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

- Business Requirements
  - Vision and Scope Document
  - Business Rules
  - User Requirements
    - User Requirements Document
    - Quality Attributes
    - External Interfaces
    - Constraints
  - Functional Requirements
  - System Requirements
  - Software Requirements Specification

RE: Precepts, Practices, and Cosmic Truths  
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Cosmic Truth #2

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

Requirements Stakeholders

- Customers
- Business Analyst
- Developers
- Users
- Testers
- Project Manager
- Other 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

- Elicitation
- Analysis
- Specification
- Validation

- clarify
- re-evaluate
- rewrite
- confirm and correct

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

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 requirements
- Functional & nonfunctional requirements
- Development
- Expectations & constraints
- Functional & nonfunctional requirements
- Testing
- Other stakeholders
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.

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)