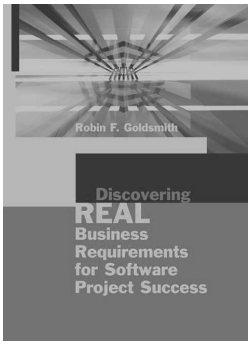
Avoid Creep—Discover the REAL Requirements



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Quality Often Is Defined As:

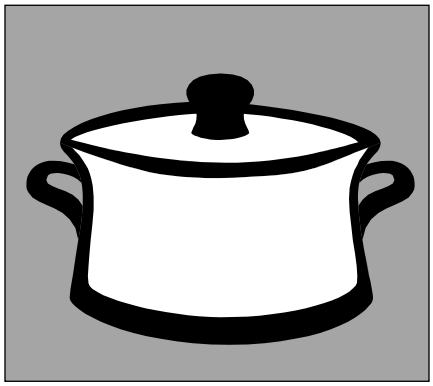
- Conformance to requirements

  or

- Minimal (e.g., 3.4 defects per million opportunities) variance from specifications

What's the flaw in these definitions?

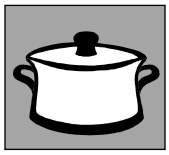
How to Cook a Ham



- Cut off ends ***Why?***
- Put in roasting pan
- Cover with candied yams, raisins, and honey ***?***
- Cook at 375 degrees for 20 minutes plus 12 minutes per pound ***Sure?***

This is like a use case, which many people consider requirements. Is it the requirements?

Is the Business Requirement "Cook a Ham"?



How about: Provide nourishment

What if:

It's Thanksgiving, breakfast
We need to feed 2 people, 200 people
They're Orthodox Jews or Muslims
They're diabetic
We use a microwave oven instead

What Does Getting Requirements Right Have to Do with Quality?

Are right requirements an issue for your organization?

Objectives

- Identify and differentiate "requirements" which are
  - Business/user/stakeholder/customer requirements
  - Product/system/software/functional (and non-functional) requirements/specifications
- Introduce the Problem Pyramid™ technique for identifying the *REAL,* business/user requirements
- Describe seven guidelines for documenting business/user requirements

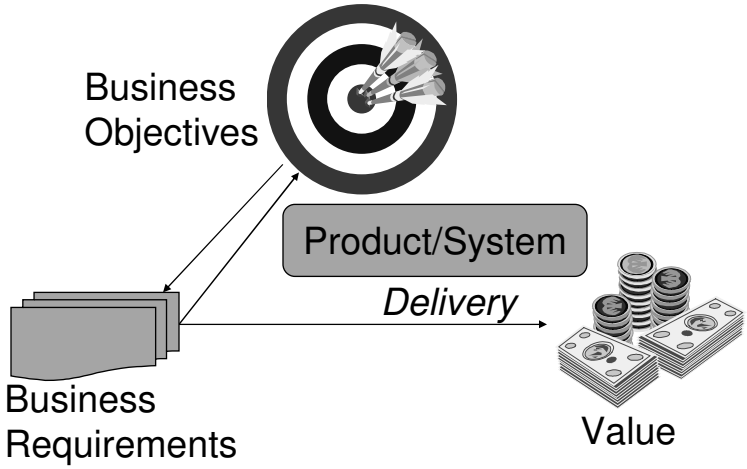
Are You Familiar With this Scenario?

It's not right!

It's what you said you wanted.

It's still not right!

Business/User Requirements: What Must Be Delivered to Provide Value



Typical Business Requirements

- Automated Teller Machine (ATM) must
  - Require customer to insert card
  - Read encrypted card number and ID data from magnetic stripe
  - Require customer to enter PIN (Personal Identification Number)
  - Match entered PIN to calculated PIN or PIN on file
  - Accept envelopes containing deposits or payments
  - Dispense cash in multiples of $10
  - Display selected account balances
  - Transfer indicated amounts between customer's accounts
  - Issue printed receipts
  - Return customer's card

Then What Are These?

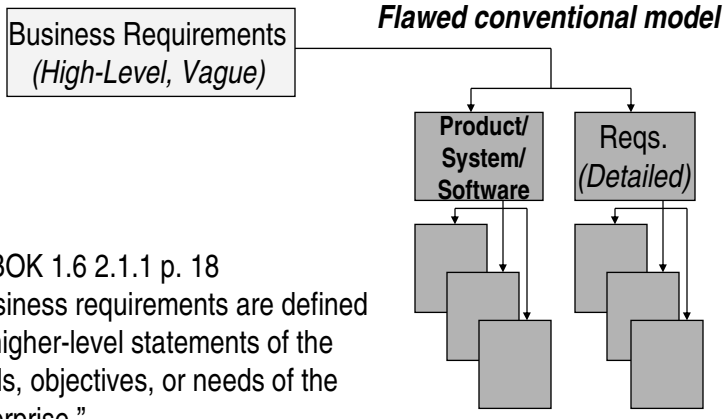
- Provide secure, confidential access to banking services at time and location convenient to customer
- Confirm identity of customer
- Enable customer to perform ordinary bank transactions himself/herself quickly and accurately
- Provide customer documented evidence of the transactions

Note: ATM could be preferred operational style

➲ Two Types of Requirements:

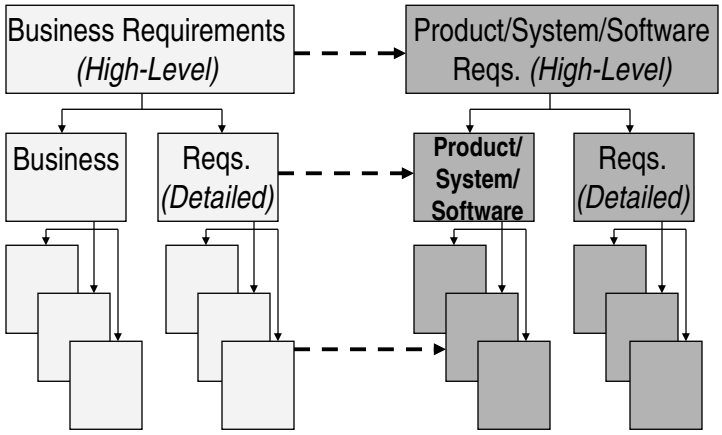
Business/User/Stakeholder	Product/System/Software
• Business/user/stakeholder/ customer language & view, conceptual; *exist* within the business environment • Serves business objectives • ***What*** business results must be delivered to solve a business need (problem, opportunity, or challenge) and provide value when delivered/satisfied/met **Many possible ways to accomplish**	• Language & view of a *human-defined product/system* • **One of the possible ways *How*** (design) presumably to accomplish the presumed business requirements • Often phrased in terms of external functions each piece of the product/system must perform to work as designed (Functional Specifications)

Even Requirements "Experts" Think the Difference Is Just Level of Detail



BABOK 1.6 2.1.1 p. 18
"Business requirements are defined as higher-level statements of the goals, objectives, or needs of the enterprise."

When Business/User Requirements Are Detailed First, Creep Is Reduced



Common Erroneous Perceptions About Business/User Requirements

We already define Business Requirements

***Hows* are only technical design details**

Whatever the business/user says

Always clearly known by top managers

Not an issue for small changes

What users should provide for developers to build from

Problem Pyramid™

Problem
Opportunity
Challenge

① *The thing that will provide value when fixed or eliminated.*

Cause(s)
As Is

④ *The way things are now that cause the undesirable results we are getting.*

② *The measure of the problem now that tells us it is a problem.*

Measure-Now

Benefit/Value

What *Should Be*
(Requirements)

⑤ *Business deliverables that when delivered reasonably will achieve the Goal Measure(s).*

How (Design)

⑥ *A specific way the Should Be whats can be delivered.*

Measure-Goal

③ *The desired measure of the problem that indicates it's been solved.*

Example (1 of 3)

Problem

1 Reuse data are not globally accessible

Cause(s)
As Is

4 People use stand-alone PCs
Low priority for intranet implementation

2 X number of people don't have access

Measure-Now

Benefit/Value

What *Should Be*
(Requirements)

5 Give everyone access via web and intranet

How (Design)

6 Obvious project

Measure-Goal

3 All people have access

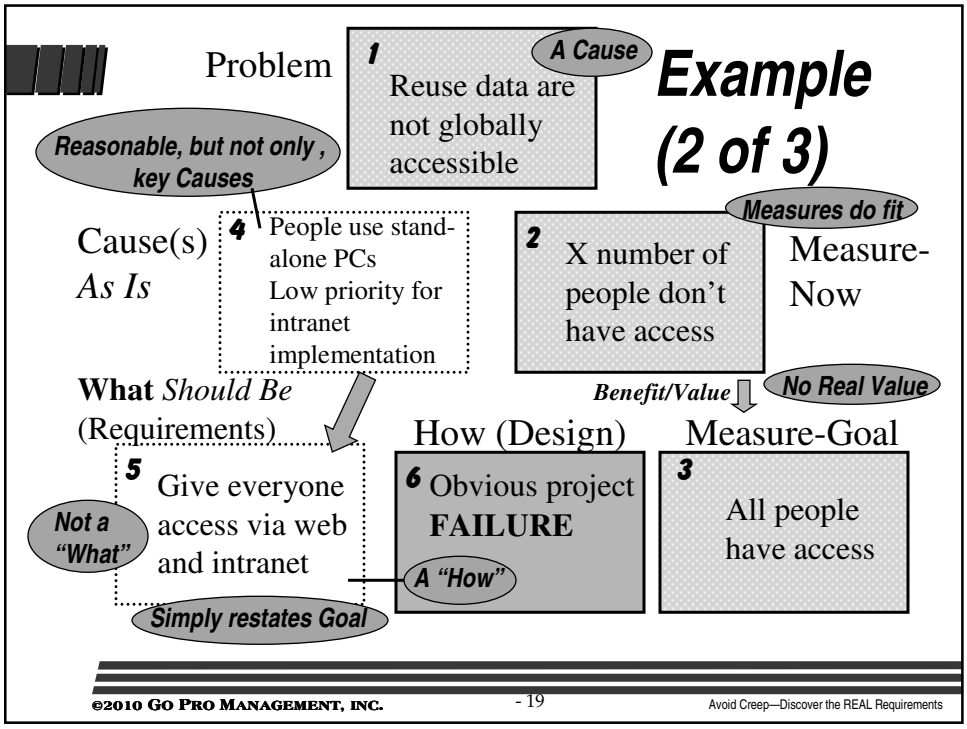
Guidelines for Getting the Problem Pyramid™ Right (1 of 2)

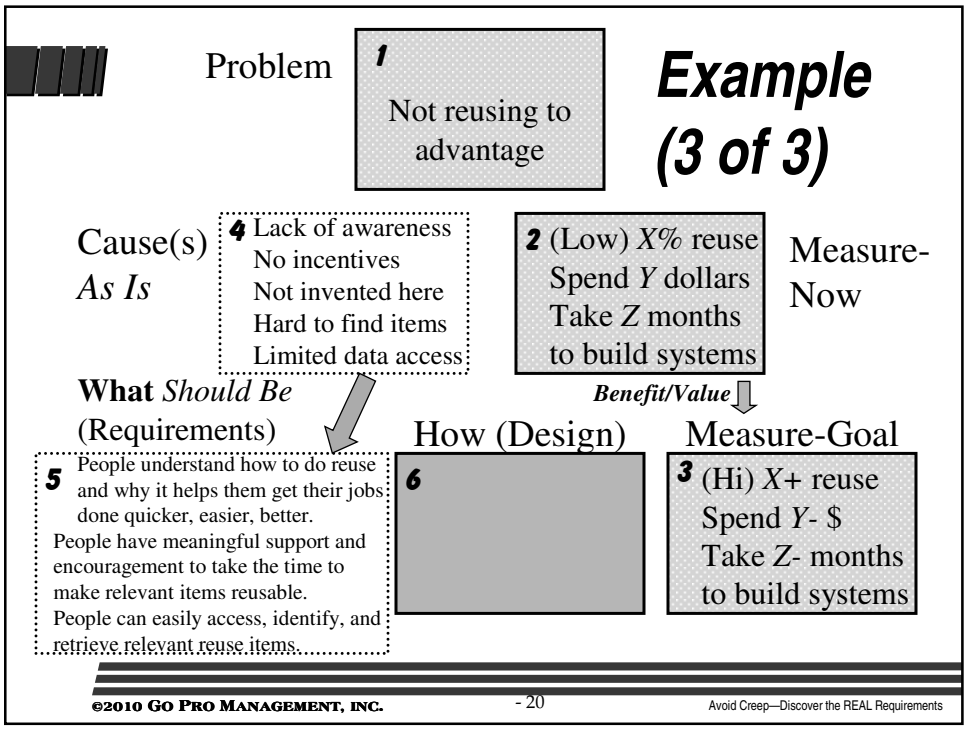
- Is the **Problem** really the problem?
  - Do the measures fit it?
  - Does it provide real value when goal achieved?
- Are the **Causes** in fact causes?
  - Do they reasonably cause the Problem?
  - Have we identified all the likely key causes?
- Does the **Should Be** solve the Problem?
  - Is it "Whats," results likely to meet goal?
  - Does it address (and reduce/eliminate) each key Cause?
  - What else to address that this affects or is affected by?

Guidelines for Getting the Problem Pyramid™ Right (2 of 2)

- Problems can be hierarchical, in which case Problems at one level are Causes of a Problem at the next higher level
- Causes can seem like Problems
  - A Cause can be hierarchical too, with contributing sub-causes
  - A Cause can have Current and Goal Measures
  - But, achieving a Cause's Goal Measure does not produce Real Value
- The appropriate level of Problem to use for defining Requirements is
  - The lowest level Problem, which
  - Produces Real Value when the Goal Measure is achieved

Why are we doing it at all? What if we just didn't do it?
Take measures to extremes


Problem
1
Reuse data are not globally accessible
A Cause
Example (2 of 3)
Reasonable, but not only , key Causes
Cause(s) As Is
4
People use stand-alone PCs
Low priority for intranet implementation
2
X number of people don't have access
Measures do fit
Measure-Now
Benefit/Value
No Real Value
What Should Be (Requirements)
How (Design)
Measure-Goal
5
Give everyone access via web and intranet
Not a "What"
6
Obvious project FAILURE
A "How"
3
All people have access
Simply restates Goal


Problem
1
Not reusing to advantage
Example (3 of 3)
Cause(s) As Is
4
Lack of awareness
No incentives
Not invented here
Hard to find items
Limited data access
2
(Low) X% reuse
Spend Y dollars
Take Z months to build systems
Measure-Now
Benefit/Value
What Should Be (Requirements)
How (Design)
Measure-Goal
5
People understand how to do reuse and why it helps them get their jobs done quicker, easier, better.
People have meaningful support and encouragement to take the time to make relevant items reusable.
People can easily access, identify, and retrieve relevant reuse items.
6
3
(Hi) X+ reuse
Spend Y- $
Take Z- months to build systems

7 Guidelines for Documenting Requirements

❶ Go top-down in the user's/customer's language, focusing on end results/outputs of the "should be" business model; address

- ➲ Strategy, mission, competitiveness
- ➲ Business functionality, business rules
- ➲ Management information, controls
- ➲ Operational effectiveness, workflow
- ➲ Performance and quality ("ility") levels
- ➲ Interfaces, environment, project compatibility/constraints

7 Guidelines for Documenting Requirements (cont.)

❷ Inclusively identify everything needed/wanted

- ➲ Routine functions
- ➲ Exceptional, unusual, and ideal functions

❸ Anticipate change and support

❹ Break down each item to a level of detail

- ➲ Clear, complete, testable, and stands on own
- ➲ Meaningful to people in the user/customer industry

7 Guidelines for Documenting Requirements (cont.)

❺ Supplement as appropriate with narratives, diagrams, and examples

❻ Prioritize and weight meaningful groupings **(being attentive to interdependencies)**

- ➲ Mandatory, desirable, ideal
- ➲ Weighting (1=low to 10=high)
- ➲ Rank (must be limited number of groupings)
- ➲ 100-point "must system" (limited number)

❼ Every item is an observable deliverable

REAL *Business/User Requirements*

Compare to Use Cases/Func Specs 1 of 5

Objective: Reduce development time, cost, and defects by increasing effective reuse of development artifacts.

1. People understand how to do reuse and why it helps them get their jobs done quicker, easier, better.
   A. Types of reusable artifacts can be defined.
      1) Minimum standard set for everyone's use.
         [a. Requirements....]
      2) Custom/unique artifacts for selected use.
      3) New artifacts and groupings can be added.
   B. Rules for making artifacts reusable are defined.
   C. Guidelines for reusing artifacts are defined.

REAL *Business/User Requirements*

Compare to Use Cases/Func Specs 2 of 5

2. People have meaningful support and encouragement to take the time to make relevant items reusable.
   A. Tasks to achieve each reusability characteristic are defined.
   B. Resource, effort, and duration estimates for these tasks are included in initial project plans.
   C. Approved project plans include necessary tasks with their associated added time and cost to make items reusable where payback is likely within one year.

Hierarchical itemized business deliverable* whats *that lead to value

REAL *Business/User Requirements*

Compare to Use Cases/Func Specs 3 of 5

3. People can easily provide relevant reuse items.
   A. Where time and budget has been approved.
   B. To add item to repository, must also provide:
      1) Type of artifact (from approved list).
      2) Title briefly describing the item's use.
      3) Longer, complete description of the item.
      4) Instructions for reusing the item.
      5) Identification of related items.
      6) Source of further information and assistance.
   C. Item's creator can modify items in the repository.

REAL Business/User Requirements

Compare to Use Cases/Func Specs 4 of 5

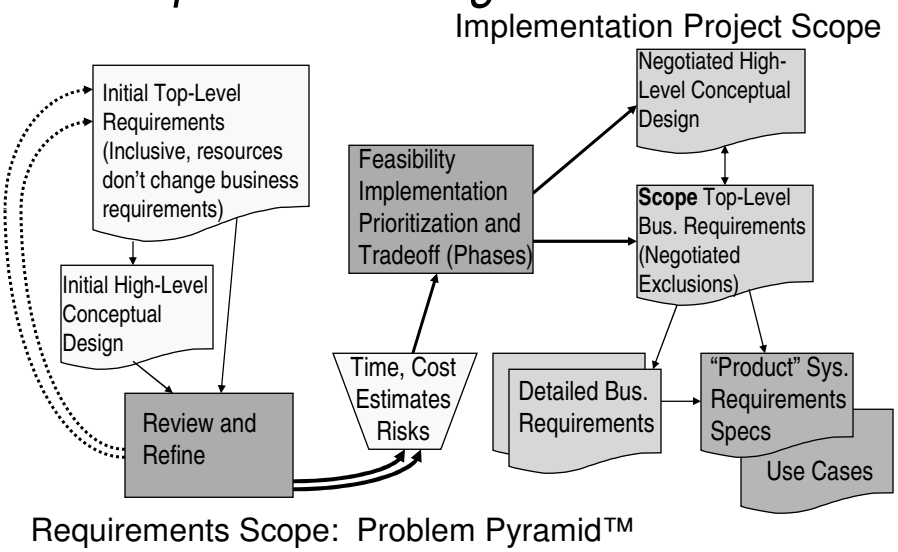
4. People can easily identify relevant reuse items.
   A. Items can be located/accessed within type by:
      1) Title.
      2) Keywords (in title and additional).
      3) Related uses of same or other type.
         a. Via reuse history for the item.
         b. Where item is derived from another.
   B. The item and related descriptive information can be accessed within five minutes of identifying it.
   C. Degree of access is limited by authorization level.

REAL Business/User Requirements

Compare to Use Cases/Func Specs 5 of 5

5. People can easily retrieve relevant reuse items.
   A. Individuals can retrieve items themselves.
      1) Using their existing readily available means.
      2) With additionally-provided assistance.
         a. Hardware and/or software.
         b. HELP and documentation information.
         c. Knowledgeable humans.
   B. Alternate retrieval means are provided as needed.
   C. Notification of modifications to repository items is provided to those who have reused the items.

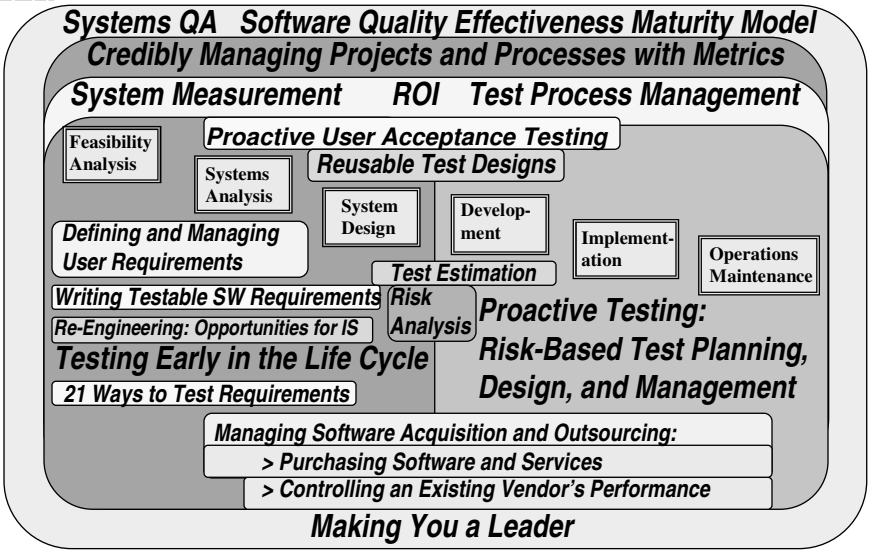
Requirements Negotiation



Summary

- Requirements creep mainly because
  - Product/system/software/functional requirements/specifications and use cases ***hows*** don't meet the
  - REAL, business/user/customer/ stakeholder requirements--***whats*** that provide value when delivered.
- The Problem Pyramid™ reliably guides identifying the REAL problem and business/user requirements—**scope of the requirements**, is not a function of resources available.
- Follow 7 guidelines for documenting inclusive business/ user requirements; supplement with high-level conceptual design, then negotiate exclusions--**scope to implement**.

Go Pro Management, Inc. Seminars & Consulting--Relation to Life Cycle



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- Degrees: Kenyon College, A.B.; Pennsylvania State University, M.S. in Psychology; Suffolk University, J.D.; Boston University, LL.M. in Tax Law.
- Published author and frequent speaker at leading professional conferences.
- Formerly International Vice President of the Association for Systems Management and Executive Editor of the *Journal of Systems Management*.
- Founding Chairman of the New England Center for Organizational Effectiveness.
- Member of the Boston SPIN and SEPG'95 Planning and Program Committees.
- Chair of record-setting BOSCON 2000 and 2001, ASQ Boston Section's Annual Quality Conferences.
- TechTarget, SearchSoftwareQuality requirements and testing subject expert.
- Member IEEE Std. 829 for Software Test Documentation Standard Revision Committee.
- Member IEEE P730 Working Group rewriting IEEE Std. 730-2002 for Software Quality Assurance Plans.
- Member IEEE P1805 Working Group developing a Requirements Capture Language (RCL) standard.
- International Institute of Business Analysis (IIBA) Business Analysis Body of Knowledge (BABOK) subject expert.
- Admitted to the Massachusetts Bar and licensed to practice law in Massachusetts.
- Author of book: ***Discovering REAL Business Requirements for Software Project Success***