Requirements Engineering:

Precepts, Practices, and Cosmic Truths

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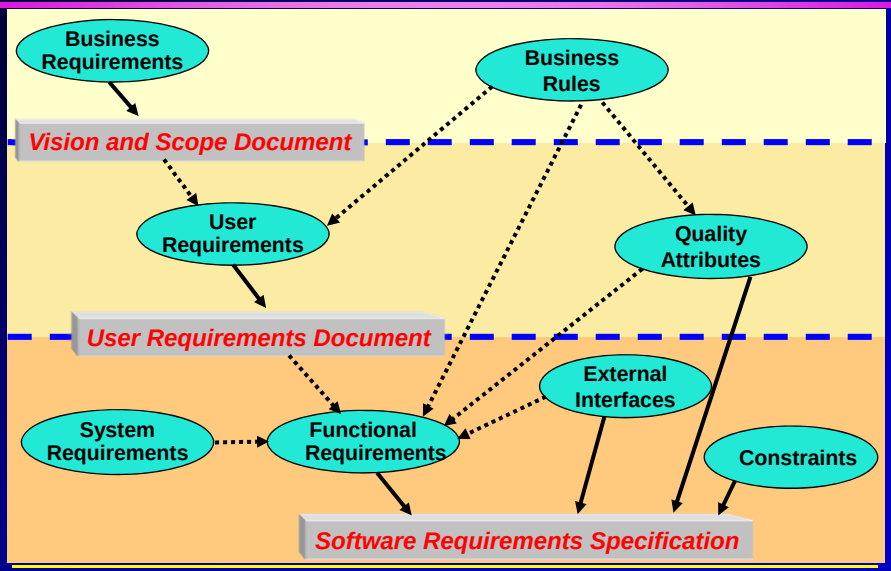
Cosmic Truth #1

If you don't get the requirements right, it doesn't matter how well you execute the rest of the project.

What Is a "Software Requirement"?

- "Anything that drives design choices." *(Brian Lawrence)*
- "A statement of a customer need or objective, or of a condition or capability that a product must possess to satisfy such a need or objective. A property that a product must have to provide value to a stakeholder." *(Karl Wiegers and Joy Beatty)*
- "Requirements are … a specification of what should be implemented. They are descriptions of how the system should behave, or of a system property or attribute. They may be a constraint on the development process of the system." *(Ian Sommerville and Pete Sawyer)*

Three Levels of Software Requirements



Cosmic Truth #2

Nowhere more than
in the requirements
do the interests of
all the project
stakeholders intersect.

Requirements Stakeholders

Cosmic Truth #3

Customer involvement is the most critical factor in achieving software quality.

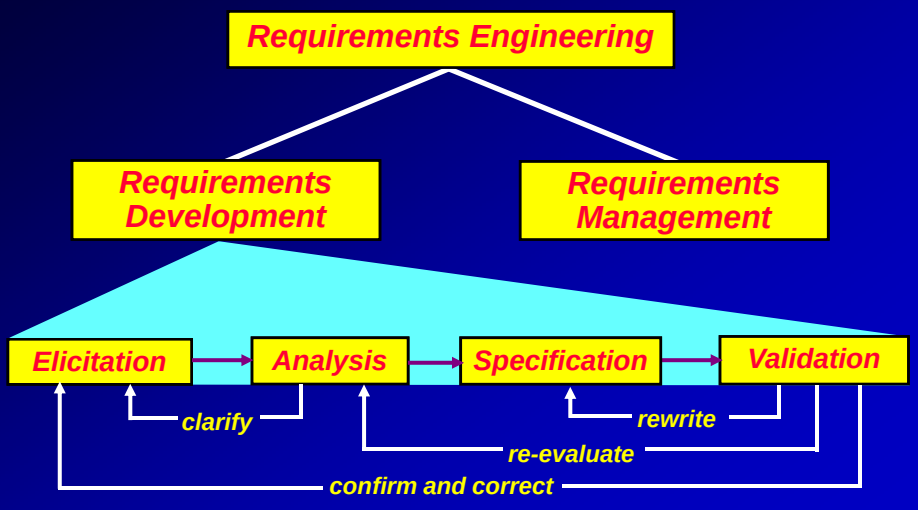
Obtaining Customer Involvement

- Identify user classes
- Select ***product champions***
- Have on-site customers
- Agree on customer rights and responsibilities
- Focus on usage, not on features
  - ✓ use cases, user stories
- Build prototypes

Cosmic Truth #4

Requirements elicitation
is a process of
exploration, discovery &
invention, not a simple
collection process.

Components of Requirements Engineering



Two Widely Used Requirements Methods

Clairvoyance

Telepathy

Some Better Elicitation Activities

- Interviews
- Workshops
- Focus groups
- Observations
- Questionnaires
- System interface analysis
- User interface analysis
- Document analysis

Cosmic Truth #5

The requirements
might be vague,
but the product
will be specific.

How Much Detail Do You Need?

Less Detail

- ✓ Extensive customer involvement
- ✓ Developers have considerable domain experience
- ✓ Precedents are available
- ✓ Packaged solution will be used

Amount of detail needed in requirements

More Detail

- ✓ Outsourced development
- ✓ Team is geographically dispersed
- ✓ Testing will be based on requirements
- ✓ Accurate estimates are needed
- ✓ Certification is needed
- ✓ Requirements traceability is needed

Cosmic Truth #6

Requirements engineering is a specialized project role.

The Business Analyst: A Bridging Role

sponsor

business requirements

size and complexity information

project manager

user reps

user requirements

functional & nonfunctional requirements

development

other stakeholders

expectations & constraints

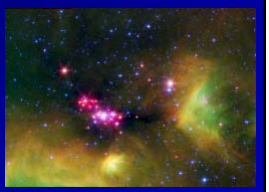
functional & nonfunctional requirements

testing

Cosmic Truth #7

Even the best
requirements document
cannot replace
human dialog.

Cosmic Truth #8



Change

Happens.

Helping Change Happen

- Establish a change control process
- Establish a change control board
- Incorporate contingency buffers into plans
- Use an incremental development life cycle
- Recognize that change always has a price

Cosmic Truth #9

You're never going to have perfect requirements.

A Practical Goal

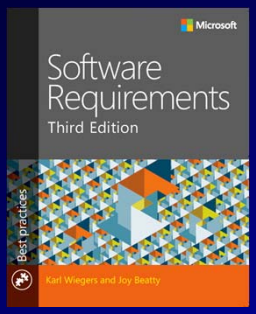
The objective of requirements development is to get requirements that are good enough to allow construction to proceed at an acceptable level of risk.

RE: Precepts, Practices, and Cosmic Truths

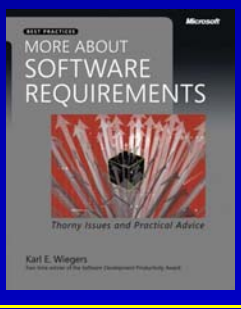
NO

SURPRISES!

For Further Reading



Software Requirements, 3rd Ed.
by Karl Wiegers and Joy Beatty
(Microsoft Press, 2013)



More About Software Requirements,
by Karl E. Wiegers (Microsoft Press, 2006)