
## Top Ten Reasons for *not* doing Requirements

- (10) We don't need requirements, we're using objects / java / web / ...
- (9) The users don't know what they want
- (8) We already know what the users want
- (7) Who cares what the users want?
- (6) We don't have time to do requirements
- (5) It's too hard to do requirements
- (4) My boss frowns when I write requirements
- (3) The problem is too complex to write requirements
- (2) It's easier to change the system later than to do the requirements up front



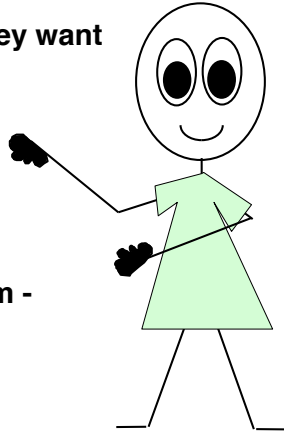
## Top Ten Reasons for *not* doing Requirements

- (1) We have already started writing code, and we don't want to spoil it



## Reason #11 for *not* doing Requirements

- Corollary to:
  - (9) The users don't know what they want
  - (8) We already know what the users want
  - (7) Who cares what the users want?
- (11) We know who our users are - our stakeholders; and we know what's best for them - and why



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## Objectives

- In this module, we will:
  - Discover or review one key activity related to effective requirements engineering
  - See and practice one technique for identifying and analysing stakeholders
  - Discuss the W5H about stakeholder analysis
    - \* Who is involved
    - \* What should be done
    - \* When and Where should stakeholder analysis be done
    - \* Why stakeholder analysis is important
    - \* How - one technique for doing stakeholder analysis)

## Definition: "Requirements Engineering"

- The process of establishing:
  - The services that are required
  - What / who provides those services  
E.g., the system, the people using the system
  - The constraints under which the system is developed and the system and people operate
- The requirements themselves are the description of both of these items

## Definition: "Operational Concepts"

- Describes "a day in the life of the desired product / service"
  - For nominal and off-nominal conditions

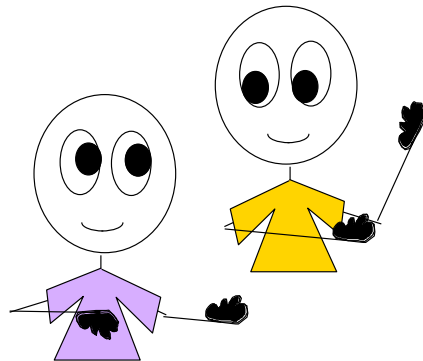


## Operational Concepts: Eliciting Nominal and Off-Nominal Conditions

- Discuss "what-if?" cases
  - What should happen and under what conditions?
  - What should not happen and under what conditions?
- For each of the above:
  - How should the system / product / service react and why / not?
  - How should the system / product / service not react and why / not?
  - What does the stakeholder really want to happen and why / not?
  - What does the stakeholder really want to not happen and why / not?

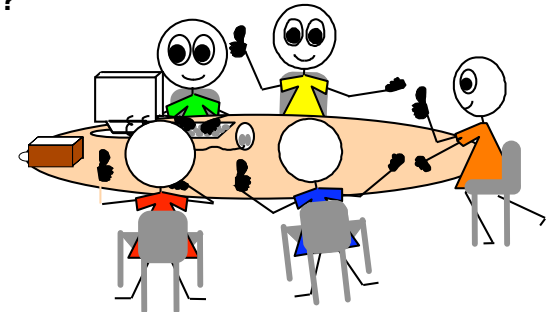
## Key Questions to Derive Operational Concepts

- Not just the usual
  - Who ... ?
  - What ... ?
  - When ... ?
  - Where ... ?
  - Why ... ?
  - How ... ?



## Key Questions to Derive Operational Concepts

- Could you please describe / show me what you do now?
- Could you please describe / show me what you want to do differently?
- And ...



## Key Questions to Derive Operational Concepts

- Could you please describe / show me what you do now?
- Could you please describe / show me what you want to do differently?
- And ...

- Could you please tell me what benefits you get from that? How that helps you?
- Could you please tell me the problems that causes you? And why you want to change it?

## Key Questions to Derive Operational Concepts

- Could you please describe / show me what you do now?
- Could you please describe / show me what you want to do differently?
- And ...

- Could you please tell me what benefits you get from that? How that helps you?
- Could you please tell me the problems that causes you? And why you want to change it?

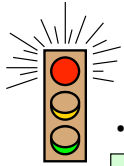
- Need to get to the "root rationale" of the requirement
  - The "so what?"
  - The "what's in it for me?"

## Some "Best Practices"

- Ensure the "right" people are involved:
  - Project-side: Eliciting information
    - \* Good communication skills; sufficient domain knowledge
  - Stakeholder-side: Providing information
    - \* Knowledgeable enough to answer questions
    - \* Empowered to speak for the stakeholder group
- Balance this activity with other activities and outputs
  - Do not need 100% consistency at this point
  - Resolve obvious ambiguities (e.g., "user-friendly") while being aware of over-kill
  - Identify "TBDs" (to be determined) and re-open issues when / as needed

## Methods for Eliciting Information

- Analysis of documentation
- SOW / task definition
- Group brainstorming
- Observation
- Questionnaires and / or surveys
- Prototyping
- Modeling
- Rapid Application Development (RAD)
- Joint Application Development (JAD)
- Cognitive (examining usability)
- Interviews (e.g., contextual interviewing)



## Topics for Today

- Introduction and context setting 10 min
- Identifying stakeholders 35 min



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## Stakeholder: Definitions

- "Stakeholder"
  - Anyone who, or any organisation that, is affected in some way as a result of a project and / or the resulting product produced or service provided ...  
... before or after the project is completed
  - A "Pandora's Box" of stakeholder possibilities!
- "Stakeholder analysis"
  - Activity to identify stakeholders, classify them in various dimensions, identify their "value propositions" ("what's in it for me?")

[this entire section is derived from  
COMP 3120, The Australian National University,  
Clive Boughton and Judy Bamberger, © 2000]

## Some "Best Practices": When

- Stakeholder analysis occurs:
  - Before project initiation
  - As part of project initiation
  - Throughout the life of the project
  - As part of "post-implementation review"
  - As part of on-going service quality monitoring and / or product evolution
  - As part of organisation-wide strategic planning

## Some "Best Practices": Why

- **Benefits of stakeholder analysis:**
  - Helps identify requirements that otherwise would be "missing"
    - \* I.e., discovered late (with potentially huge project impacts)
  - Helps ensure whole life-cycle / product / service coverage
  - Begins building positive relationships, "team," "shared ownership"
  - Continues contact / relationships, enabling:
    - \* Share early successes (celebrate)
    - \* Learn about concerns (manage risks, issues, problems effectively)
    - \* Identify change in context (project scope, resources, market, world conditions - drivers affecting the project)

## Some "Best Practices": Who

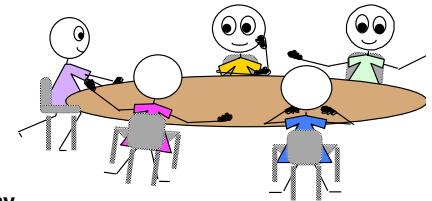
- **Responsibility for stakeholder analysis:**
  - Recognised as a key responsibility for project managers
  - Included as a key responsibility of every project team member
  - Is a key responsibility for each person responsible for strategic decisions

## The Nature of Project Stakeholders

- **Varied**
- **May have conflicting perspectives**
- **Not just humans or organisations**
- **May not know that they are affected**
- **May cause delays or cancellation of project**
- **May give rise to much higher costs than project budget allows**
- **May cause very high cost over-run if their needs are not dealt with early in the project**
- **May prevent / disrupt use of the results**
- **Could compromise safety for many users**
- **May result in complicated solutions**

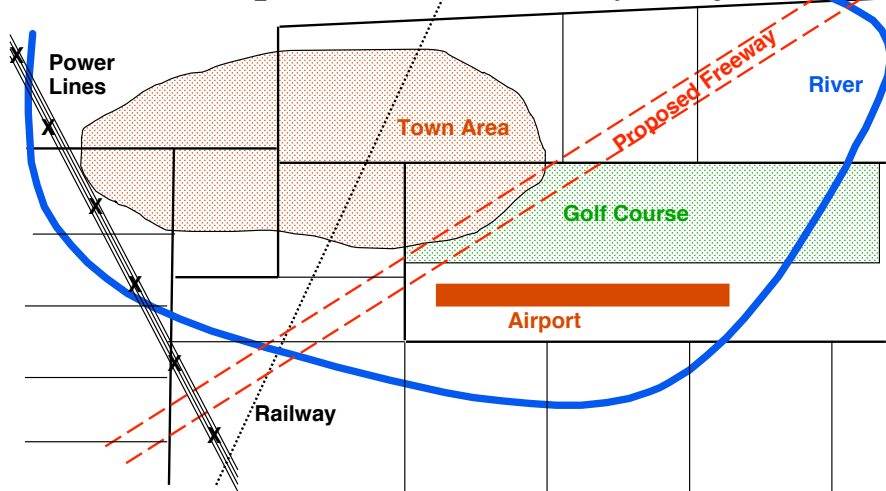
## Discussion: Project Stakeholders

- **Nature**
  - To explore what "stakeholder" means in practice
- **Expectations**
  - List of stakeholders for a new section of the Hume Freeway
- **Agenda**
  - Absorb the information on the following slide and explanation from the presenter
  - Brainstorm: Who are the project "stakeholders"?
  - Discuss: What can we learn from this example?
- **Time**
  - TEN MINUTES (or until we have around 50 stakeholders)





## Example - Hume Freeway Project



## Definition: "Benefit"

- For this discussion:
  - **Benefit:** "Something gained from the project and / or the resulting product and / or service"
  - Many (most?) "benefits" can be demonstrated objectively

## Stakeholders and "Benefits"

- When addressing the list of stakeholders, the project manager must identify:
  - Who benefits from the project and / or product and / or service
    - \* *And what the benefit is*
  - Who is negatively affected as a result of the project and / or product and / or service
    - \* *And what the dis-benefit is*
  - Who is not effected one way or another

## Types of Stakeholders and their Benefits

- Identifying the various stakeholders' benefits and dis-benefits typically broadens the scope of product issues that need to be addressed
- Often, unfriendly product features need to be considered in regard to particular stakeholders
- The project manager must categorise stakeholders according to the way the product is to treat them:
  - **Friendly (F)** (provide attracting features)
  - **Ignore (I)** (acknowledge their existence; they could become Friendly or Unfriendly)
  - **Unfriendly (U)** (provide detracting features)

[See Donald Gause and Gerald Weinberg:  
"Exploring Requirements: Quality before Design"]

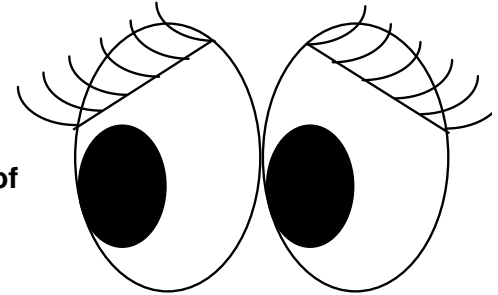
## Stakeholder Participation

- Who participates:
  - All?
  - A representative sample?
  - A surrogate?
- When do they participate:
  - Continuously?
  - At discrete intervals?
- How are their judgments obtained:
  - From experience?
  - By experiment?

[See Donald Gause and Gerald Weinberg:  
"Exploring Requirements: Quality before Design"]

## Definition: "Value"

- For this discussion:
  - **Value:** "How someone feels about what they gain (lose) from the project and / or the resulting product and / or service"
- We can train, show, demonstrate, help, communicate, etc ...
  - It is much harder to "create value"
  - Value is personal
  - Value is in the eye of the beholder



## Stakeholders and "Values"

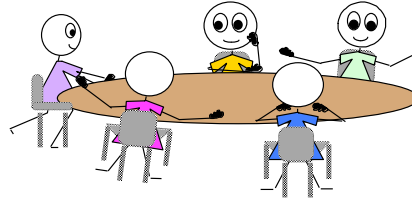
- A second dimension to understand is what stakeholders "value" from the project and / or the resulting product and / or service
  - "Values" are *not necessarily* the same as the "benefits"
- The distinction between a "value" and a "benefit" is often difficult to identify
  - A "benefit" can be considered as a *gain* ("dis-benefits" can be considered a *loss*)
  - A "value" can be considered a *feeling* about the gain (or loss)

## Example: "Benefit" versus "Value"

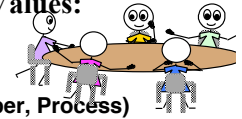
- In the previous example:
  - A motorist may see the "benefit" of safer driving conditions and may "value" (be happy about) the quicker journey to Sydney ...  
... and "dis-value" (be sad about) the loss of wild-life habitat

## Exercise: Project Stakeholders, Benefits, Values

- **Nature**
  - To do "stakeholder analysis" for a few stakeholder groups
- **Expectations**
  - Indication of F, U, I; likely benefits and values
- **Agenda**
  - Organise for success (Facilitator, Recorder, Timekeeper, Process)
  - See Agenda Details ...
  - Be prepared to discuss your results
- **Time**
  - TEN MINUTES (small groups); FIVE MINUTES (discussion)



## Exercise: Project Stakeholders, Benefits, Values: Agenda Details



- **Organise for success (Facilitator, Recorder, Timekeeper, Process)**
  - Hint: Allocate your time to each of the following steps before you begin your work; time goes quickly!
- **Select FIVE stakeholder groups from those elicited previously**
  - Record stakeholder groups on the Stakeholder Analysis Form (next page)
  - Do this quickly!
- **Identify each stakeholder group as Friendly (F), Unfriendly (U), Ignore (I) (quickly!)**
- **For each key stakeholder group selected, describe:**
  - Benefits and / or dis-benefits from the project, product, service described in the case study
  - Value accrued from the project, product, service
- **Be prepared to share your results**

## Exercise: Project Stakeholders, Benefits, Values: Stakeholder Analysis Form

| Stakeholder | F U I | Benefits / Dis-Benefits Values |
|-------------|-------|--------------------------------|
|             |       |                                |

## Exercise: Project Stakeholders, Benefits, Values: Discussion

- **Have we captured the "real" benefits / values for our stakeholder groups?**
- **Should we verify this?**
  - If yes, how can we verify this?
  - When should we verify this?
  - Who should be involved?

## Identifying Stakeholders: Summary (1)

- Identifying as many project stakeholders as possible contributes to project success:
  - Understand who will be affected
  - Discover who "values" the ultimate product / service and in what way
- Determining the (dis-)benefits of the product / service:
  - Broadens project (product / service) scope to include features that help satisfy the greater majority of stakeholders
  - Broadens project (product / service) scope to mitigate failure modes

**[E.g., via FMEA (failure mode event analysis): not discussed in this workshop]**

## Identifying Stakeholders: Summary (2)

- Identifying as many project stakeholders as possible and addressing their needs and "values"
  - Increases the short-term effort, time, and cost
  - Decreases substantially the long-term effort, time, and cost
  - Increases stakeholder satisfaction and prolongs product / service life in nearly every case
  - Builds effective relationships that lead to future business opportunities

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# Stakeholders - Hume Freeway Project

|                                |                                      |
|--------------------------------|--------------------------------------|
| Project Manager                | State Rail Authority                 |
| Freeway Architect/Engineer     | Transport Companies                  |
| Construction Company           | Telephone Companies                  |
| Construction Manager           | Electric Utilities                   |
| Shire Engineer                 | Water Utilities                      |
| State Government               | Tax Payers                           |
| Federal Government             | People on the dole                   |
| Federal Government Departments | Companies that lost the project work |
| State Government Departments   | Motorists                            |
| Property Holders               | Pedestrians                          |
| Town Area Businesses           | Bicyclists                           |
| Town Area Residents            | Walkers                              |
| Emergency Services             | Heavy Equipment Manufacturers        |
| Police                         | Vehicle Manufacturers                |
| Ambulance Services             | Plant Nurseries                      |
| Medical Professionals          | Freeway Construction Saboteurs       |
| School Teachers                | Freeway User Saboteurs               |
| Tourists                       | Environmentalists                    |
| School Children                | Historical Organisations             |
| School Authorities             | Farm Animals                         |
| Shire Council                  | Natural Fauna and Flora              |
| Churchgoers                    | Air Companies                        |

# Key Stakeholders - Hume Freeway Project

|                                    |  |
|------------------------------------|--|
| Project Manager (F)                | State Rail Authority (F)                 |
| Freeway Architect/Engineer (F)     | Transport Companies (F)                  |
| Construction Company (F)           | Telephone Companies (F)                  |
| Construction Manager (F)           | Electric Utilities (F)                   |
| Shire Engineer (I)                 | Water Utilities (F)                      |
| State Government (I)               | Tax Payers (I)                           |
| Federal Government (F)             | People on the dole (I)                   |
| Federal Government Departments (F) | Companies that lost the project work (I) |
| State Government Departments (F)   | Motorists (F)                            |
| Property Owners (F)                | Pedestrians (U)                          |
| Town Area Businesses (F)           | Bicyclists (U)                           |
| Town Area Residents (F)            | Freeway Maintainers (F)                  |
| Emergency Services (F)             | Heavy Equipment Manufacturers (I)        |
| Police (F)                         | Vehicle Manufacturers (I)                |
| Ambulance (F)                      | Plant Nurseries (F)                      |
| Medical Professionals (I)          | Freeway Construction Saboteurs (U)       |
| School Teachers (I)                | Freeway User Saboteurs (U)               |
| Tourists (I)                       | Environmentalists (F)                    |
| School Children (F)                | Historical Organisations (I)             |
| School Authorities (I)             | Farm Animals (F)                         |
| Shire Council (F)                  | Natural Fauna and Flora (F)              |
| Churchgoers (I)                    | Air Companies (F)                        |

# Exercise: Project Stakeholders, Benefits, Values: Stakeholder Analysis Form

| • Stakeholder | F U I | Benefits / Dis-Benefits<br>Values |
|---------------|-------|-----------------------------------|
|               |       |                                   |

# Exercise: Project Stakeholders, Benefits, Values: Stakeholder Analysis Form

| • Stakeholder | F U I | Benefits / Dis-Benefits<br>Values |
|---------------|-------|-----------------------------------|
|               |       |                                   |