Principles of Requirements

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1. Stakeholders Require

- Requirements are derived from stakeholders

- in order to satisfy stakeholders
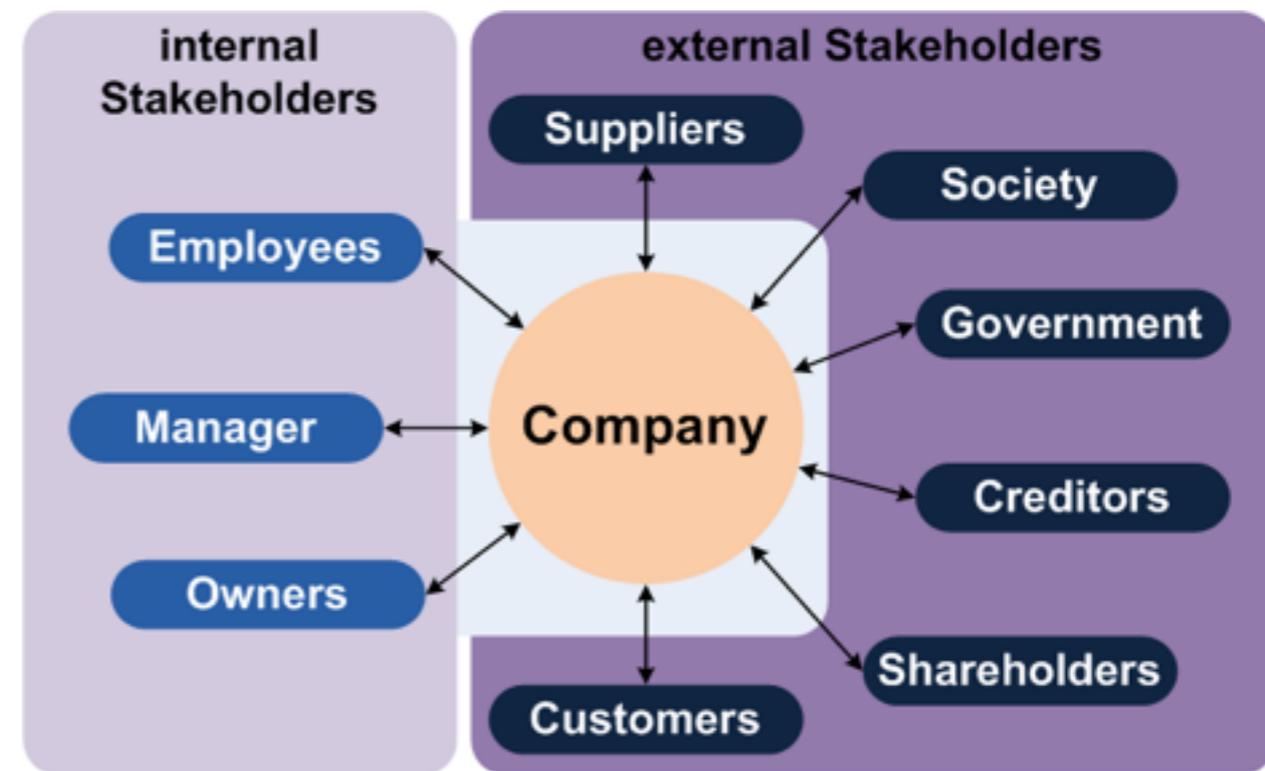
2. Balance

- Requirements are about finding reasonable satisfaction for available resources
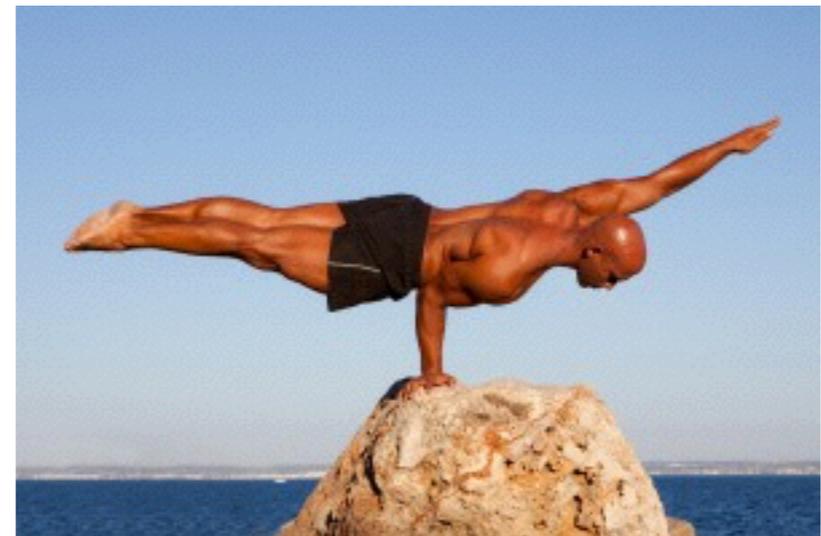
3. Realistic Compromise

- Requirements can not be mandated

- they need to be realistic compromises
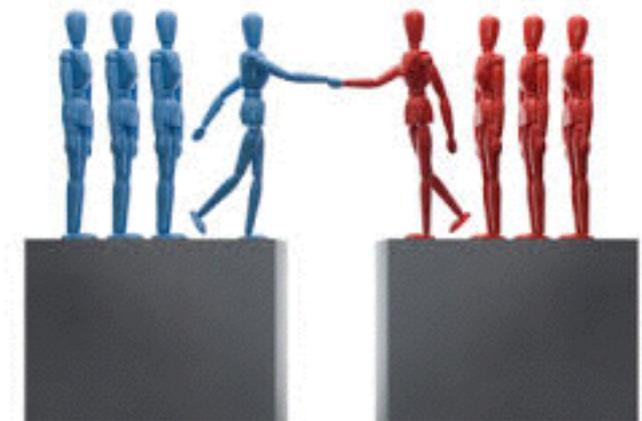
4. Variety


- Requirements are of several fundamentally different varieties

5. Function

- Function Requirements are what a system must do

INPUT x

FUNCTION f:

OUTPUT f(x)
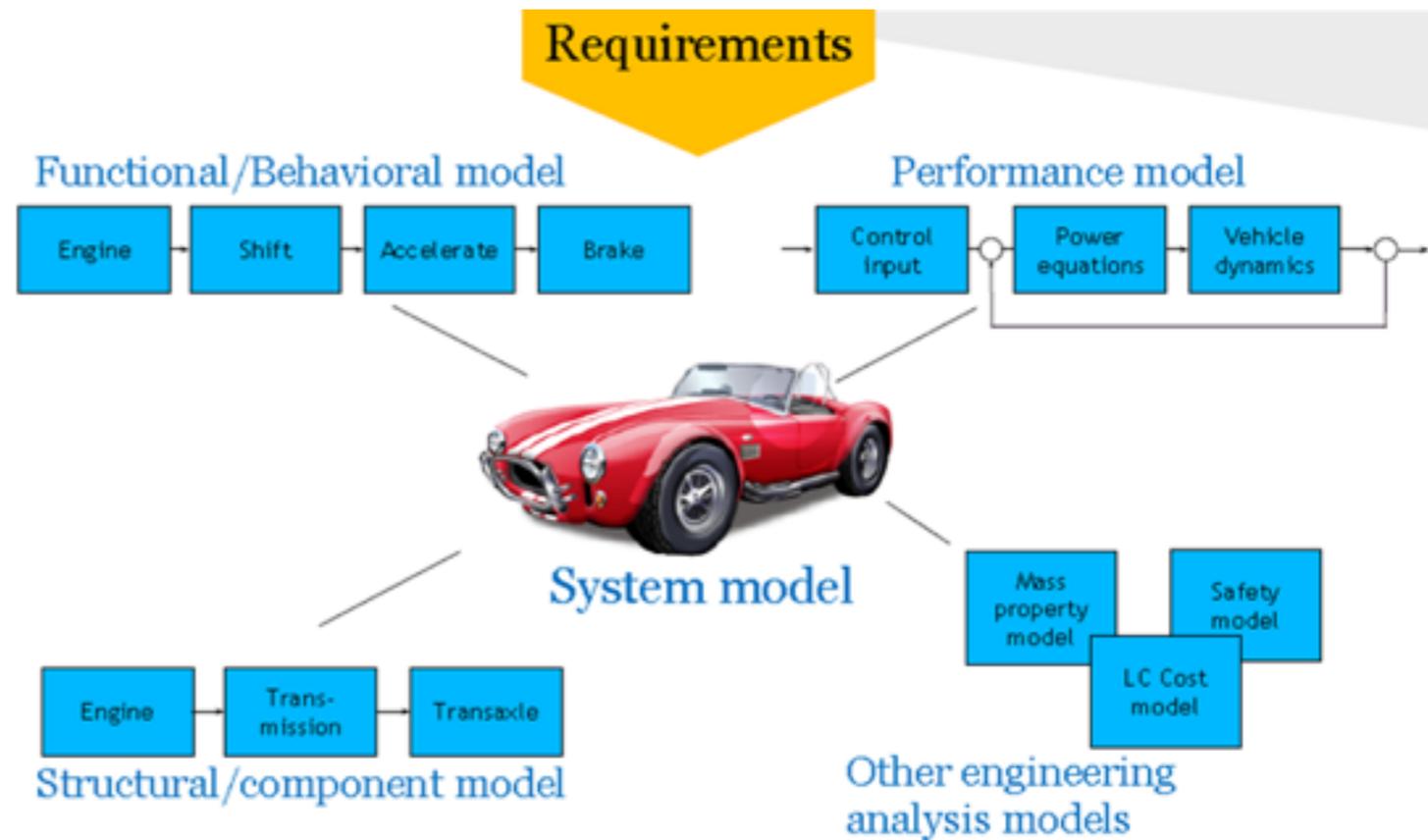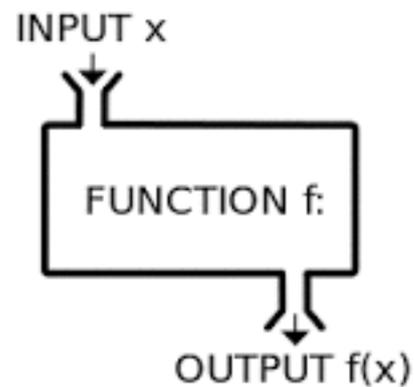
6. Value

- Value Requirements are how well the function must be done
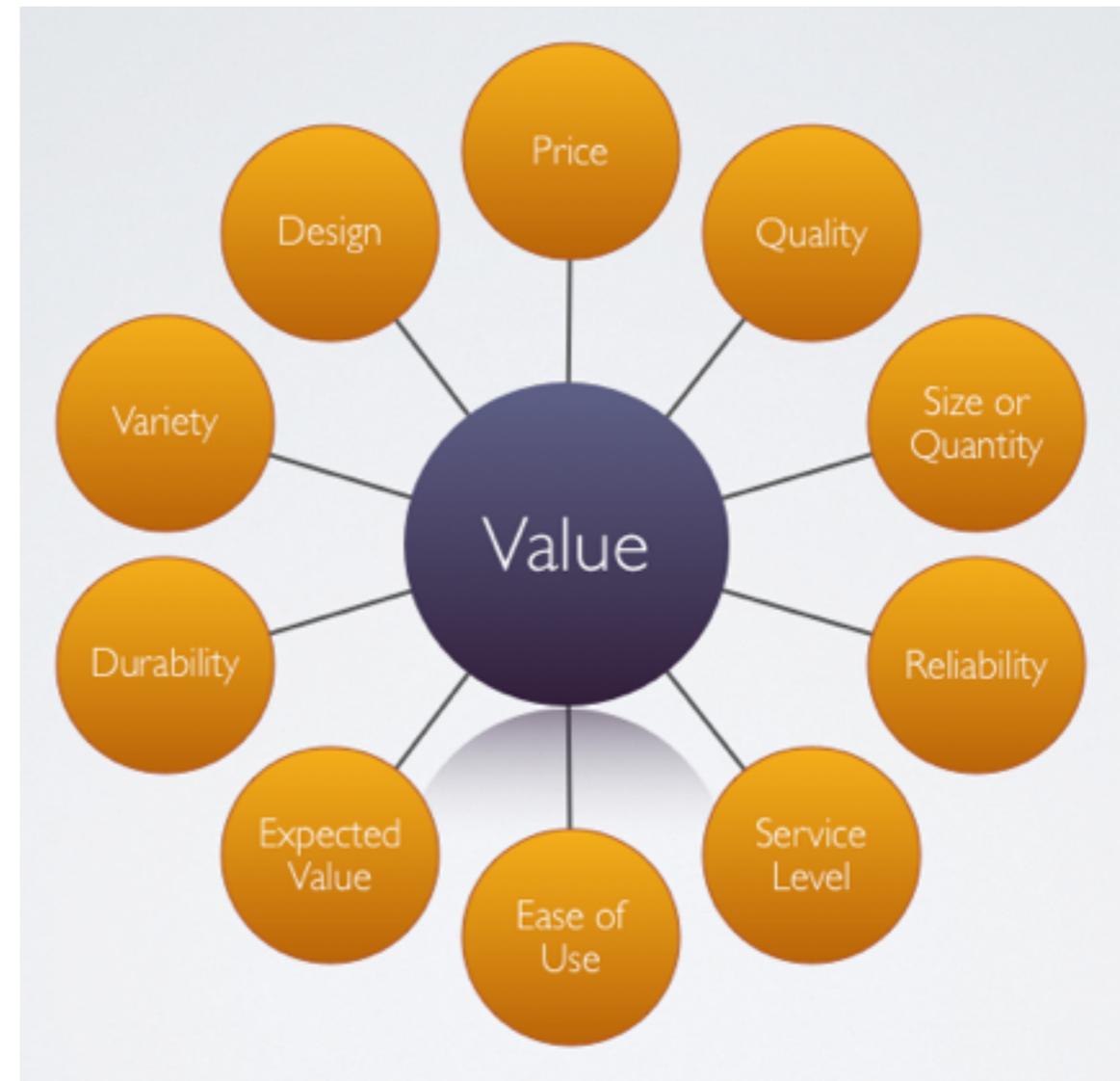
7. Constraints

- Constraints are intentional limits we need to respect
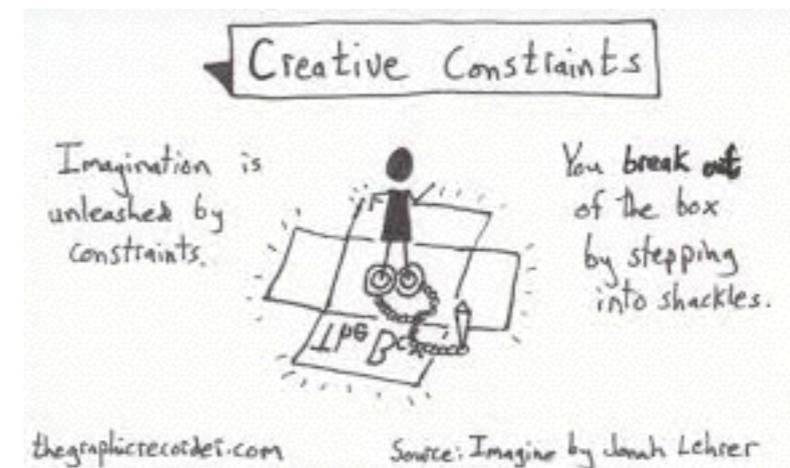
8. Success

- Target Levels are success definitions

SUCCESS
It's not always what you see
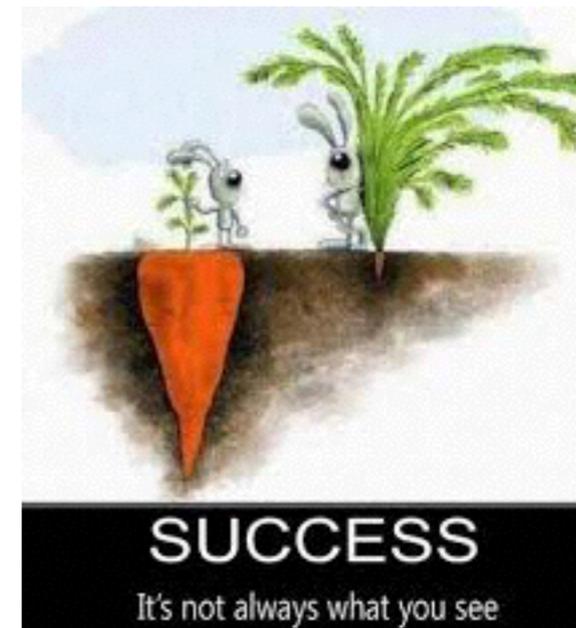
9. Cost Drivers

- Requirements drive design,

- but it is the design *itself* that bears costs

Complexity Explosion Drives Cost

Budget / Design to cost

Process requirements

Product families versions variants

Dynamische Market requirements

Product Development

Time to market

Technical complexity

Quality

Distributed development outsourcing

➢ Requires more novel development processes and methodologies
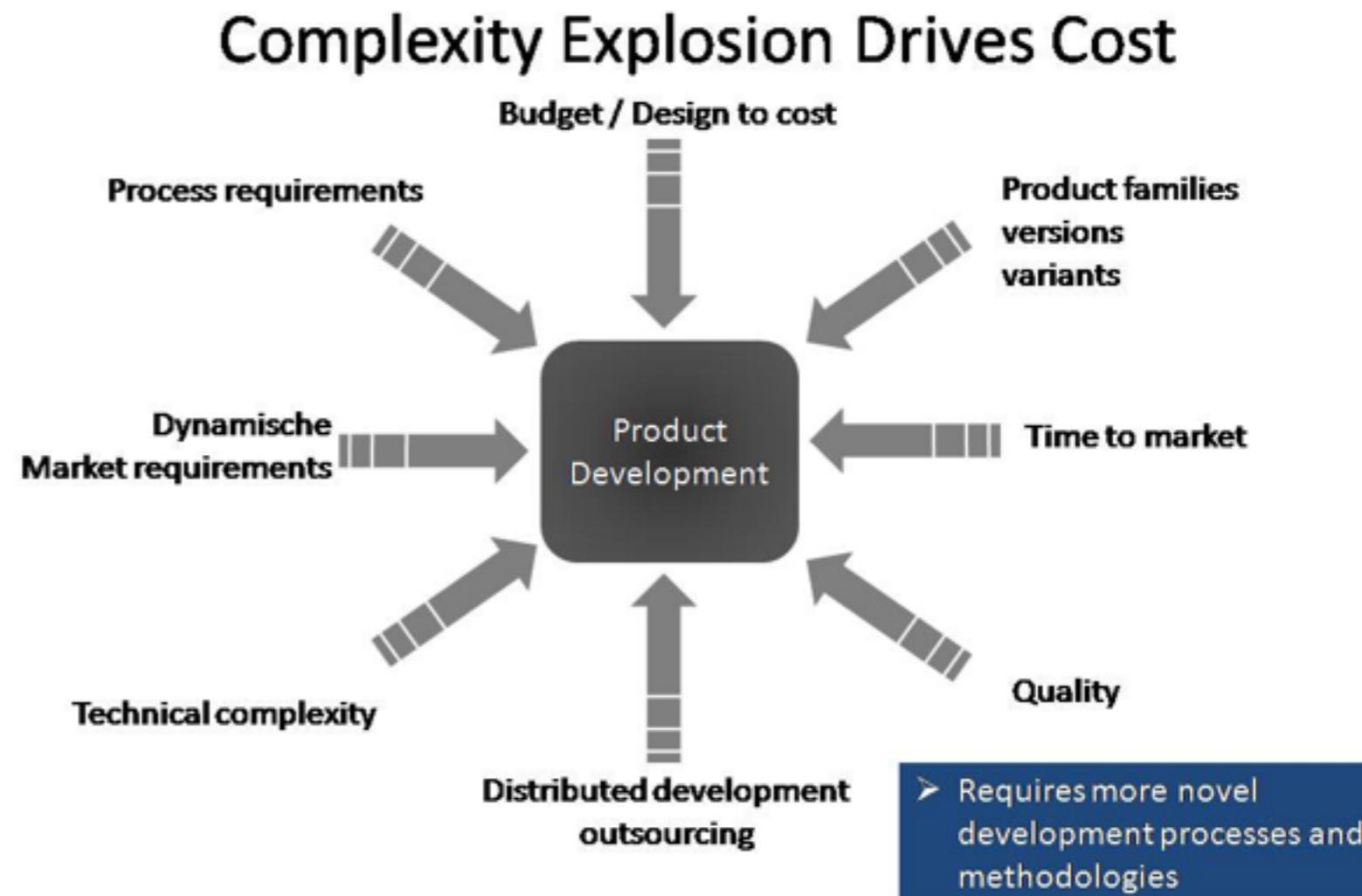
10. Don't Ask. Observe

- Stakeholders are rarely g[...] at articulating their real requirements
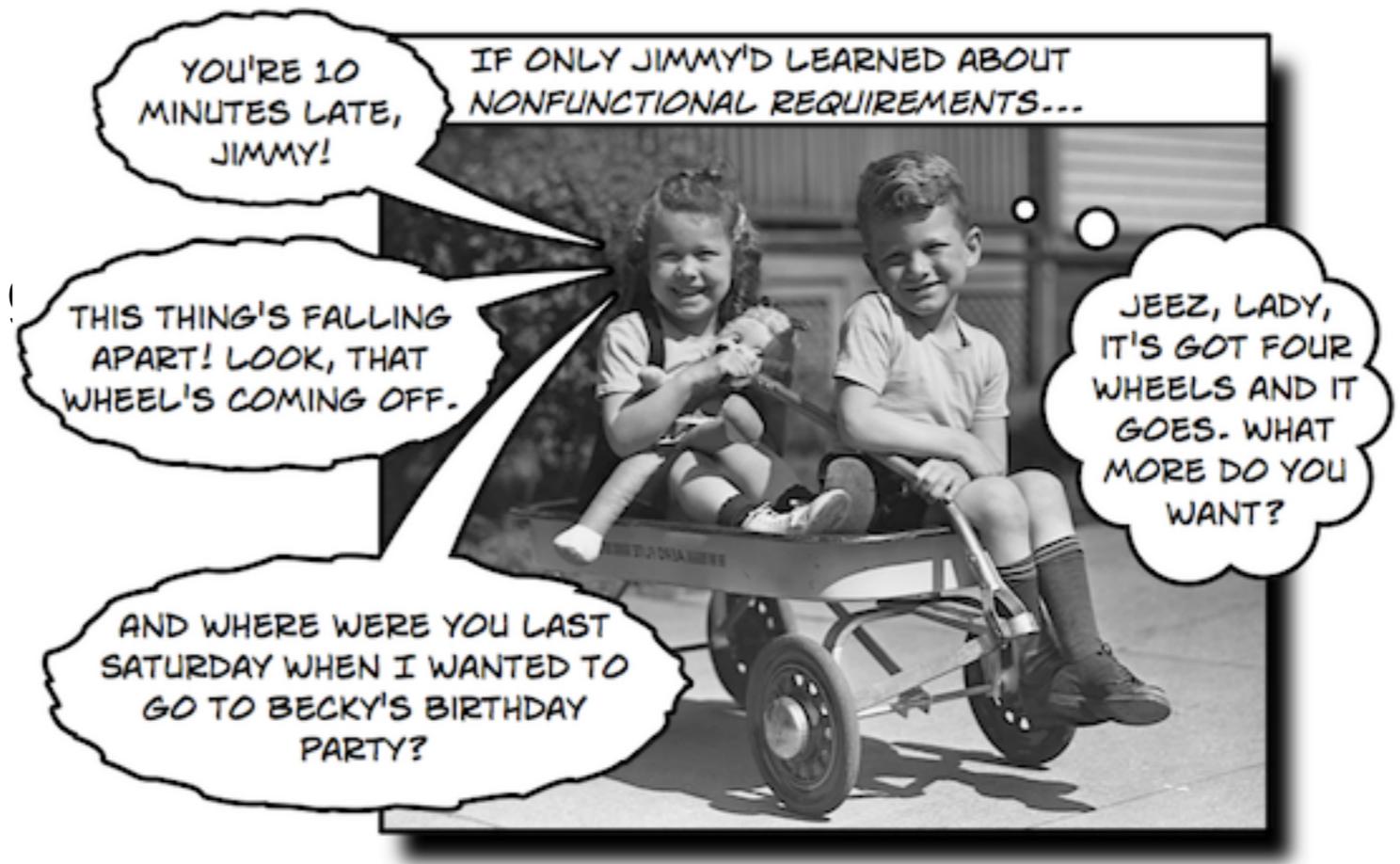
Principles of Requirements Specification

1. Emergence

- Requirements will continue to emerge

2. Requirement Conflict

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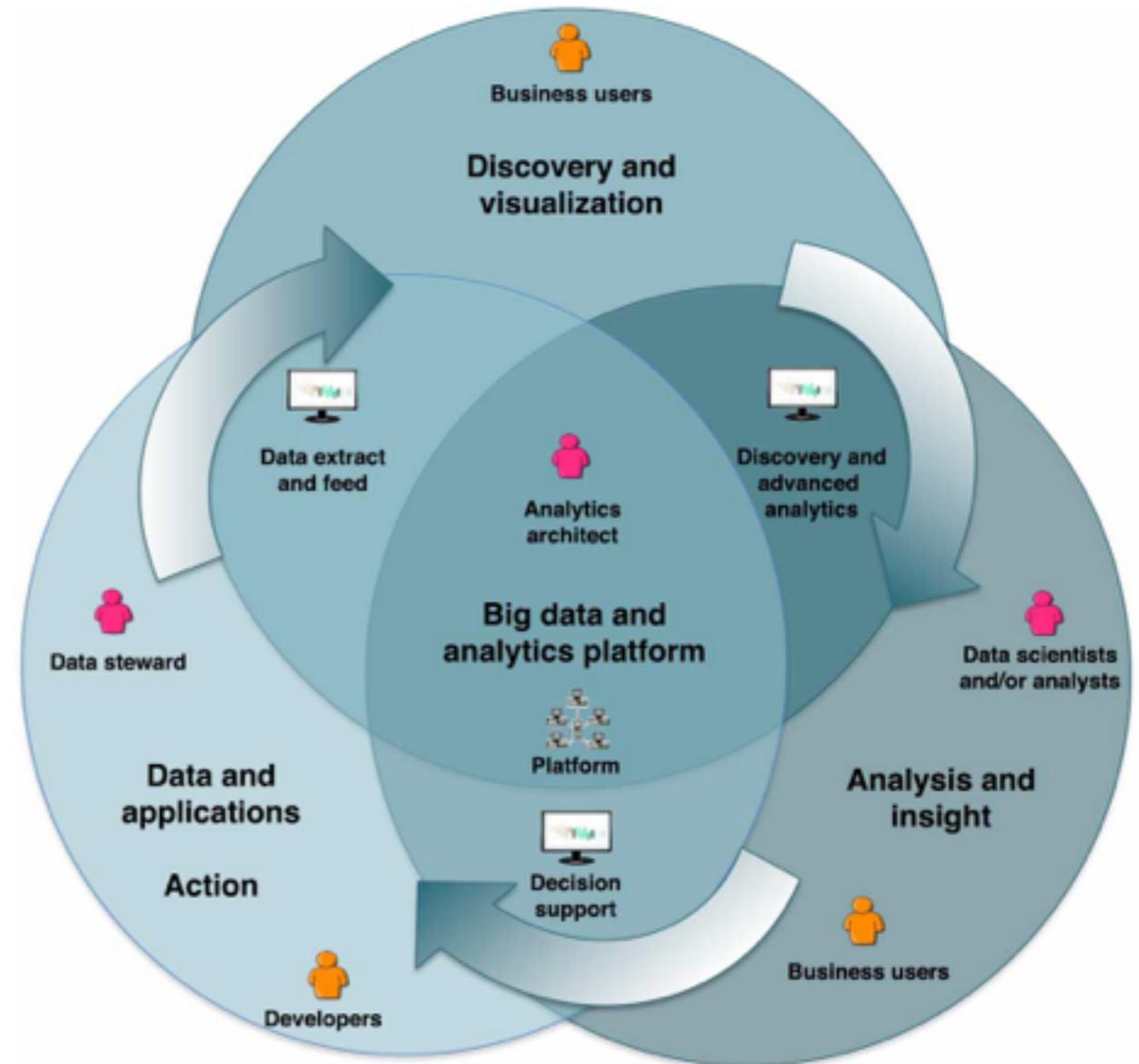
- Requirements will conflict with each other.

- AT THE VERY LEAST BY CONTENTION FOR LIMITED RESOURCES

3. Stakeholder Conflict

- Stakeholders will conflict with each other
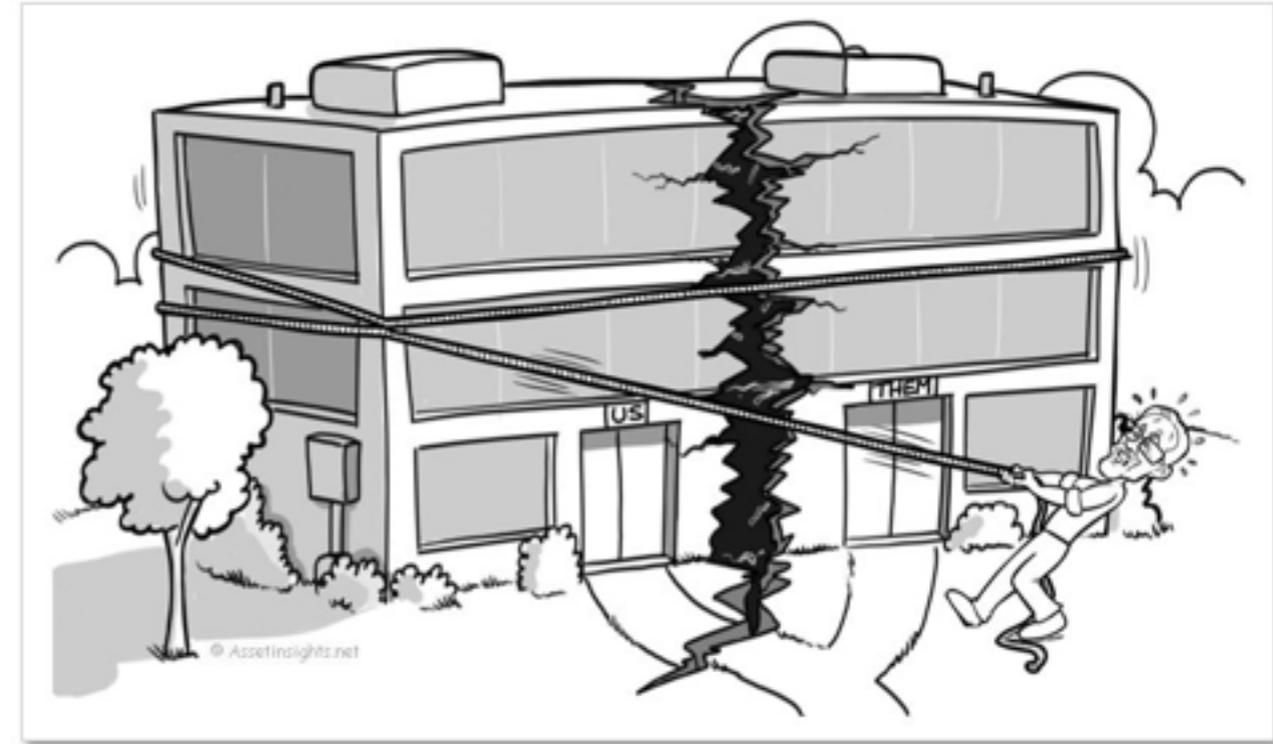
4.Quantification

- All improvement requirements can be expressed numerically
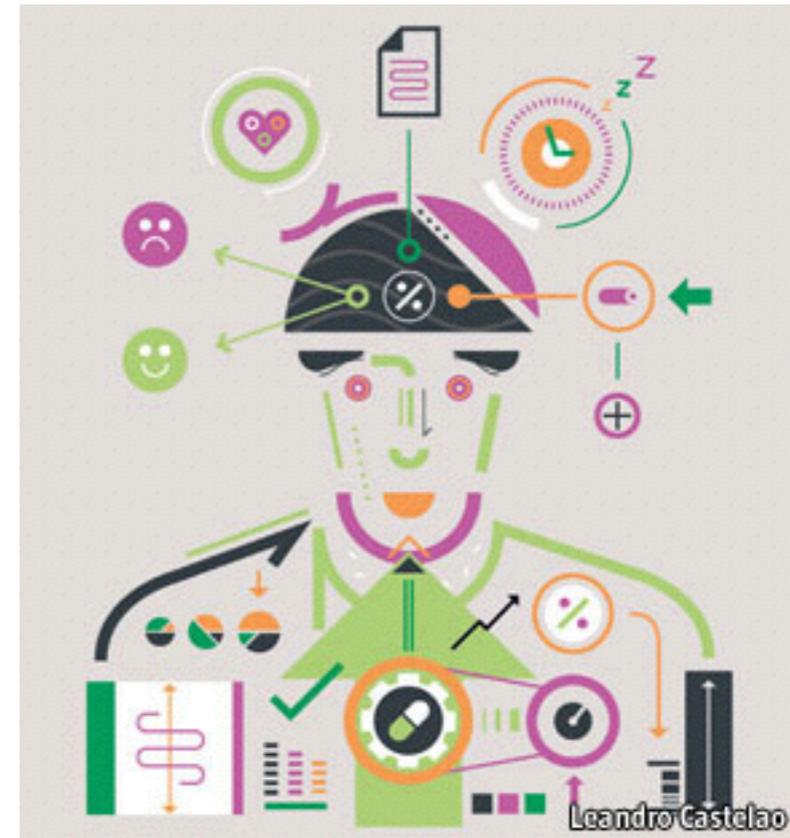
5. Scale

Measurement Scales

- A well-defined scale of measure is the breakthrough specification for value requirements
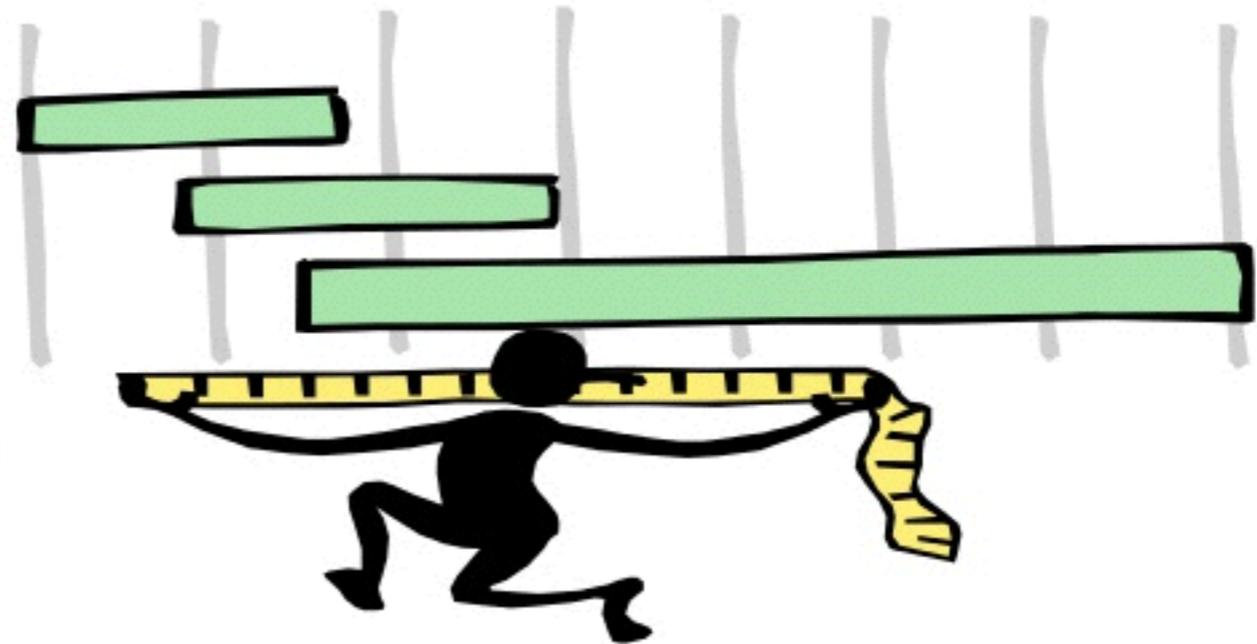
"If a thing exists, it exists in some amount; and if it exists in some amount, it can be measured."
–E. L. Thorndike (1914)

6. Background

- Background specifications

- are useful for presentation, prioritization and risk management
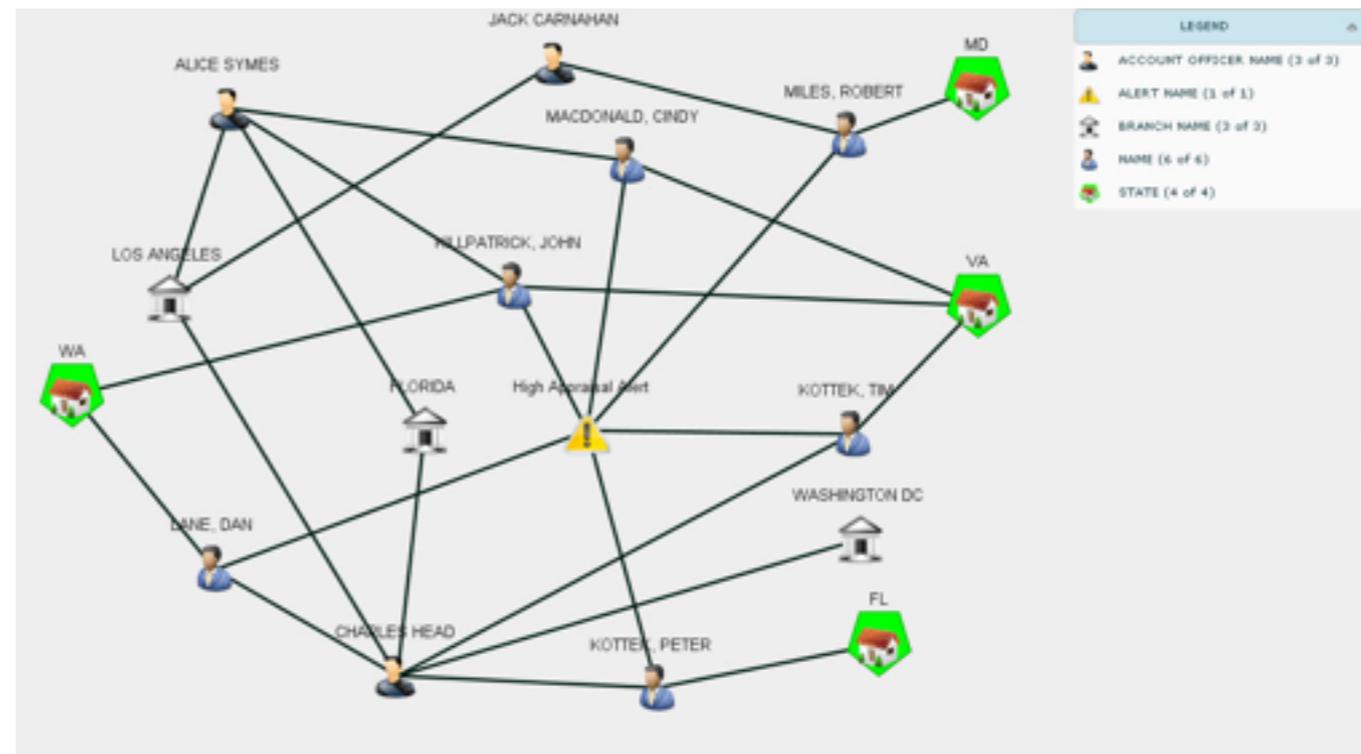
7. Two Basic Levels

- We need to specify both *tolerable* and *successful* levels for values
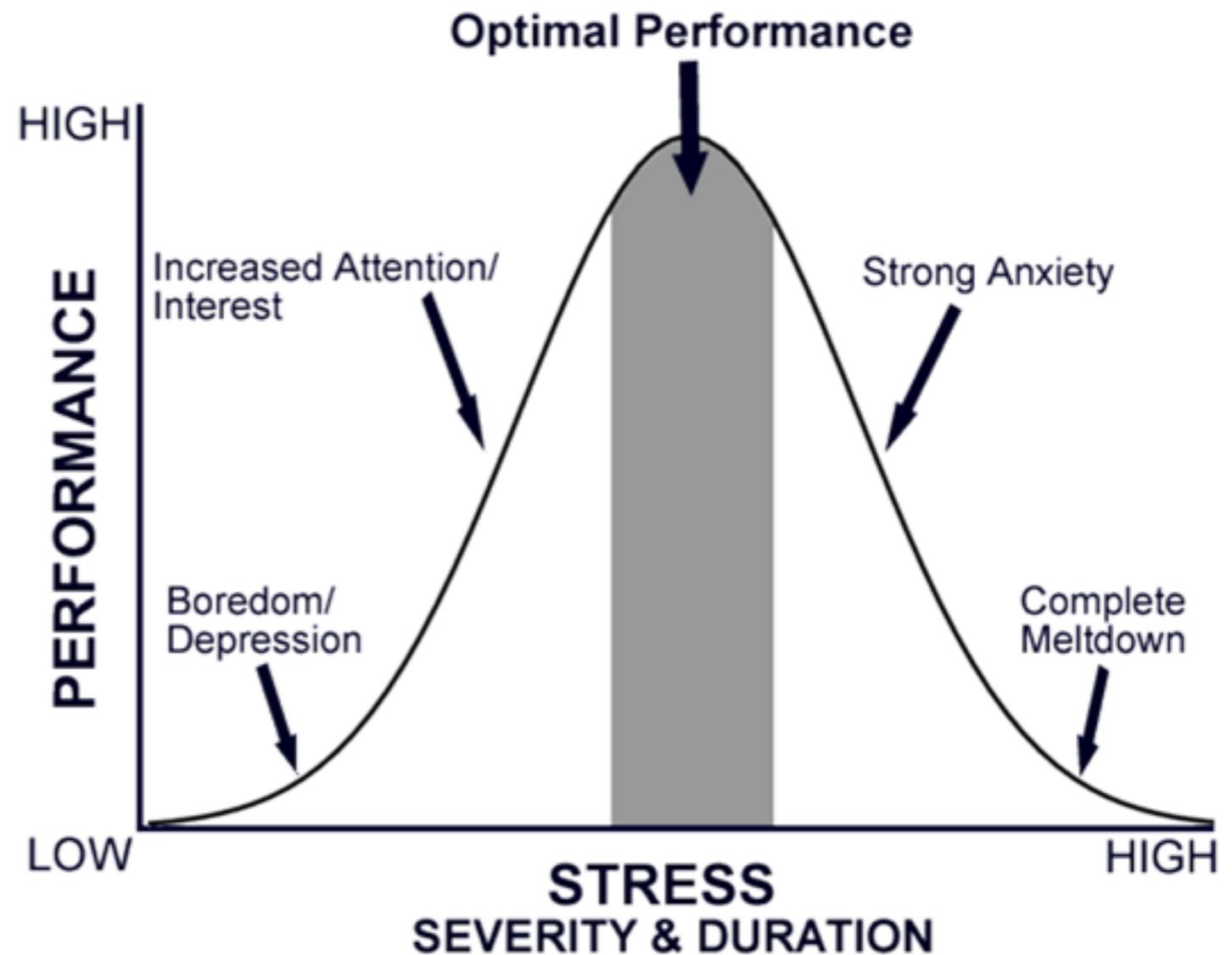
8. Supporting

- We need to specify requirement relationships

- to above-and-below levels

- of planning

"The Pyramid of Responsibility"

Higher Culpability

Layer #1
PERPETRATORS
~ Dictators ~

Layer #2
PROPAGATORS
Enforcers   Commenders   Benefitters

Layer #3
EXTINGUISHERS and REINFORCERS
Negators   Diverters   Silencers

Layer #4
ENABLERS and PAWNS
Avoiders   Applauders   Pawns

Higher Complicity

"The Pyramid of Responsibility" © 2014 Brad Sargent. All images licensed: © Scott Maxwell / Fotolia.

9. Spec Standards

- Requirements need to be quality checked against good standards

10. Who and Why?

- Sources and Justifications of requirements are needed

- for prioritization, presentation, change management and quality control.

Deeper Requirements Principles

1. Respect

- If you don't respect critical stakeholders needs, they will cause your project to fail, too late

2. Efficiency

- You cannot satisfy all stakeholder needs;

- just the profitable ones, within their time and financial constraints.

Efficiency is doing things right; effectiveness is doing the right things

--Peter F. Drucker

system

process

E_{in}

E_{out}

loss

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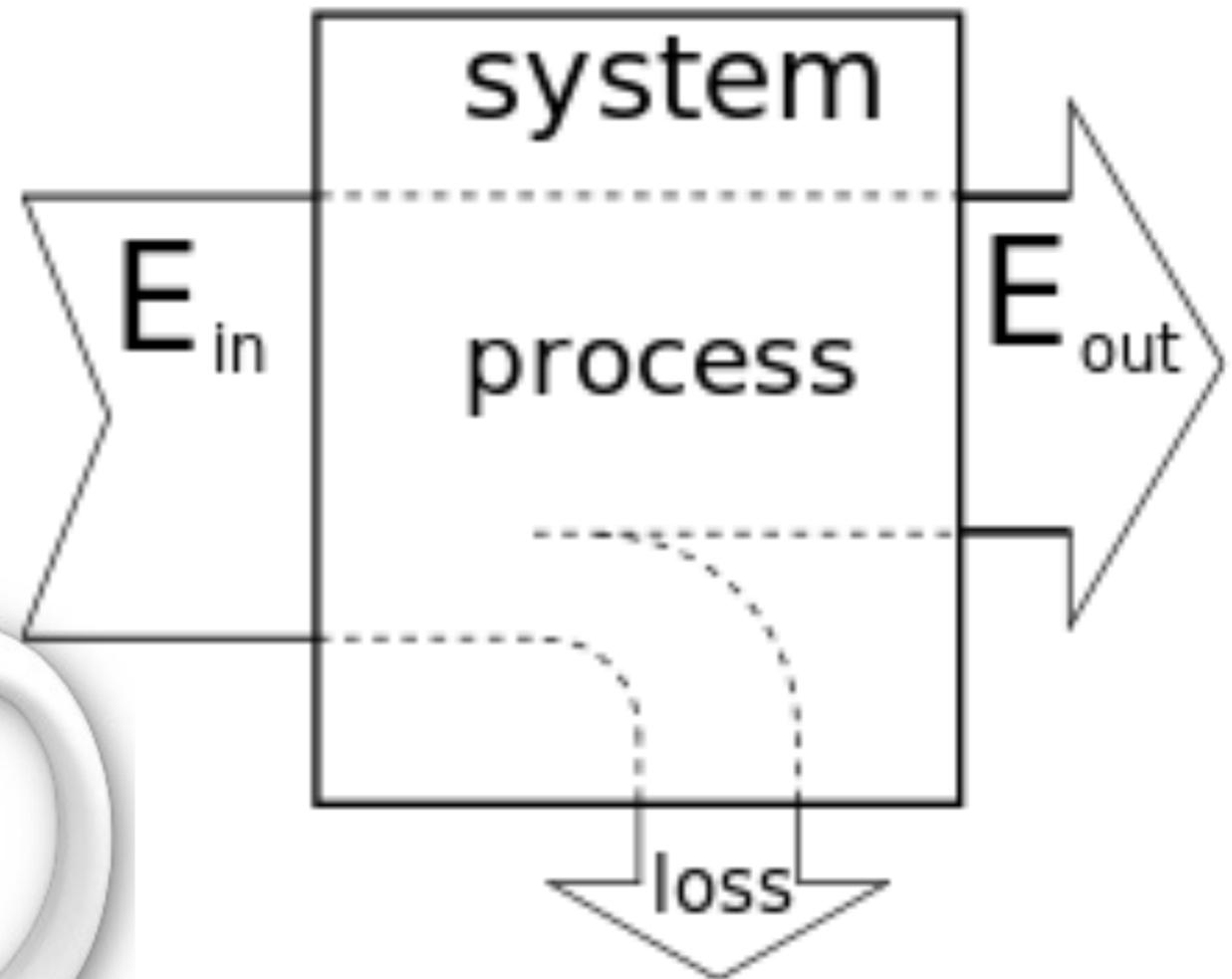
3. System-wide

- The most *critical* requirement are *stakeholder values*,

- because they

- *permeate the entire* system.

The External Environment

Economic, Political, Technology, Knowledge, Social

The Extended Environment

Customers, Suppliers, Partners, Shareholders

Assets & Liabilities

Financial Capital, Market, Human, Social, Technology Capital

System & Process

Core Work Enabling System (IT, HR, Financial)

Strategy & Leadership

System of Beliefs
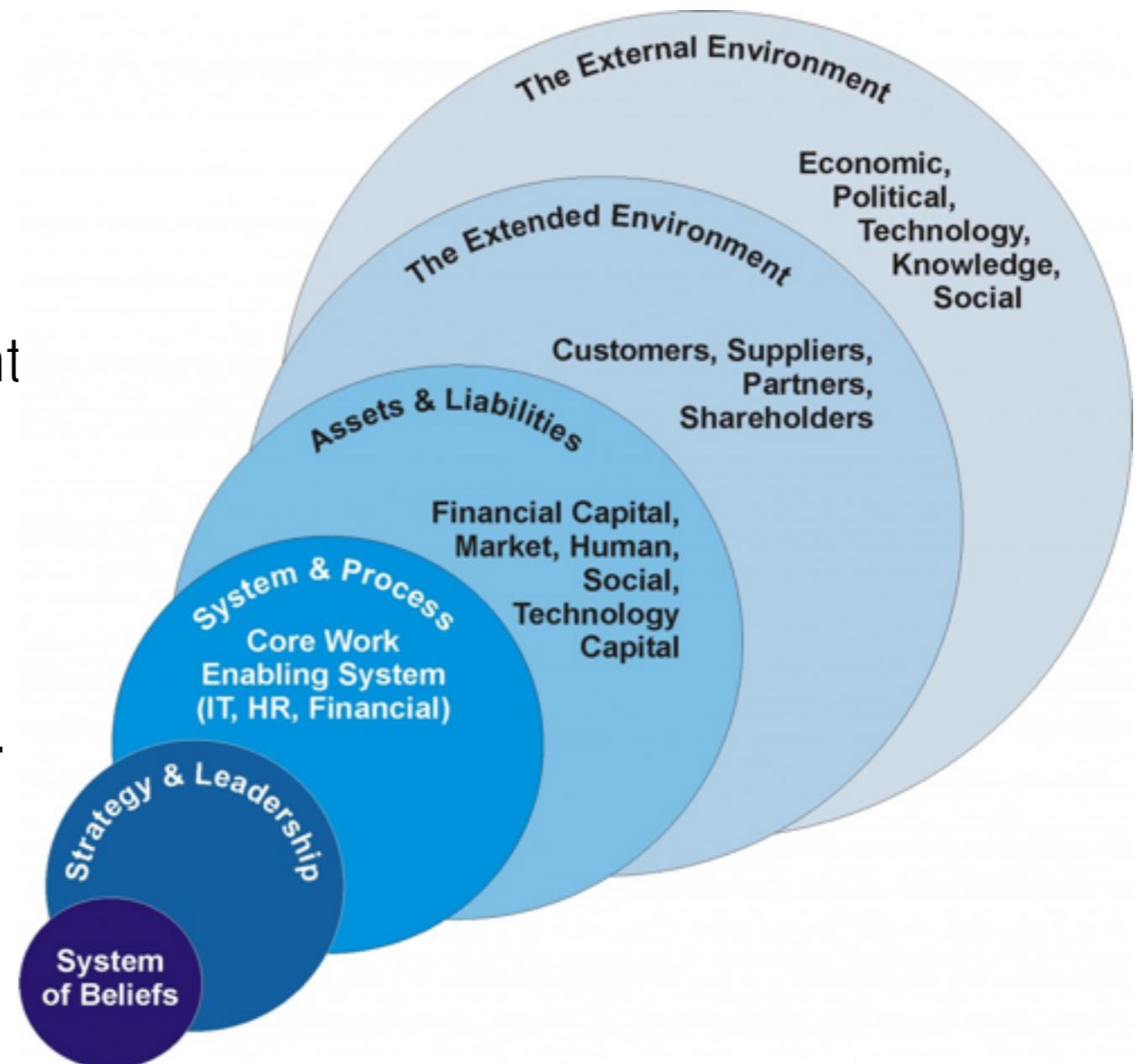
LmMiller.com, Larry Miller

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4. Limits to Value

- You cannot maximize a single value requirement,

- it must be sufficient-for-purpose, profitable, and balanced with other requirement needs.

What Employees Value at different levels of consciousness

| Levels of Consciousness		Primary Motivations
Service	7	Opportunities to serve others and care for the well-being of the Earth's life support systems
Making a difference	6	Opportunities to leverage your contribution by collaborating with other like-minded individuals
Internal cohesion	5	Opportunities for personal growth and development to support you in living your life purpose
Transformation	4	Opportunities and challenges by being made accountable for projects and processes
Self-esteem	3	Opportunities to grow professionally with support, feedback and coaching
Relationship	2	Opportunities to work in a congenial atmosphere where people care and respect each other
Surviving	1	A safe working environment and pay and benefits that are sufficient to take care of family

Barrett Values Centre

www.valuecentre.com
Powerful metrics that enable leaders to measure and manage cultures. 32

5. Survive and Thrive

- The first priority for requirements is to survive, to reach a tolerable level;

- the final value requirement priority is to succeed; to be good enough to win.

5. Design Value In

- *Architecture*, top level system design, is the primary means for satisfying critical stakeholder value requirements;

- and architecture needs to be adjusted based on real measured feedback until values and costs are balanced.

CONCLUSION

"Quality can not be tested into products; it has to be built In by design"

Joseph M Juran

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Quality Control Handbook

THIRD EDITION

J.M. JURAN, Editor-in-Chief; FRANK M. GRYNA, JR., and R.S. BINGHAM, JR., Associate Editors

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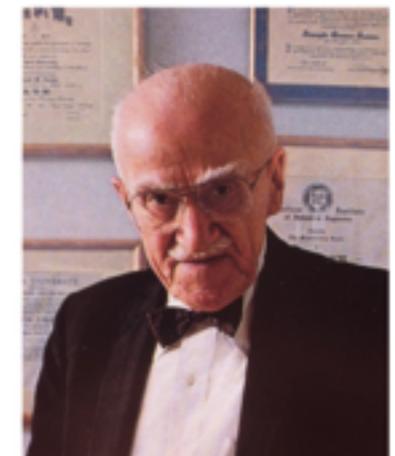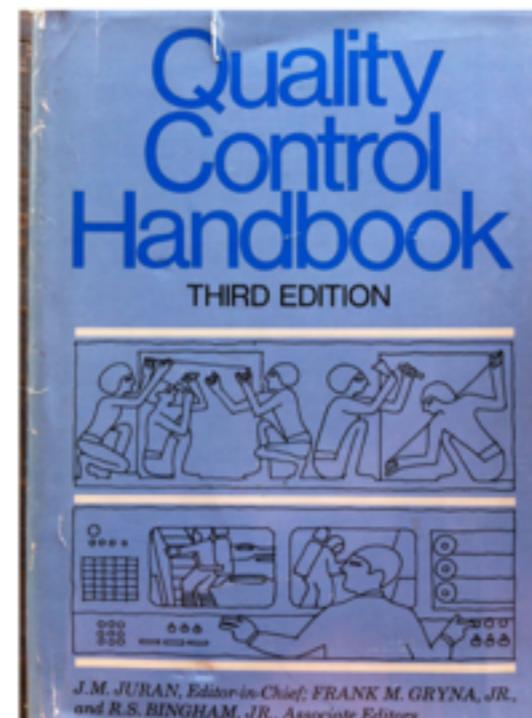
6. Background

- Most of a requirement specification should be background about the requirements;

- so we can understand each requirement, change it safely, manage risks, quality control it, and see its connections to all other system elements.
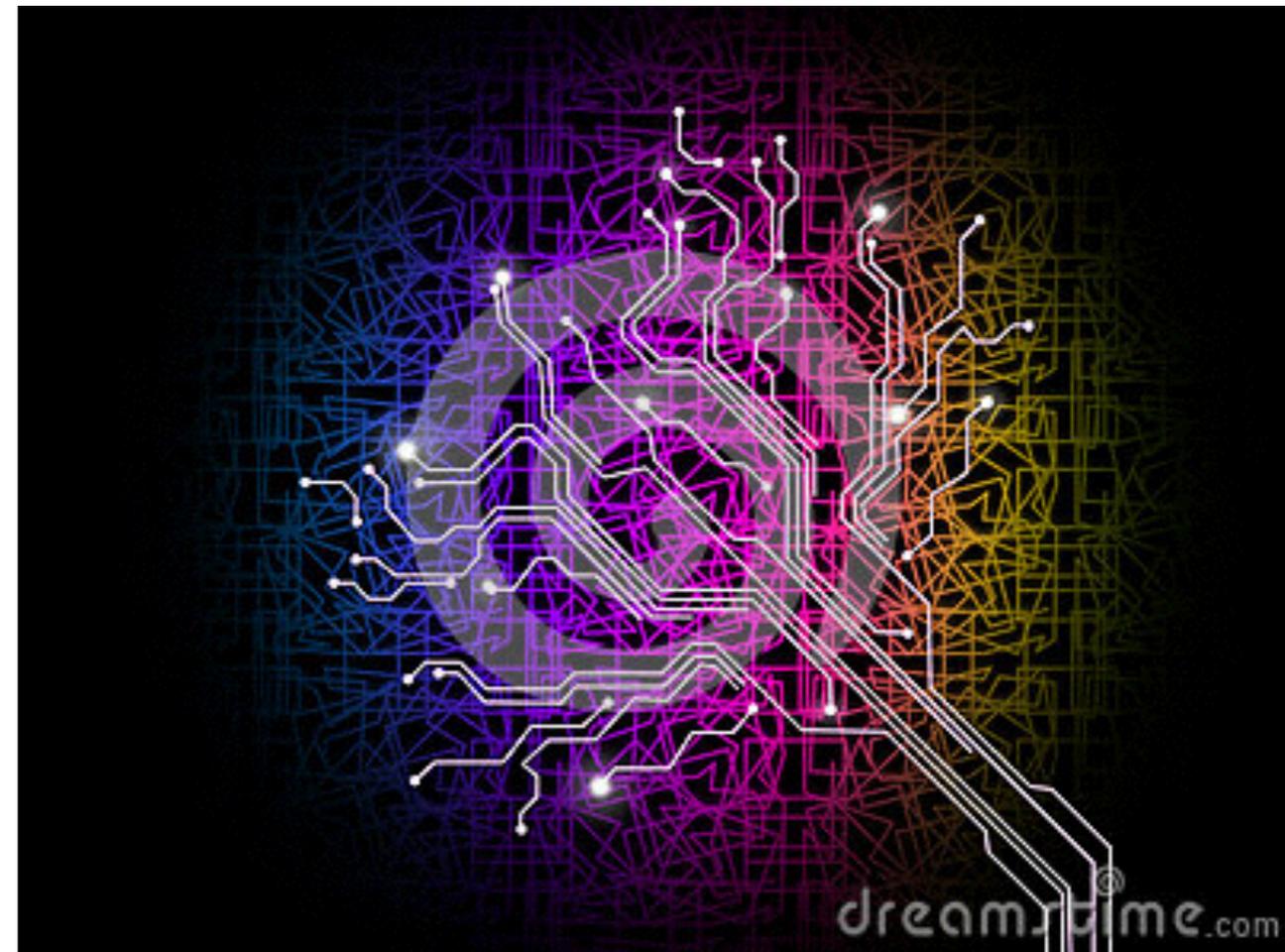
7. Stability

- Critical stakeholder value requirements can be stable until delivered, with periodic increases to meet new needs;

- requirements instability is an illusion caused by classifying bad technical design as 'requirements'

- see Richard Smith, Citigroup Case,for practical example.

Stability & Instability
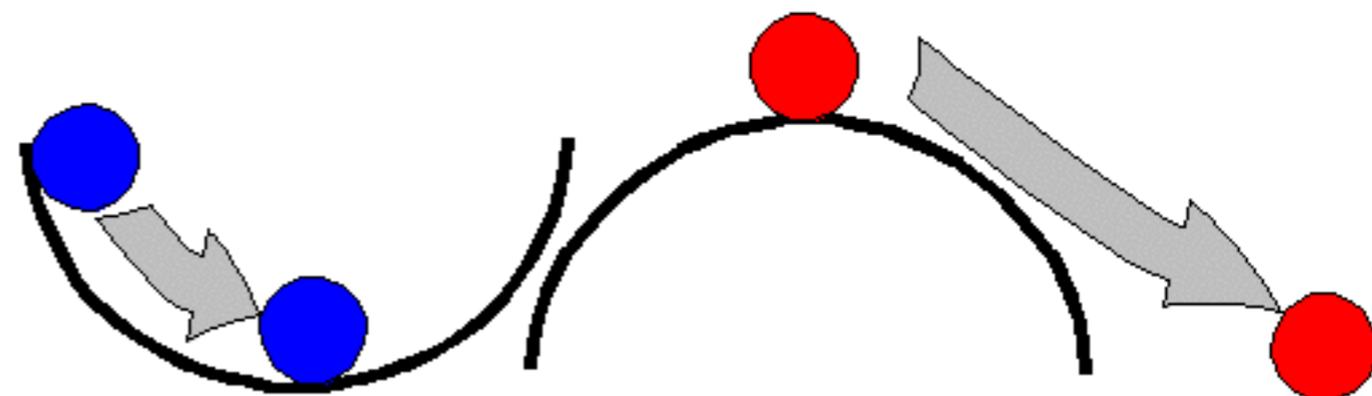
If it returns to it's original position it is STABLE

If it does NOT return to it's original position, it is UNSTABLE

Fig 29

8. Value Stream

- Value Requirements can be delivered early, frequently, and continuously;

- there is no need to wait for building a large new system; you can exploit the old ones and improve them, before new infrastructure is completed or delivered.

Value Stream Defined

Value Stream: All of the activities required to transform a customer request into a good or service.

Process   Process   Process

Customer Request   Customer Receipt
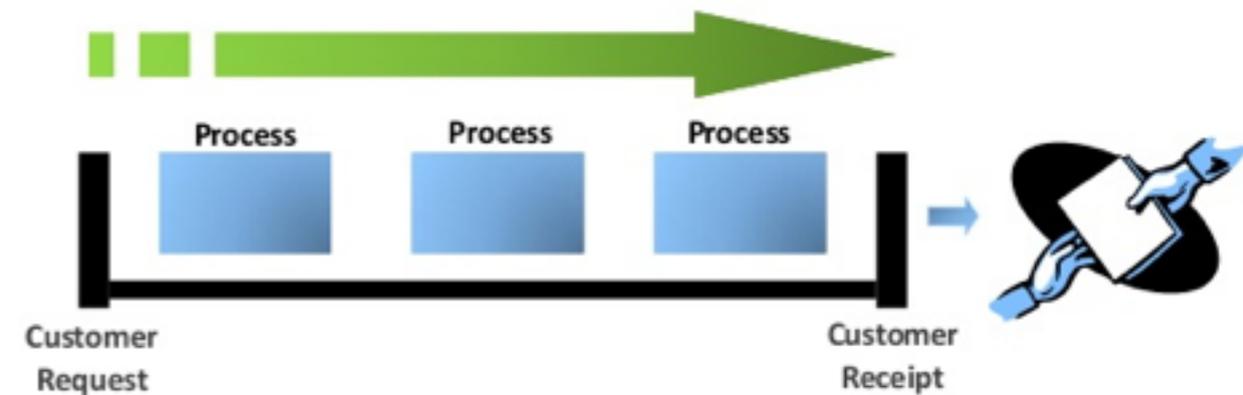
First defined in *The Machine That Changed the World*, James Womack, Daniel Jones, & Daniel Roos, 1990.

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9. Priority

- Critical stakeholder value requirements can be prioritized using different policies;

- for example highest value for resources first; or with regard to risk.

# 10. If at first you don't succeed...

- Most people can be expected to state their requirements at the wrong level:

- for example by stating a *means*, not their true *ends*, or by stating levels *above* their responsibility level.

LOCAL COMMUNITY-BASED ORGANIZATION REPRESENTING INDIGENOUS FOREST USERS

FOREST CONSERVATION AGENCY

- Demand for funds for income generation projects
- Demands to government to return the forest reserve to customary tenure

- No use of forest reserve by indigenous people
- Forest reserve protection to be maintained as it is

POSITION
What we say we want

INTEREST
What we really want

- Continued forest access for indigenous communities
- Improved sources of local income
- Involvement of communities in forest management decisions

NEEDS
What we must have

- Maintain influence in forest reserve management
- Reduce impacts of forest harvest
- Reserve management decisions are based on scientifically sound management principles
- Ability of agency to enforce management guidelines

- Food security
- Government recognition of local cultural values and customary use of the forest
- Indigenous people need money to meet basic family needs

- Long-term protection of forest biodiversity
- Continuation of funding for forest programmes
- Retain agency reputation in forest conservation

For more detail

Value Planning

- **tinyurl.com/ValuePlanning**

TOM GILB
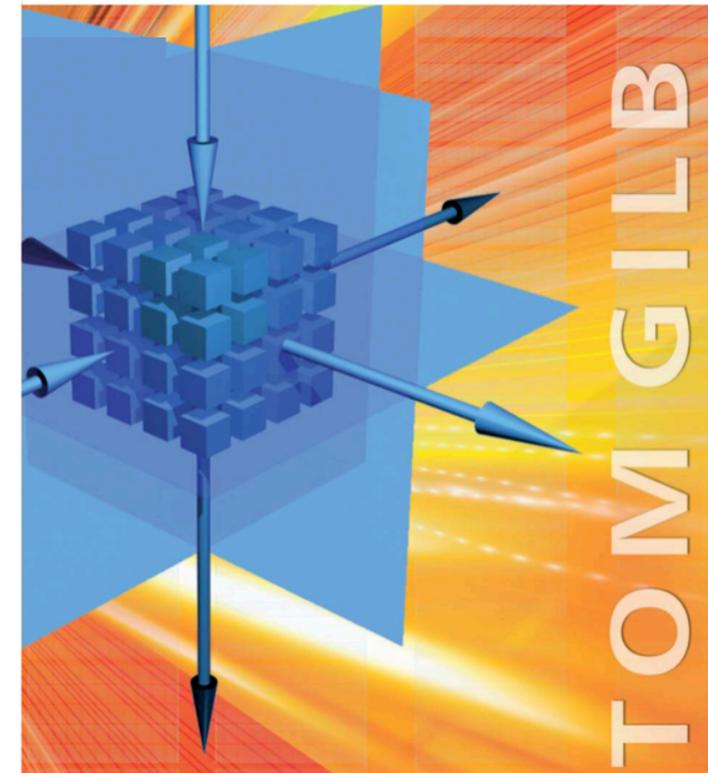
Practical Tools
for
Clearer Management Communication