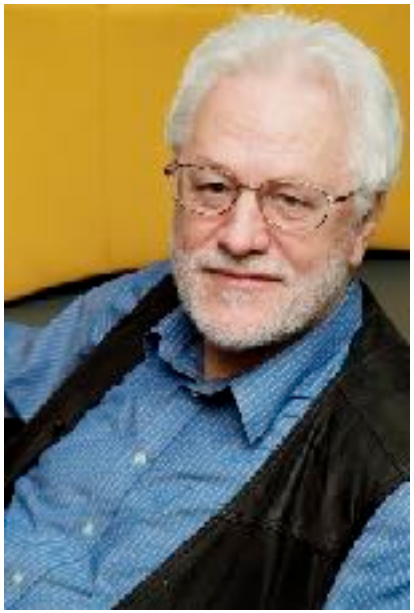
What are the Dangers of Current Agile Practices (like Scrum and others), and How Can We Fix Them?



Tom Gilb,
www.Gilb.com

LMU

These slides will ultimately be found at CONCEPTS.GILB.COM/FILE24 slides

for the moment see:

https://www.dropbox.com/s/y017zv1sq0gtiwy/What%20are%20the%20Dangers%20of%20Current%20Agile%20Practices%2C%20and%20How%20Can%20We%20Fix%20Them%20201117%20LMU.pptx?dl=0

Summary

- The most powerful idea in Agile is rapid delivery and feedback
  But we fail to exploit this opportunity to really be Agile

  Agile has techie focus. Not stakeholder value focus. Not enough “people & change” focus! It’s easy, common sense – but not trivial! This guarantees failure.

So, what are Agile methods missing?

- Stakeholder Focus
  - Real projects have dozens of stakeholders
    - Not just a customer in the next room
    - Not just a user with a use case or story
- Results Focus
  - It is not about writing code, it is about delivering value to stakeholders
  - It is not about programming, it is about making **systems** work, for real people
- Systems Focus
  - It is not about coding – (*again* ☺)
  - It is about reuse, data, hardware, training, motivation, sub-contracting, Outsourcing, help lines, user documentation, user interfaces, security, etc.
  - So, a systems engineering scope is necessary to deliver *results*.
  - Systems Engineering needs **quantified** performance and quality objectives
    - To synchronize all necessary disciplines, so that they deliver the results.

Scrum and Evo

- "Tom Gilb invented Evo, arguably the first Agile process.
- He and his son Kai have been working with me in Norway to align what they are doing with Scrum.
- Kai has some excellent case studies where he has acted as Product Owner. He has done some of the most innovative things I have seen in the Scrum community"
  - Jeff Sutherland, co-inventor of Scrum, 5Feb 2010 in Scrum Alliance Email (recommending us to be invited to Scrum Gathering, Orlando in March 2010, which we did)
  - .http://bit.ly/a5Fd1T #scrum #agile Sutherland credits Gilb in Roots of Scrum slide #accu2010

Gilb credited as Root

First Attempt to Teach a Scrum Front End Using Evo ideas

- A 1-day front-end for 'Product Managers' before a 1-day Scrum Overview course for Product Managers
- Commissioned by and co-authored by Gabriella Benefield (Scrum Alliance) 2009
- Detailed training exercises available at
  - http://www.gilb.com/tiki-download_file.php?fileId=353
  - Value Planning slides for Scrum (Oct 09)
- The following dozen slides are Tom's attempt to describe the relationship of
  - Scrum and the Value Planning front end
  - based on Evo
  - These slides were not part of the training G. B. and I held in 2009)

A better 'front end' to Scrum, and other agile variants

BASED ON IDEAS FROM THE 'EVO' METHOD

Efficient Value Organisation/Options

Evolving Value in Organizations

Evolving Value Optimization ,

Efficient Value Optimization

= EVO

Value-Driven Scrum

(one of your options for smart Product Ownership)

- **Defined As:**
  - **The real world interface to the Scrum Product Owner**
  - **The Businesses 'Organizational Value' Management**
  - **The Business Function Management**
  - **The Technical Architecture Management**
- **All in a pipeline to the Scrum Product Owner (PO)**
  - **Fully designed, from the *organizational* point of view**
  - **Allowing additional design at the level of *programming*, chunking, and data**
    - **By the Scrum Team**
  - **Prioritized from the *Organizational* Point of View**

The ‘Scrum Product Owner’

- Needs to get enough information about the product
  - To allow the Scrum team to build, test, make technical detailed decisions
- Here is one set of tools to allow the Product Owner
  - Perhaps, in larger environments, a PO ‘team’
  - To collect information, to plan, so that
    - **We really deliver the best value for money, as soon as possible**

What is new?
What is Value-Planning (VP) ?

- **Dominant focus on Value Delivery Management** –
  - Not from a programming point of view
  - But from a business and management non technical point of view
  - Which critical value improvements do we need first, and next
- Stakeholder Values-and-Priorities Integration*
  - Of management, marketing, IT, Systems Engineering,
  - Including Sales, Customer Service and ALL Critical Stakeholders
- **Systems View** – Systems Architecture – Systems Engineering

- * integration: defined as: Alignment and reasonable balance of competing interests, through intelligent dynamic prioritization.

See ppt note for depth papers on priority, including:
http://www.gilb.com/DL60

Value Driven Scrum

- System Owner

- Stakeholders Values
- Business Values
- System Functions

- Product Owner

- Build
- Test
- Maintain
- Detailed Technical Design

Value Decision Tables

Business Goals	Stakeholder Value 1	Stakeholder Value 2
Business Value 1	-10%	40%
Business Value 2	50%	10%
Resources	20%	10%

Stakeholder Val.	Product Value 1	Product Value 2
Stakeholder Value 1	-10%	50 %
Stakeholder Value 2	10 %	10%
Resources	2 %	5 %

Product Values	Solution 1	Solution 2
Product Value 1	-10%	40%
Product Value 2	50%	80 %
Resources	1 %	2 %

Prioritized List
1. Solution 2
2. Solution 9
3. Solution 7

Scrum Develops

We measure improvements
Learn and Repeat

Value Decision Tables

Business Goals	Training Costs	User Productivity
Profit	-10%	40%
Market Share	50%	10%
Resources	20%	10%

Stakeholder Val.	Intuitiveness	Performance
Training Costs	-10%	50 %
User Productivity	10 %	10%
Resources	2 %	5 %

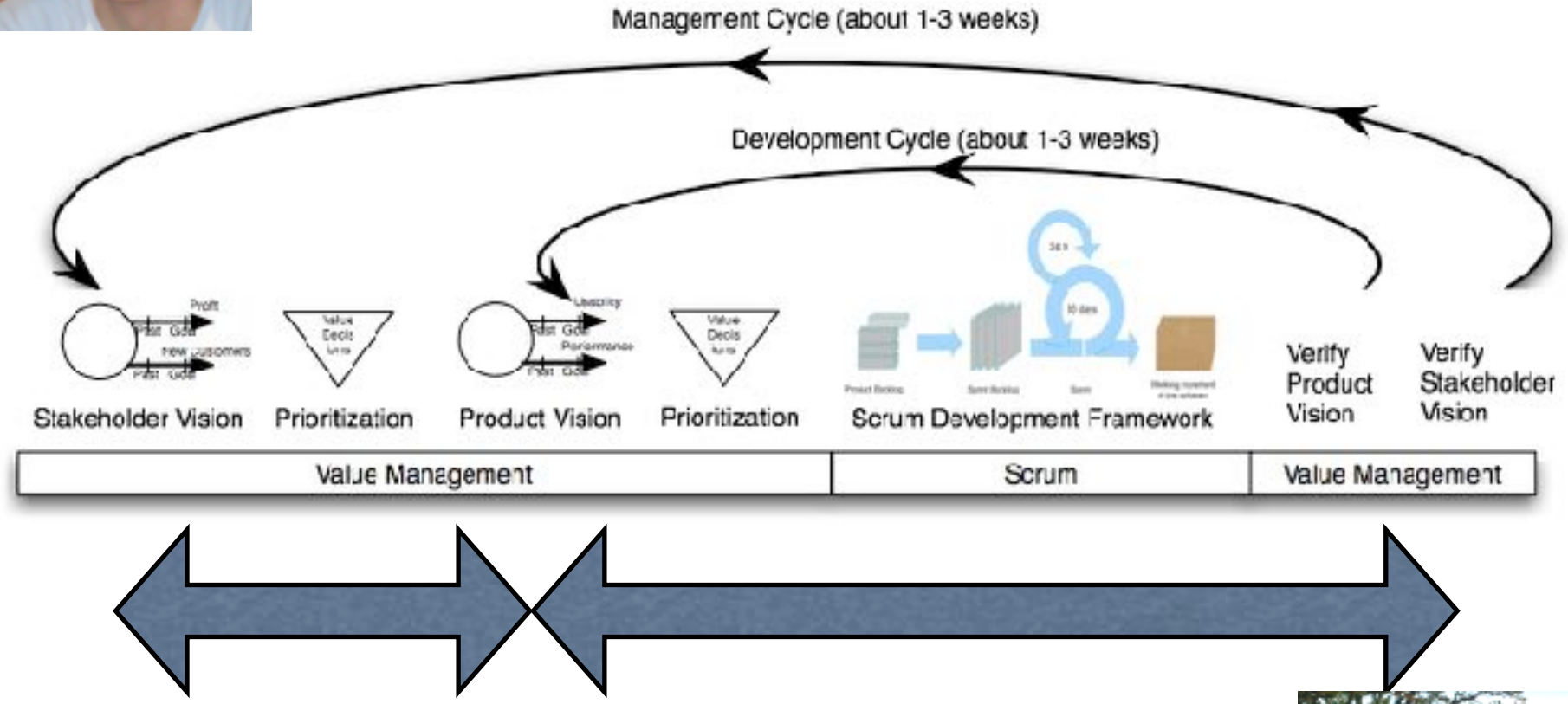
Product Values	GUI Style Rex	Code Optimize
Intuitiveness	-10%	40%
Performance	50%	80 %
Resources	1 %	2 %

[Jeffsutherland Twitter: Very cool product backlog management by Tom and Kai Gilb http://ad.vu/2h4d *Sat 28 March 2009*]

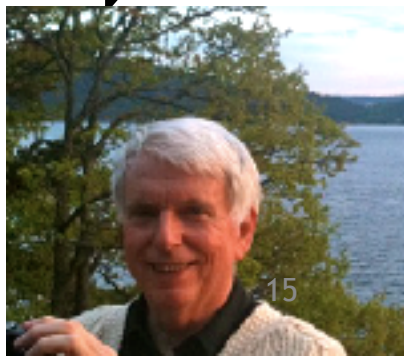
Prioritized List
1. Code Optimize
2. Solution 9
3. Solution 7

Scrum Develops

We measure improvements Learn and Repeat



[Jeffsutherland Twitter: Very cool product backlog management by Tom and Kai Gilb http://ad.vu/2h4d](#) *Sat 28 March 2009*



Gilb's Ten Key Agile Principles

to avoid bureaucracy and give creative freedom

1. Control projects by quantified critical-few results. 1 Page total !

   (not stories, functions, features, use cases, objects, ..)

2. Make sure those results are business results, not technical

   Align your project with your financial sponsor's interests!

3. Give developers freedom, to find out *how* to deliver those results
4. Estimate the impacts of your designs, on *your* quantified goals
5. Select designs with the best impacts in relation to their costs, do them first.
6. Decompose the workflow, into weekly (or 2% of budget) time boxes
7. Change designs, based on quantified experience of implementation
8. Change requirements, based in quantified experience, new inputs
9. Involve the stakeholders, every week, in setting quantified goals
10. Involve the stakeholders, every week, in *actually using* increments

http://www.gilb.com/tiki-download_file.php?fileId=431
Agile Principles in AgileRecord.com, no. 3, 2010

Gilb's Agile Principles

to avoid bureaucracy and give creative freedom (1 sentence summary)

Main Idea:

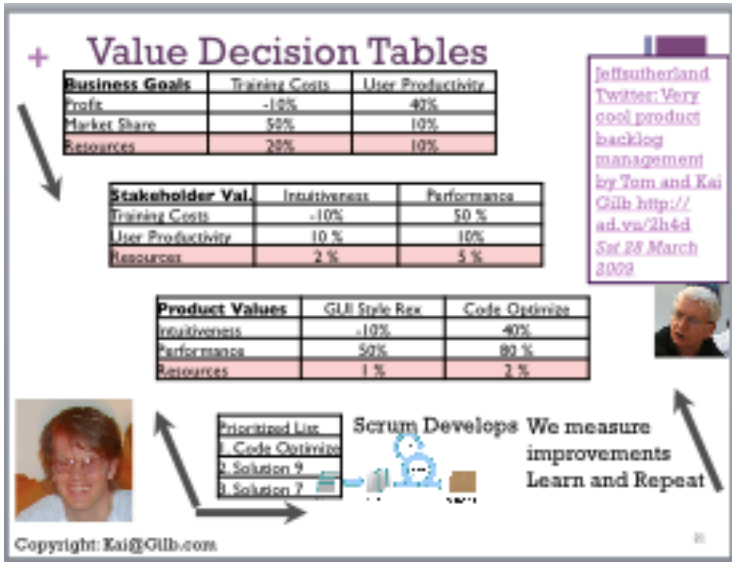
Get early, and frequent, real, stakeholder net-<u>value</u> - delivered

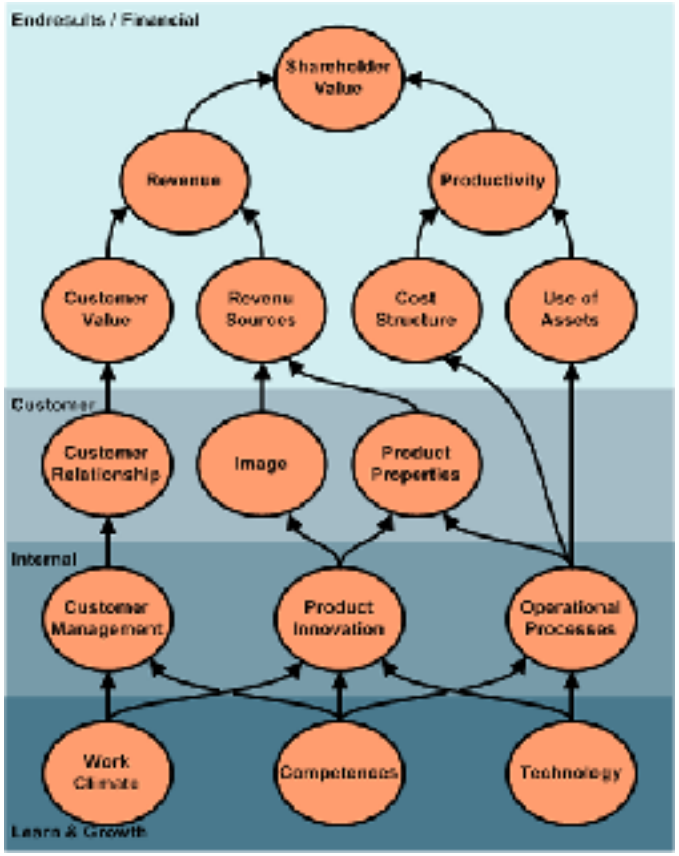
	VALUE TO CREATE	VALUE TO PRESERVE	VALUE TO SACRIFICE
EMPLOYEES			
CUSTOMERS			
SUPPLIERS AND PROFESSIONAL ADVISERS			
INVESTORS			
TRADES UNIONS			
GOVERNMENT			
MEDIA			
COMMUNITY			
OTHER STAKEHOLDER GROUPS			

Deliver Value !

1. Control projects by quantified critical-few results. 1 Page total !

(not stories, functions, features, use cases, objects, ..)





NOT LIKE THIS! Project Objectives 'Unquantified few'

Real Example of ***Lack*** of Scales

- **Defined** Scales of Measure:
  - Demands ***comparative*** **thinking.**
  - Leads to requirements that are unambiguously **clear**
  - Helps Team be **Aligned** with the Business

*1. Central to The Corporations business strategy is to be the world's **premier** integrated_ <domain> service **provider**.*

*2. Will provide a much more efficient **user** experience*

*3. Dramatically scale back the **time** frequently needed after the last data is acquired to time align, depth correct, splice, merge, recompute and/ or do whatever else is needed to **generate** the desired **products***

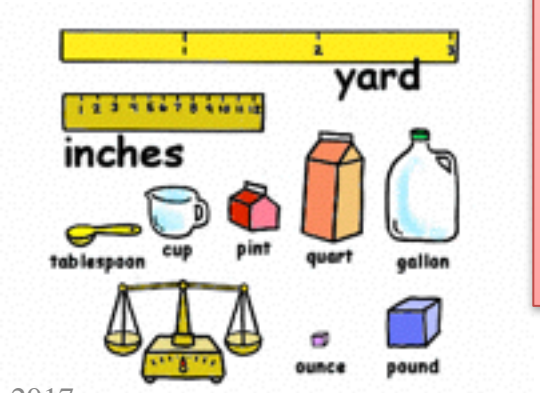
*4. Make the system much **easier** to **understand** and **use** than has been the case for previous system.*

*5. A primary goal is to provide a much more **productive** system **development** environment than was previously the case.*

*6. Will provide a richer set of functionality for **supporting** next-generation logging **tools** and applications.*

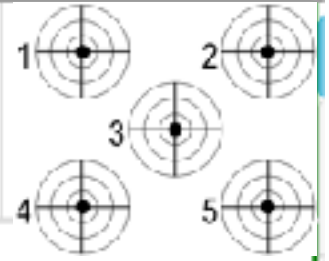
*7. **Robustness** is an essential system requirement (see rewrite in example below)*

*8. Major improvements in **data quality** over current practices*



This lack of clarity cost them $100,000, 000

More like this! (Real case).



Crime Rate

Business Value

(by gilbguest20 - a year ago)

Is Part Of: Security Value

Ambition Level: Be in the top 5 cities for lowest [Crime] rates in UK

Scale: % of #Households# in a London [Borough] that report #Burglary# in the preceding 12 months

Meter:

Meter: how to Test during development, delivery,

Meter: Test in operation, where are we on the Scale

Stakeholders: Stakeholder X

Stakeholders: Stakeholder Y

Issue:

Record: Level: **20** % [Borough = { <All> }] When 2015

Tolerable: Level: **15** % [Borough = { <All> }] When 2017

Wish: Level: **10** % [Borough = { <All> }] When 2017

2. Make sure those results are <u>business</u> results, not technical

Align your project with your financial sponsor's interests!

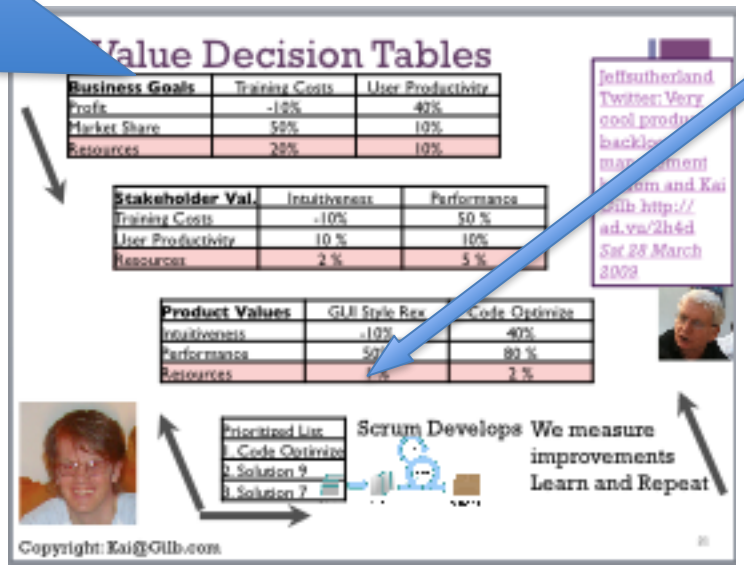
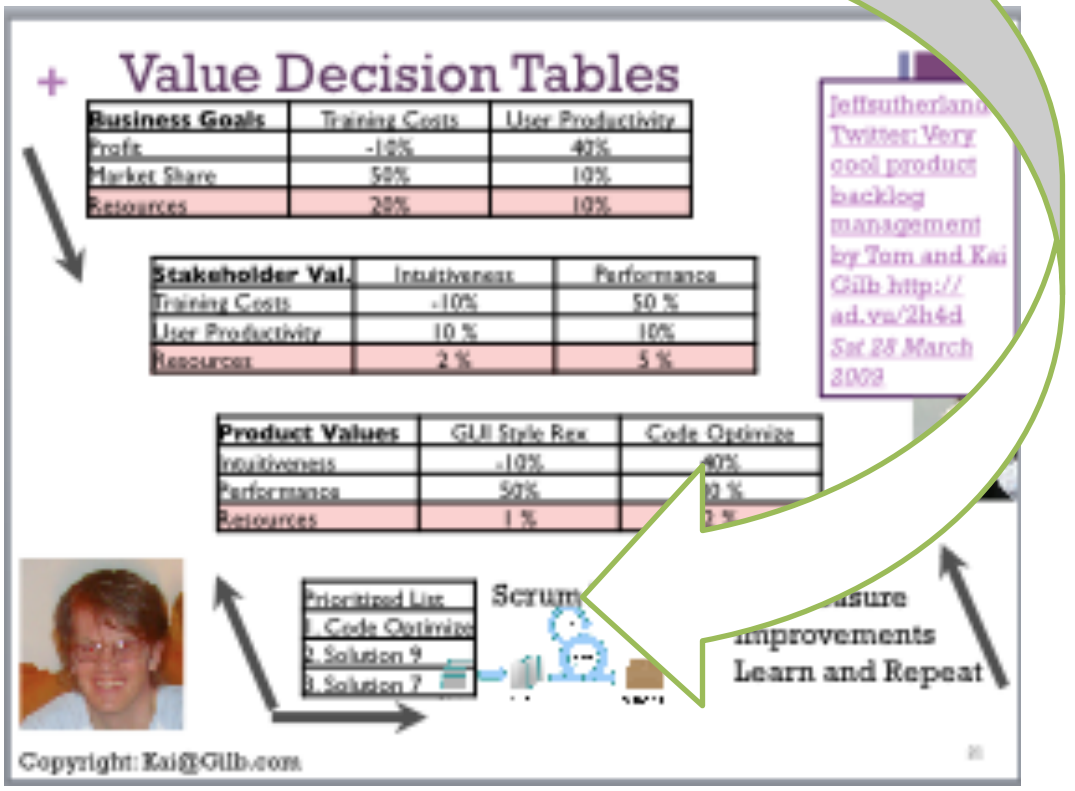


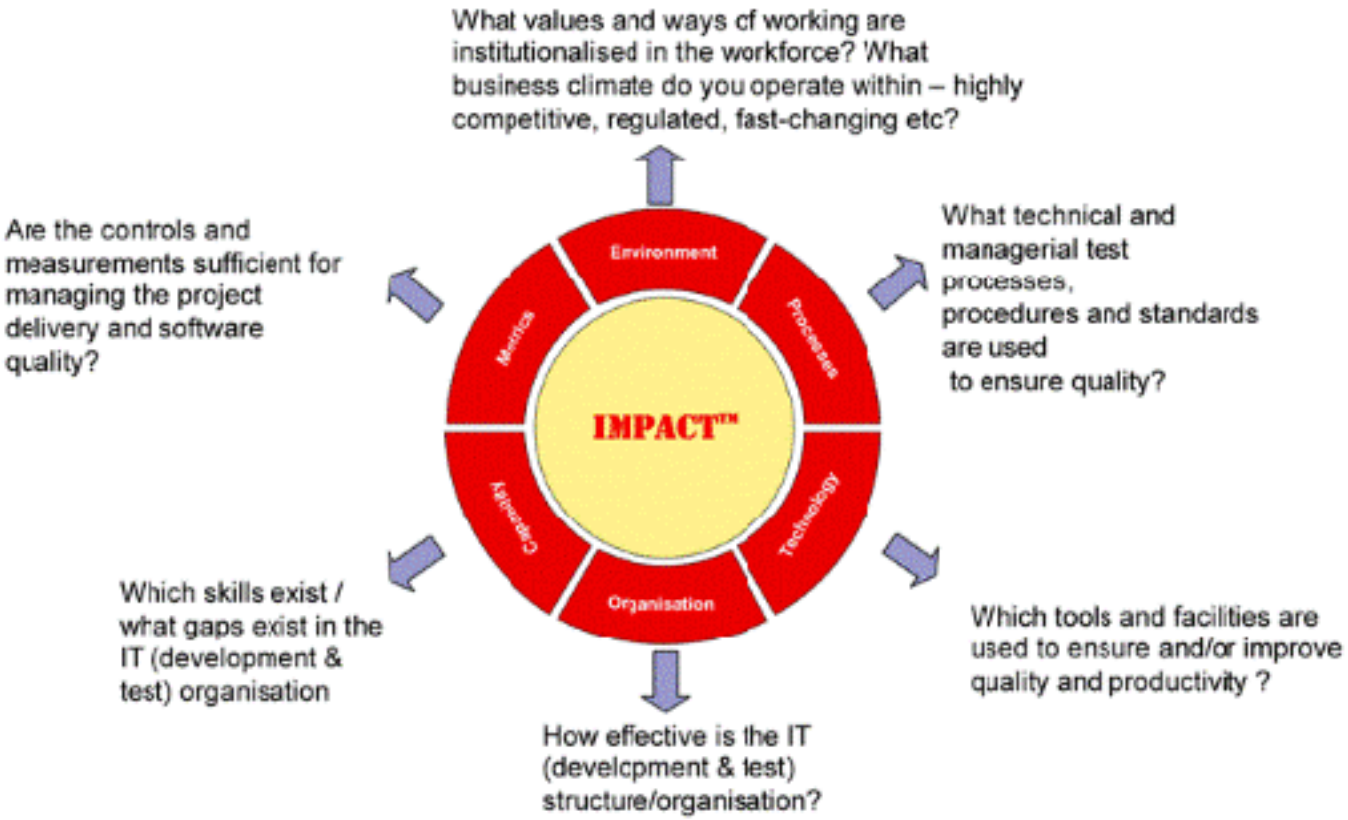
Figure 1. The "Mother of All Models". © 2006 MarketingNPV LLC. All Rights Reserved.

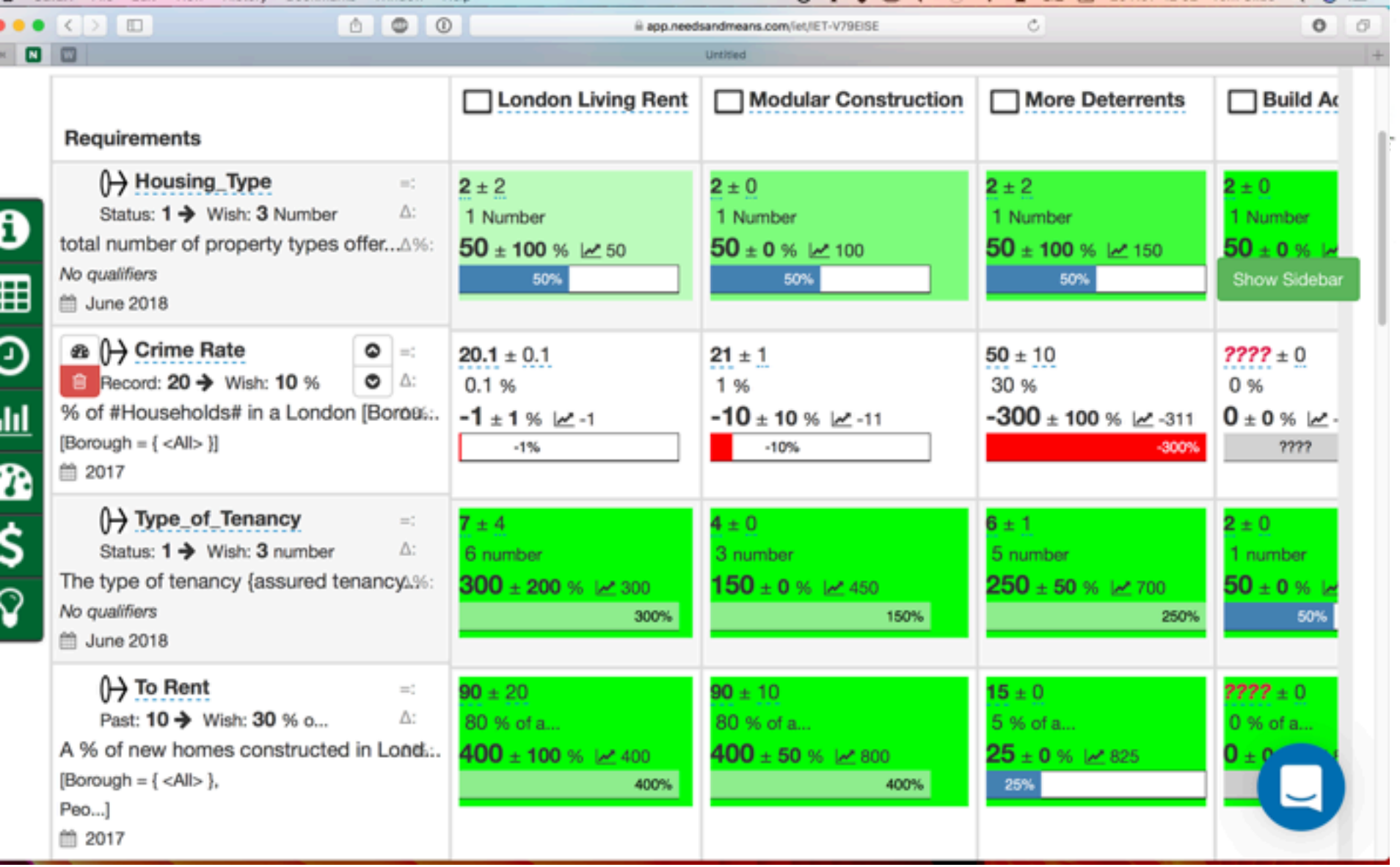
3. Give developers freedom, to find out *how* to deliver those results

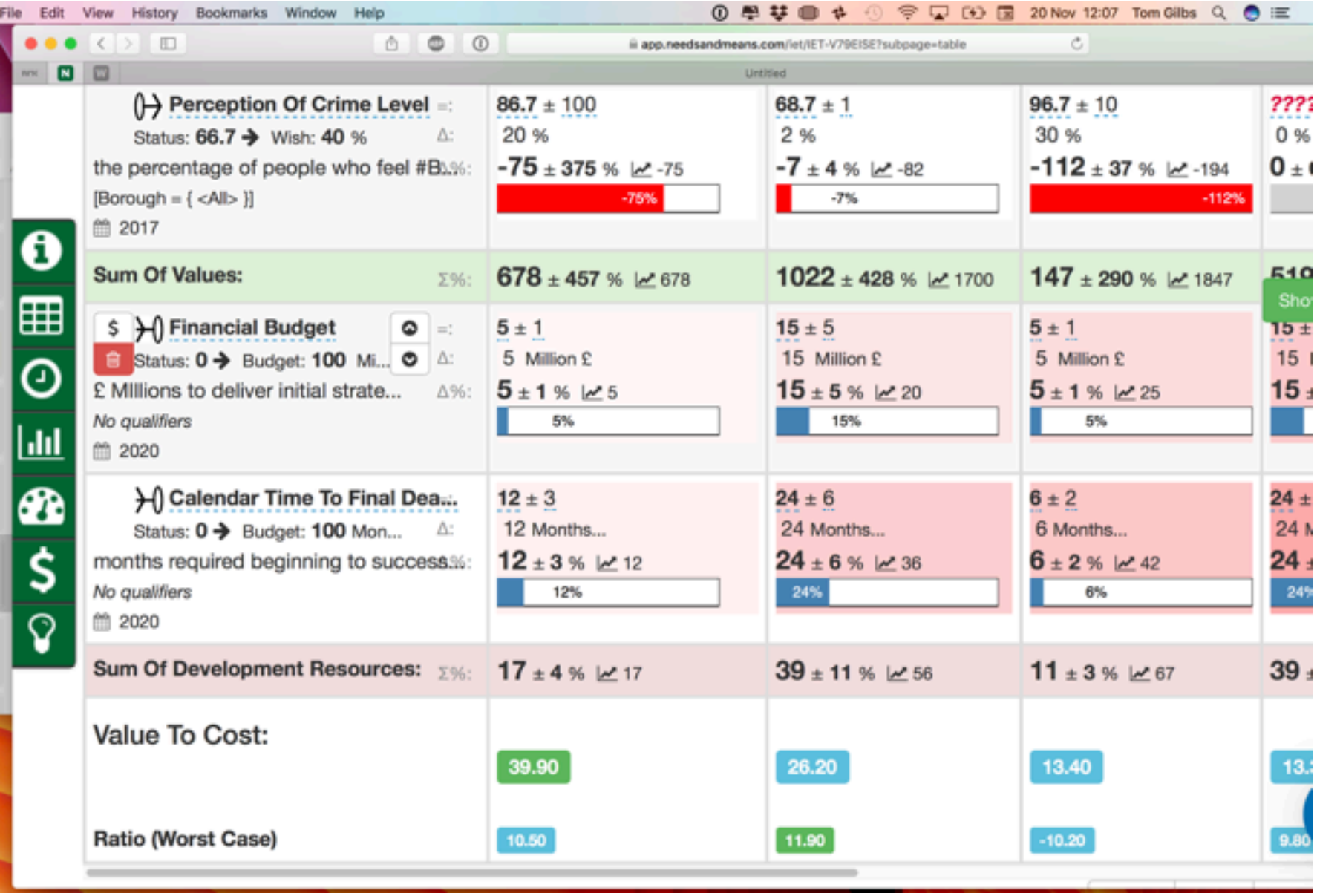


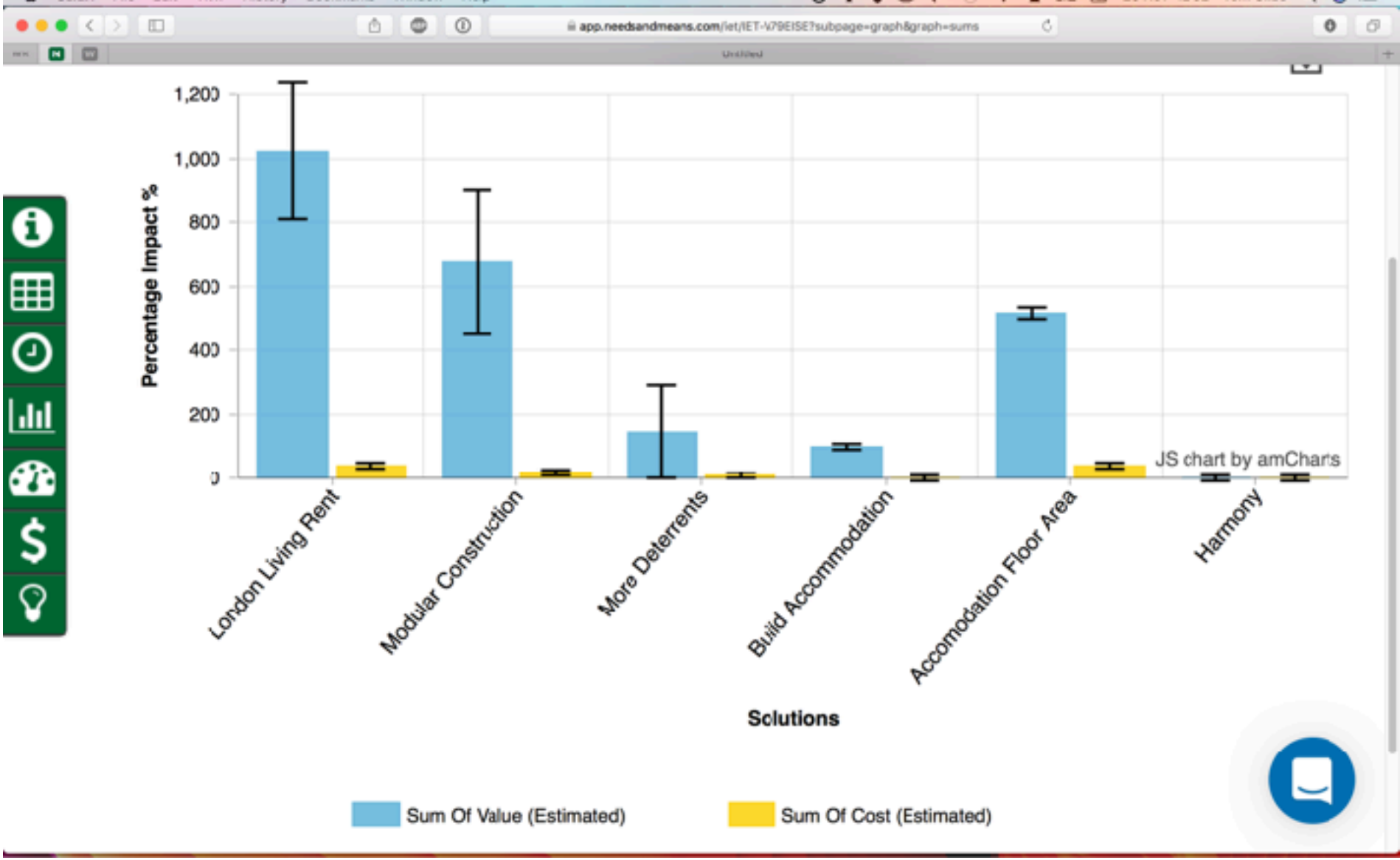
4. Estimate the impacts of your designs, on *your* quantified goals

If you cannot, then your knowledge is of a meagre and unsatisfactory kind (Lord Kelvin)



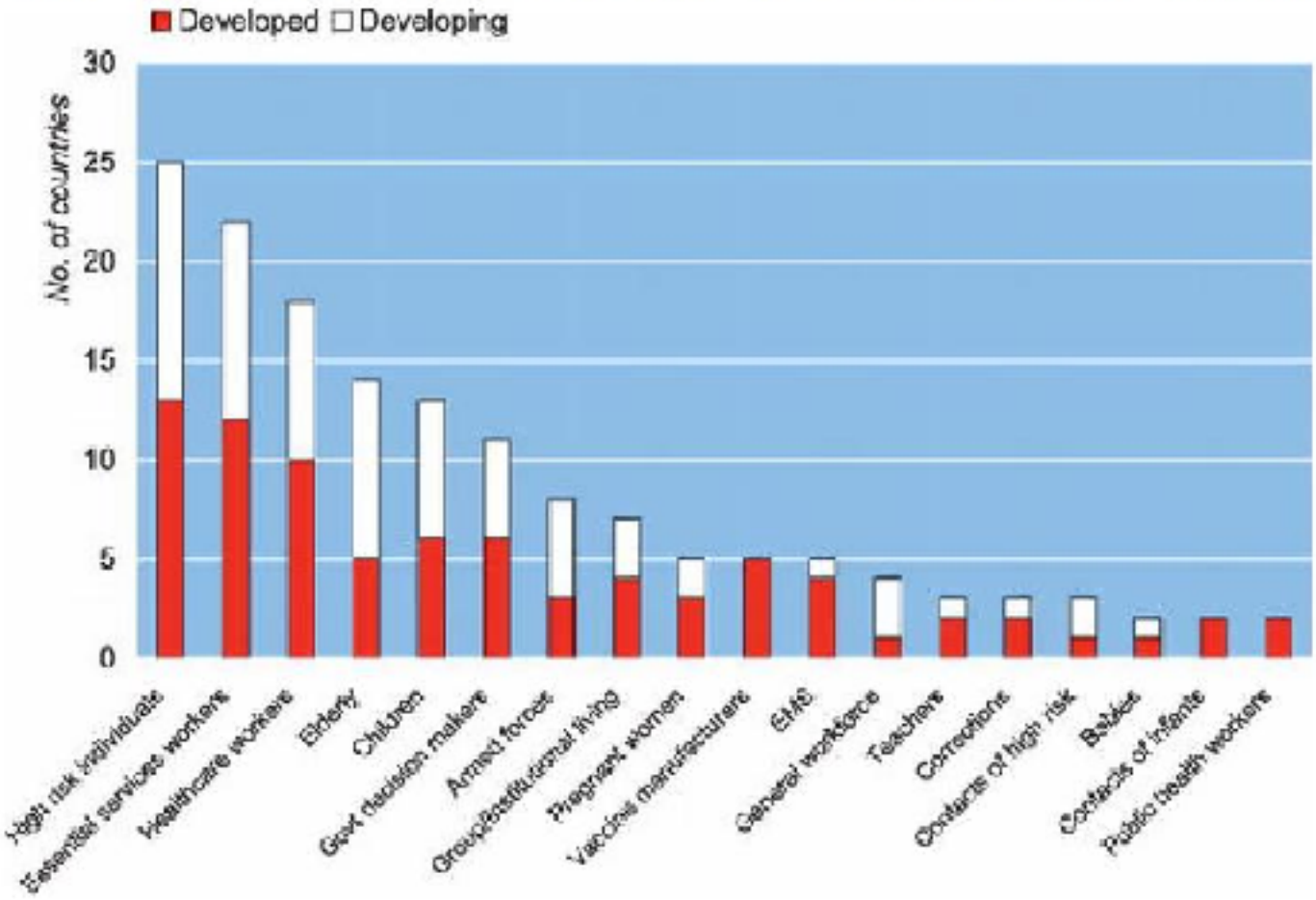

app.needsandmeans.com/let/IET-V79EISE
Untitled
Requirements
London Living Rent
Modular Construction
More Deterrents
Build Ac
Housing_Type
Status: 1 → Wish: 3 Number
total number of property types offer...
No qualifiers
June 2018
2 ± 2
1 Number
50 ± 100 % 50
50%
2 ± 0
1 Number
50 ± 0 % 100
50%
2 ± 2
1 Number
50 ± 100 % 150
50%
2 ± 0
1 Number
50 ± 0 %
Show Sidebar
Crime Rate
Record: 20 → Wish: 10 %
% of #Households# in a London [Borou...
[Borough = { <All> }]
2017
20.1 ± 0.1
0.1 %
-1 ± 1 % -1
-1%
21 ± 1
1 %
-10 ± 10 % -11
-10%
50 ± 10
30 %
-300 ± 100 % -311
-300%
???? ± 0
0 %
0 ± 0 %
????
Type_of_Tenancy
Status: 1 → Wish: 3 number
The type of tenancy {assured tenancy...
No qualifiers
June 2018
7 ± 4
6 number
300 ± 200 % 300
300%
4 ± 0
3 number
150 ± 0 % 450
150%
6 ± 1
5 number
250 ± 50 % 700
250%
2 ± 0
1 number
50 ± 0 %
50%
To Rent
Past: 10 → Wish: 30 % o...
A % of new homes constructed in Lond...
[Borough = { <All> },
Peo...]
2017
90 ± 20
80 % of a...
400 ± 100 % 400
400%
90 ± 10
80 % of a...
400 ± 50 % 800
400%
15 ± 0
5 % of a...
25 ± 0 % 825
25%
???? ± 0
0 % of a...


File Edit View History Bookmarks Window Help
20 Nov 12:07 Tom Gilbs
app.needsandmeans.com/iet/IET-V79EISE?subpage=table
Untitled
Perception Of Crime Level
Status: 66.7 → Wish: 40 %
the percentage of people who feel #B...
[Borough = { <All> }]
2017
86.7 ± 100
20 %
-75 ± 375 % -75
-75%
68.7 ± 1
2 %
-7 ± 4 % -82
-7%
96.7 ± 10
30 %
-112 ± 37 % -194
-112%
0 %
Sum Of Values:
678 ± 457 % 678
1022 ± 428 % 1700
147 ± 290 % 1847
Financial Budget
Status: 0 → Budget: 100 Mi...
£ Millions to deliver initial strate...
No qualifiers
2020
5 ± 1
5 Million £
5 ± 1 % 5
5%
15 ± 5
15 Million £
15 ± 5 % 20
15%
5 ± 1
5 Million £
5 ± 1 % 25
5%
Calendar Time To Final Dea...
Status: 0 → Budget: 100 Mon...
months required beginning to success...
No qualifiers
2020
12 ± 3
12 Months...
12 ± 3 % 12
12%
24 ± 6
24 Months...
24 ± 6 % 36
24%
6 ± 2
6 Months...
6 ± 2 % 42
6%
Sum Of Development Resources:
17 ± 4 % 17
39 ± 11 % 56
11 ± 3 % 67
Value To Cost:
39.90
26.20
13.40
Ratio (Worst Case)
10.50
11.90
-10.20

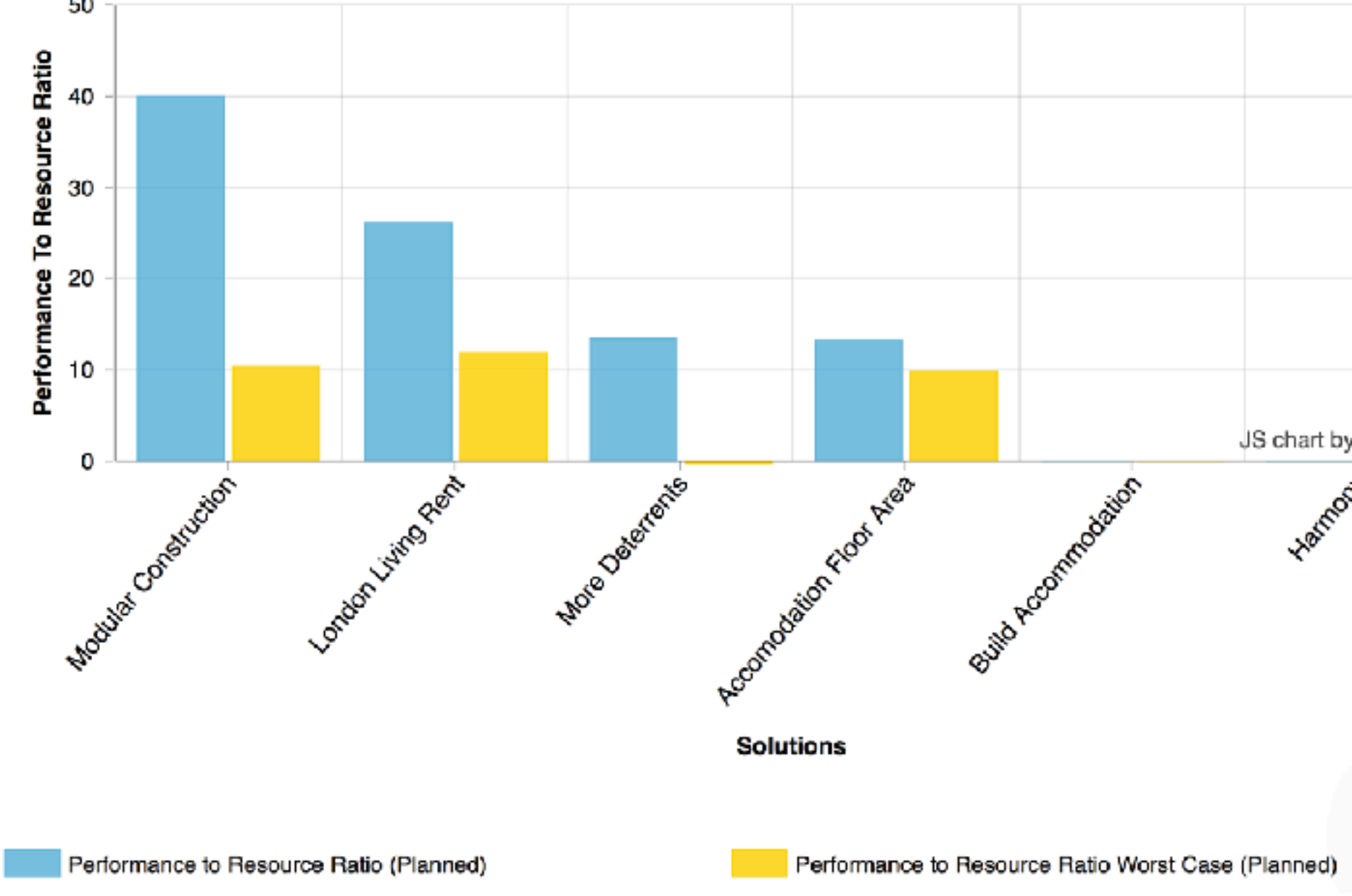

app.needsandmeans.com/iet/IET-v79EISE?subpage=graph&graph=sums
1,200
1,000
800
600
400
200
0
Percentage Impact %
JS chart by amCharts
London Living Rent
Modular Construction
More Deterrents
Build Accommodation
Accomodation Floor Area
Harmony
Sclutions
Sum Of Value (Estimated)
Sum Of Cost (Estimated)

5. Select designs with the best impacts in relation to their costs, do them first.

Figure 1: Vaccine Priority Groups by Development Status - Listed in at Least Two National Plans



Source: Uscher Pines et al. Priority setting for pandemic influenza: An analysis of national preparedness

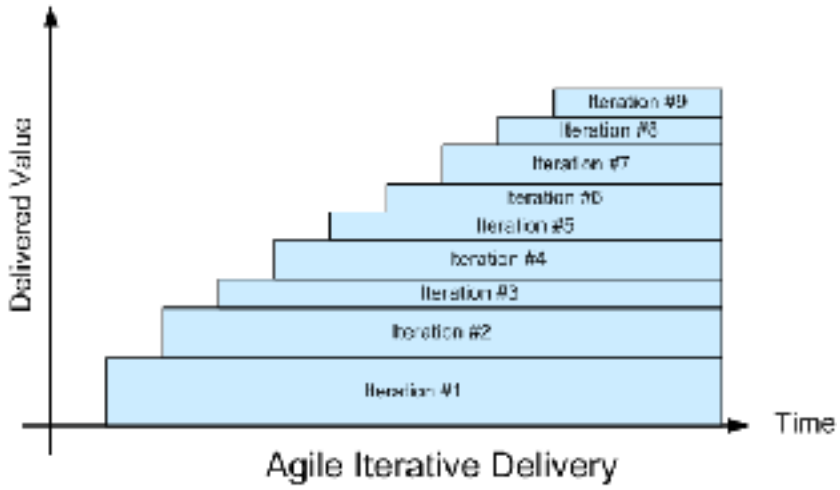

Performance To Resource Ratio
50
40
30
20
10
0
JS chart by
Modular Construction
London Living Rent
More Deterrents
Accomodation Floor Area
Build Accommodation
Harmon
Solutions
Performance to Resource Ratio (Planned)
Performance to Resource Ratio Worst Case (Planned)

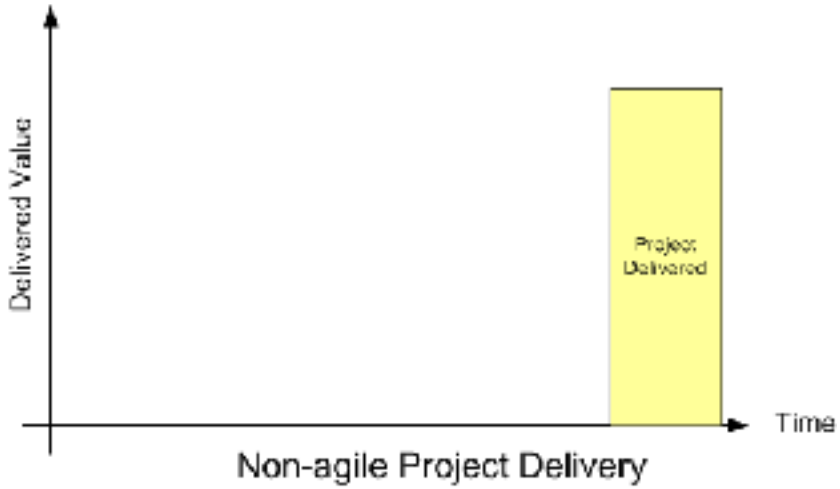
6. Decompose the workflow, into weekly (or 2% of budget) time boxes

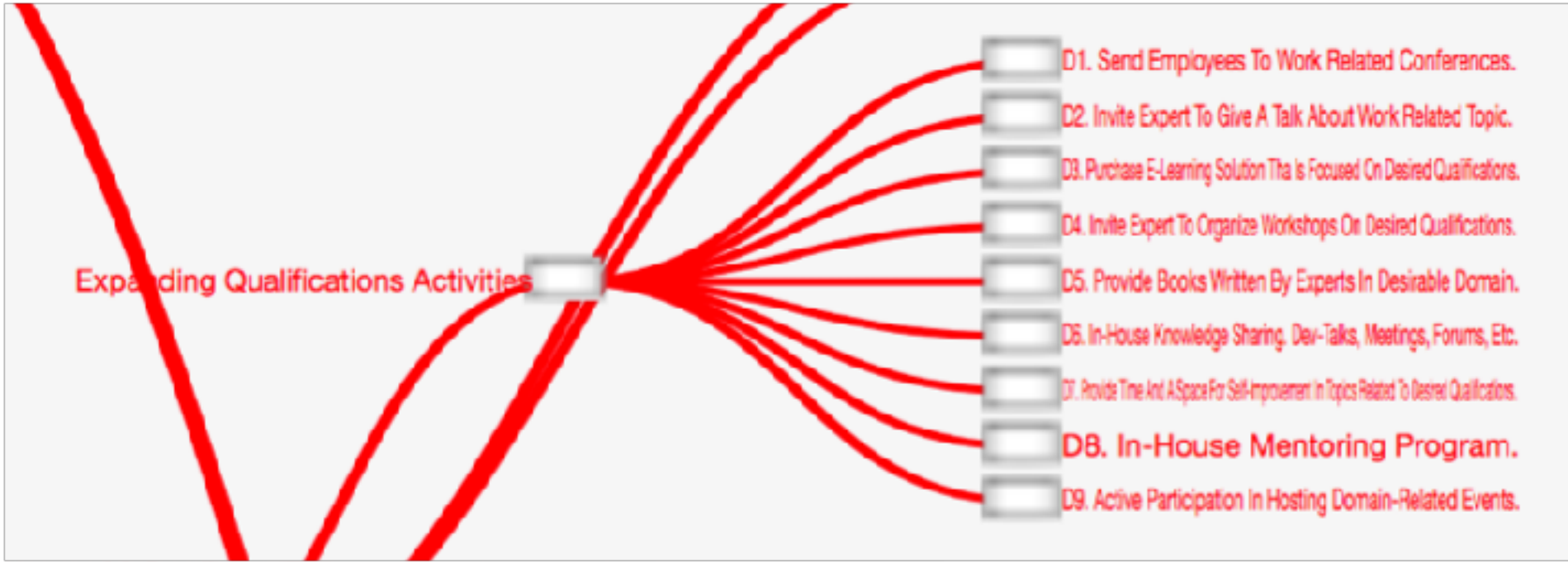
"Decomposition of Projects: How to Design Small Incremental Steps" INCOSE 2008
http://www.gilb.com/DL41

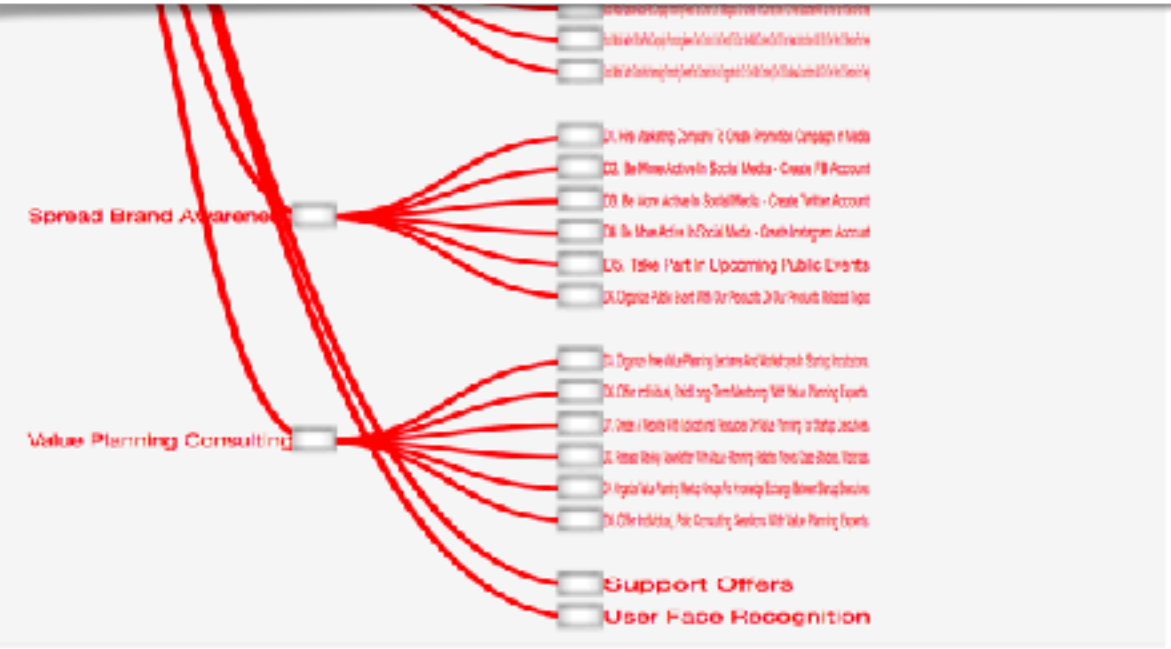
Value Planning Chapter 5 "Decomposition by Value"
https://www.dropbox.com/sh/dc7v636m7w7vvgx/AABfMAW_FnJny23XZKQZQkF4a?dl=0

If th8is link does not work, tell me and get full VP Copy at leanpub.com/ValuePlanning or gilb.com, https://www.gilb.com/store/2W2zCX6z






Expanding Qualifications Activities
D1. Send Employees To Work Related Conferences.
D2. Invite Expert To Give A Talk About Work Related Topic.
D3. Purchase E-Learning Solution That Is Focused On Desired Qualifications.
D4. Invite Expert To Organize Workshops On Desired Qualifications.
D5. Provide Books Written By Experts In Desirable Domain.
D6. In-House Knowledge Sharing, Dev-Talks, Meetings, Forums, Etc.
D8. In-House Mentoring Program.
D9. Active Participation In Hosting Domain-Related Events.


Spread Brand Awareness
Value Planning Consulting
Support Offers
User Face Recognition

Expanding Qualifications Activities

Permalink

v. 0.0.1

Solution Idea

(by gilbguest9 - a month ago)

Is Part Of: STRATEGY TOP LEVEL Group

Consists Of: D1. Send Employees To Work Related Conferences. Solution Idea D2. Invite Expert To Give A Talk About Wor Show Sidebar Topic. Solution Idea D3. Purchase E-Learning Solution Tha Is Focused On Desired Qualifications. Solution Idea D4. Invite Expert To Organize Workshops On Desired Qualifications. Solution Idea D5. Provide Books Written By Experts In Desirable Domain. Solution Idea D6. In-House Knowledge Sharing. Dev-Talks, Meetings, Forums, Etc. Solution Idea D7. Provide Time And A Space For Self-Improvement In Topics Related To Desired Qualifications. Solution Idea D8. In-House Mentoring Program. Solution Idea D9. Active Participation In Hosting Domain-Related Events. Solution Idea

Summary:

A set of conferences, workshops and presentations lead by experts and other activities that aim to improve qualifications.

Description:

D1. Send employees to work related conferences.

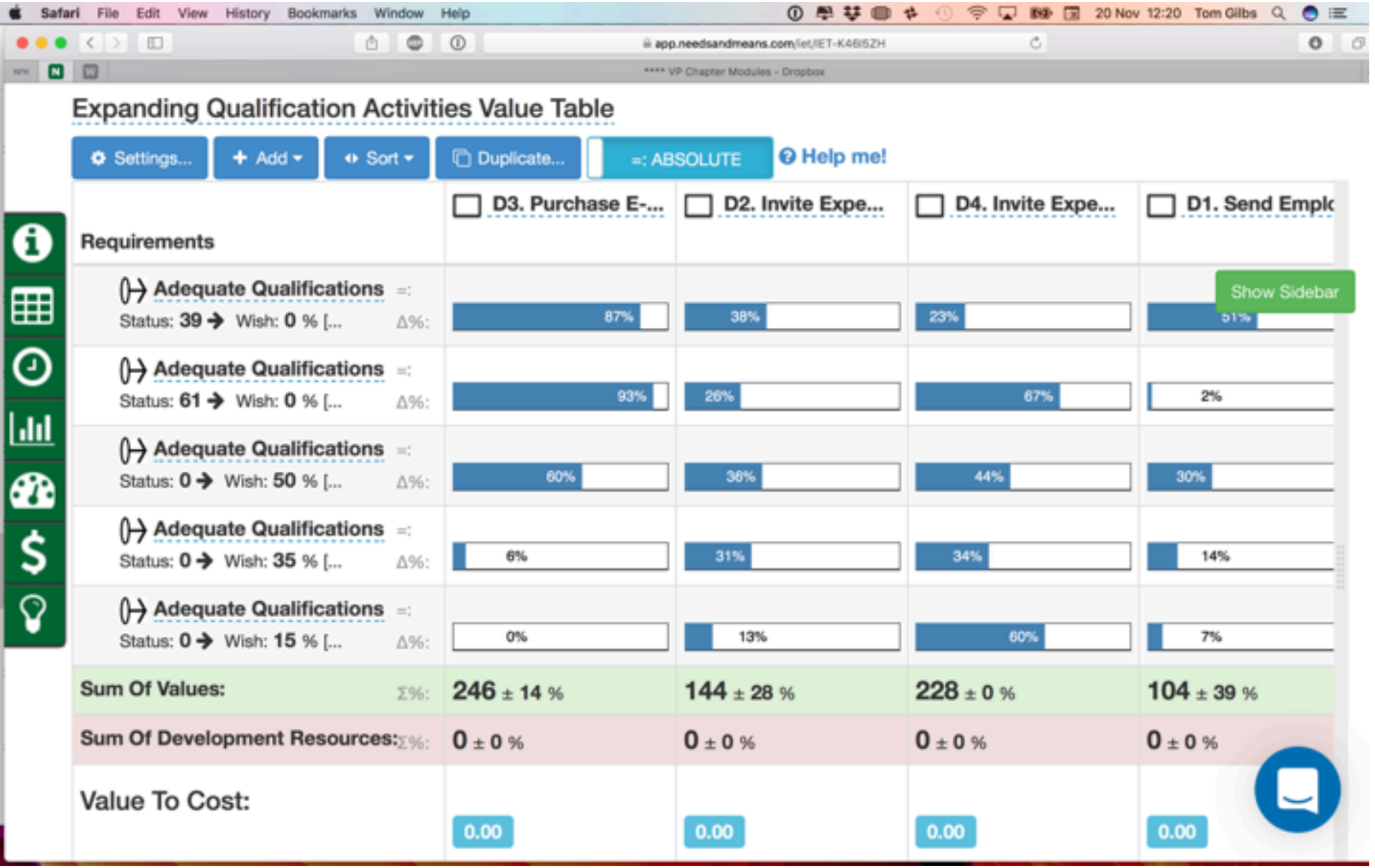
D2. Invite expert to give a talk about work related topic.

D3. Purchase e-learning solution tha is focused on desired qualifications.

D4. Invite expert to organize workshops on desired qualifications.

D5. Provide books written by experts in desirable domain.

D6. In-house knowledge sharing. Dev-talks, meetings, forums, etc.


Safari File Edit View History Bookmarks Window Help
20 Nov 12:20 Tom Gilbs
app.needsandmeans.com/let/IET-K46I5ZH
**** VP Chapter Modules - Dropbox
Expanding Qualification Activities Value Table
Settings...
Add
Sort
Duplicate...
=: ABSOLUTE
Help me!
Show Sidebar
Requirements
D3. Purchase E-...
D2. Invite Expe...
D4. Invite Expe...
D1. Send Emplc
Adequate Qualifications =:
Status: 39 → Wish: 0 % [... Δ%:
87%
38%
23%
51%
Adequate Qualifications =:
Status: 61 → Wish: 0 % [... Δ%:
93%
26%
67%
2%
Adequate Qualifications =:
Status: 0 → Wish: 50 % [... Δ%:
60%
36%
44%
30%
Adequate Qualifications =:
Status: 0 → Wish: 35 % [... Δ%:
6%
31%
34%
14%
Adequate Qualifications =:
Status: 0 → Wish: 15 % [... Δ%:
0%
13%
60%
7%
Sum Of Values: Σ%:
246 ± 14 %
144 ± 28 %
228 ± 0 %
104 ± 39 %
Sum Of Development Resources: Σ%:
0 ± 0 %
0 ± 0 %
0 ± 0 %
0 ± 0 %
Value To Cost:
0.00
0.00
0.00
0.00

7. Change designs, based on quantified experience of implementation

Design is the *servant* of the requirement.

If it does not work ‘fire’ it.

Quantified Value Delivery Project Management in a Nutshell

Quantified Value Requirements, Design, Design Value/cost estimation, Measurement of Value Delivery, Incremental Project Progress to Date

	A	B	C	D	E	F	G	BX	BY	BZ	CA
1											
2		Current Status	Improvements		Goals			Step9			
3								Recoding			
4								Estimated impact		Actual impact	
5		Units	Units	%	Past	Tolerable	Goal		%	Units	
6					Usability.Replacability (feature count)						
7		1,00	1,0	50,0	2	1	0				
8					Usability.Speed.NewFeaturesImpact (%)						
9		5,00	5,0	100,0	0	15	5				
10		10,00	10,0	200,0	0	15	5				
11		0,00	0,0	0,0	0	30	10				
12					Usability.Intuitiveness (%)						
13		0,00	0,0	0,0	0	60	80				
14					Usability.Productivity (minutes)						
15		20,00	45,0	112,5	85	35	25	20,00	50,00	36,00	95,00
20					Development resources						
21			101,0	91,8	0		110	4,00	3,64	4,00	3,64

Weekly Testing

Estimates

Priority

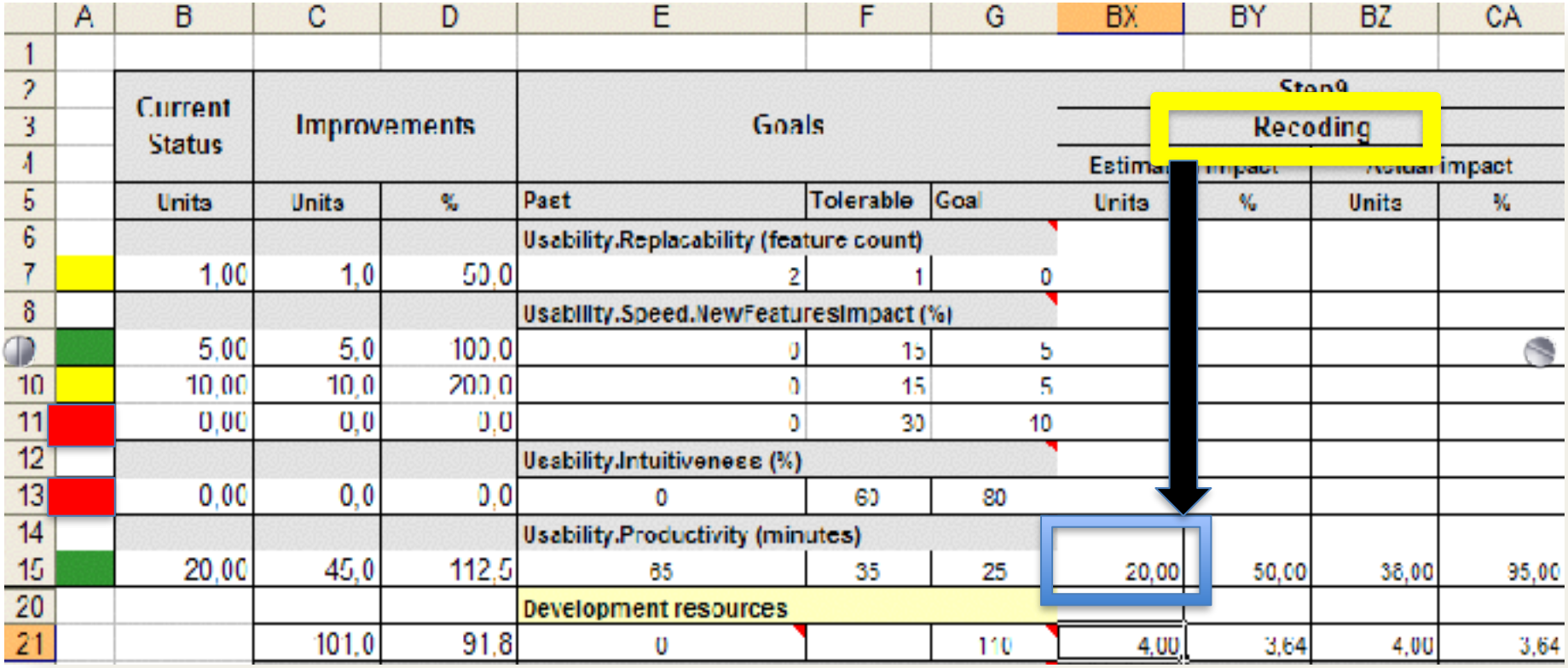
Next week Warning metrics based

Cumulative weekly progress metric

Constraint

Target

‘Recoding’ was estimated, by the suggester, to save 20 minutes time for the users



	A	B	C	D	E	F	G	BX	BY	BZ	CA
1											
2								Step9			
3		Current Status	Improvements		Goals			Recoding			
4								Estima	Impact	Actual Impact	
5		Units	Units	%	Past	Tolerable	Goal	Units	%	Units	%
6					Usability.Replacability (feature count)						
7		1,00	1,0	50,0	2	1	0				
8					Usability.Speed.NewFeaturesImpact (%)						
9		5,00	5,0	100,0	0	15	5				
10		10,00	10,0	200,0	0	15	5				
11		0,00	0,0	0,0	0	30	10				
12					Usability.Intuitiveness (%)						
13		0,00	0,0	0,0	0	60	80				
14					Usability.Productivity (minutes)						
15		20,00	45,0	112,5	65	35	25	20,00	50,00	36,00	95,00
20					Development resources						
21			101,0	91,8	0		110	4,00	3,64	4,00	3,64

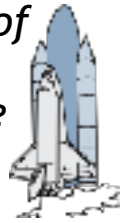
The result was a saving, or improvement of 38 minutes, or 95% of the way to the target requirement of 25 minutes

	A	B	C	D	E	F	G	BX	BY	BZ	CA
1											
2		Current Status	Improvements		Goals					Step9	
3										Recoding	
4								Estimated impact		Actual impact	
5		Units	Units	%	Past	Tolerable	Goal	Units	%	Units	%
6					Usability.Replacability (feature count)						
7		1,00	1,0	50,0	2	1	0				
8					Usability.Speed.NewFeaturesImpact (%)						
9		5,00	5,0	100,0	0	15	5				
10		10,00	10,0	200,0	0	15	5				
11		0,00	0,0	0,0	0	30	10				
12					Usability.Intuitiveness (%)						
13		0,00	0,0	0,0	0	60	80				
14					Usability.Productivity (minutes)						
15		20,00	45,0	112,5	65	35	25	20,00	50,00	38,00	95,00
20					Development resources						
21			101,0	91,8	0		110	4,00	3,64	4,00	3,64

In the Cleanroom Method,
developed by IBM's Harlan Mills (1970-1980)
they reported:
(this is 'Agile' as it *should* be!)

- *"Software Engineering began to emerge in FSD" (IBM Federal Systems Division, from 19[illegible] of [illegible] Agile Manifesto) "[illegible] [Ed. 1970!] in a c[illegible]*
- *T[illegible] in 45 incremental deliveries*
- *cost overruns, late deliveries, unreliable and incomplete software*
- *Today [Ed. 1980!], management has learned to expect on-time, within budget, deliveries of high-quality software. A Navy helicopter ship system, called LAM[illegible] provides a recent example. LAMPS software was a four-year project of over 200 person-years of effort, developing over three million, and integrating over seven million words of program and data for eight different processors distributed betwe[illegible] 2%!]s. Every one of[illegible]*

- *A more[illegible]*
- *- Wher[illegible] rs of softwa[illegible] ion bytes of progra[illegible] jects.*
- *- There[illegible] t all in the past fo[illegible]*



were few late or overrun deliveries in that decade, and none at all in the past four years

Mills on ‘Design to Cost’

- “To meet cost/schedule commitments
  - based on imperfect estimation techniques,
  - a software engineering manager must adopt
  - a **manage-and-design-to-cost/schedule process.**
- That process requires
  - a continuous and relentless
  - **rectification of design objectives**
  - with *the cost/schedule needed to achieve those objectives*.”
- in IBM System Journal, No. 4 1980 p.420, see Links below

Mills, H. 1980. The management of software engineering: part 1: principles of software engineering. IBM Systems Journal 19, issue 4 (Dec.):414-420.
Direct Copy
http://trace.tennessee.edu/cgi/viewcontent.cgi?article=1004&context=utk_harlan
Library header
http://trace.tennessee.edu/utk_harlan/5/

Quinnan: IBM FSD Cleanroom
Dynamic Design to Cost

Quinnan describes the process control loop used by IBM FSD to ensure that cost targets are met.

'Cost management. . . yields valid cost plans linked to technical performance. Our practice carries cost management farther by introducing design-to-cost guidance. Design, development, and managerial practices are applied in an integrated way to ensure that software technical management is consistent with cost management. The method [illustrated in this book by Figure 7.10] consists of developing a design, estimating its cost, and ensuring that the design is cost-effective.' (p. 473)

-

He goes on to describe a design iteration process trying to meet cost targets by either redesign or by sacrificing 'planned capability.' When a satisfactory design at cost target is achieved for a single increment, the 'development of each increment can proceed concurrently with the program design of the others.'

'Design is an iterative p

It is clear from t **g the appropriate balance between cost and design for a s** **ity of the task, and increasing the probability of learning** **comes a fact.**

'When the developmen **is computed.' (p. 474)**

Source: Robert E. Quinn 466-77

This text is cut from Gil

iteration process trying to meet cost targets by either *redesign* or by *sacrificing* 'planned capability'

Christopher Wren did ‘Dynamic Design to Cost’

- Wren’s 'ground condition' mistake.
- He was fighting the Sinking
  In mud.
  - By Various devices including radical reduction of dome size to reduce weight.
  - At very late stage.
- Continually trying out ideas and changing them based on what he observes.
- He was a new combination of architect and engineer

St. Paul's Cathedral (Premiered July 8, 2014)
“Time Scanners” PBS Documentary

8. Change requirements, based on quantified experience, new inputs: intelligent tradeoff.

Reduce the quality level,

or delivery time, of lower-priority requirements,

in order to deliver high-priority requirements on time, within budget, or at Goal levels.

Quinnan: IBM FSD Cleanroom
Dynamic Design to Cost

Quinnan describes the process control loop used by IBM FSD to ensure that cost targets are met.

'Cost management. . . yields valid cost plans linked to technical performance. Our practice carries cost management farther by introducing design-to-cost guidance. Design, development, and managerial practices are applied in an integrated way to ensure that software technical management is consistent with cost management. The method [illustrated in this book by Figure 7.10] consists of developing a design, estimating its cost, and ensuring that the design is cost-effective.' (p. 473)

He goes on to describe a design iteration process trying to meet cost targets by either redesign or by sacrificing 'planned capability.' When a satisfactory design at cost target is achieved for a single increment, the 'development of each increment can proceed concurrently with the program design of the others.'

'Design is an iterative process in which each design level is a refinement of the previous level.' (p. 474)

It is clear from this that they avoid the big bang cost estimation approach. Not only do they iterate in seeking the appropriate balance between cost and design for a single increment, but they iterate through a series of increments, thus reducing the complexity of the task, and increasing the probability of learning from experience, won as each increment develops, and as the true cost of the increment becomes a fact.

'When the development and test of an incremer

Source: Robert E. Quinnan, 'Software Engineering
This text is cut from Gilb: The Principles of Softwa

iteration process. trying to meet cost targets, by either *redesign* or by *sacrificing 'planned capability'*

Quinnan: IBM FSD Cleanroom
Dynamic Design to Cost

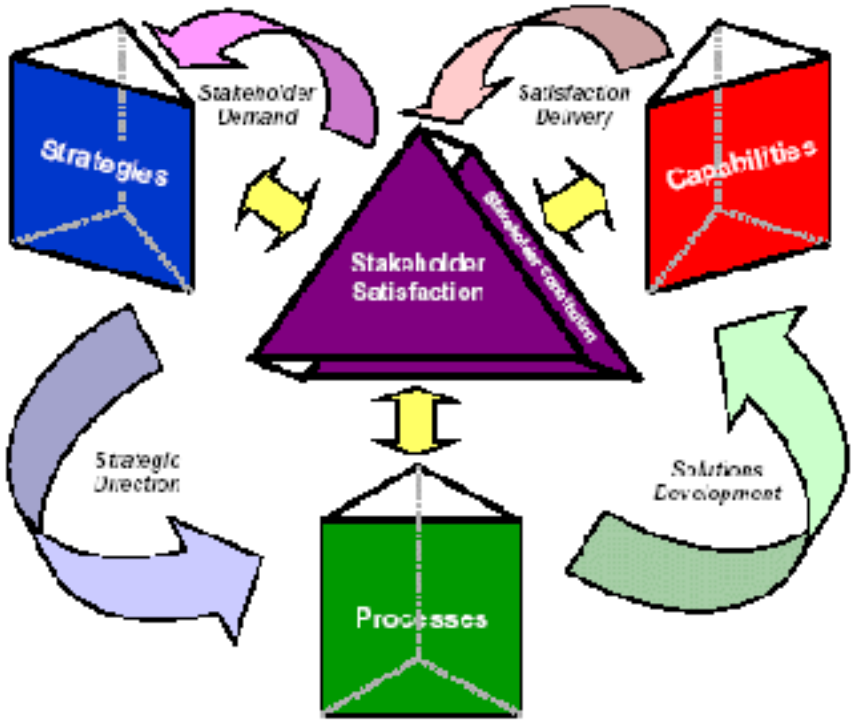
Quinnan describes the process control loop used by IBM FSD to ensure that cost targets are met.

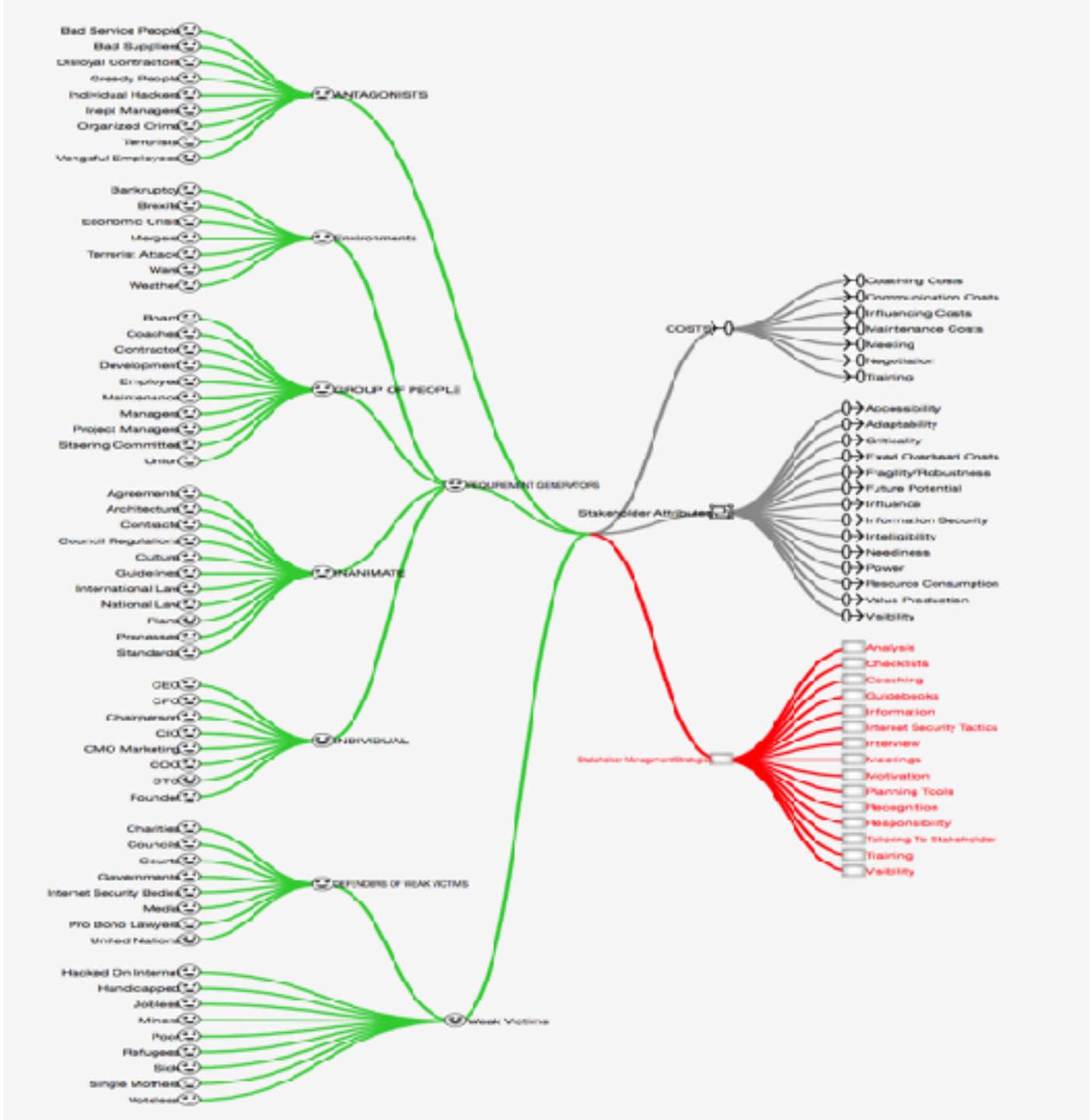
but they iterate through a series of increments,
thus *reducing the complexity of the task*,
and *increasing the probability of learning from experience*

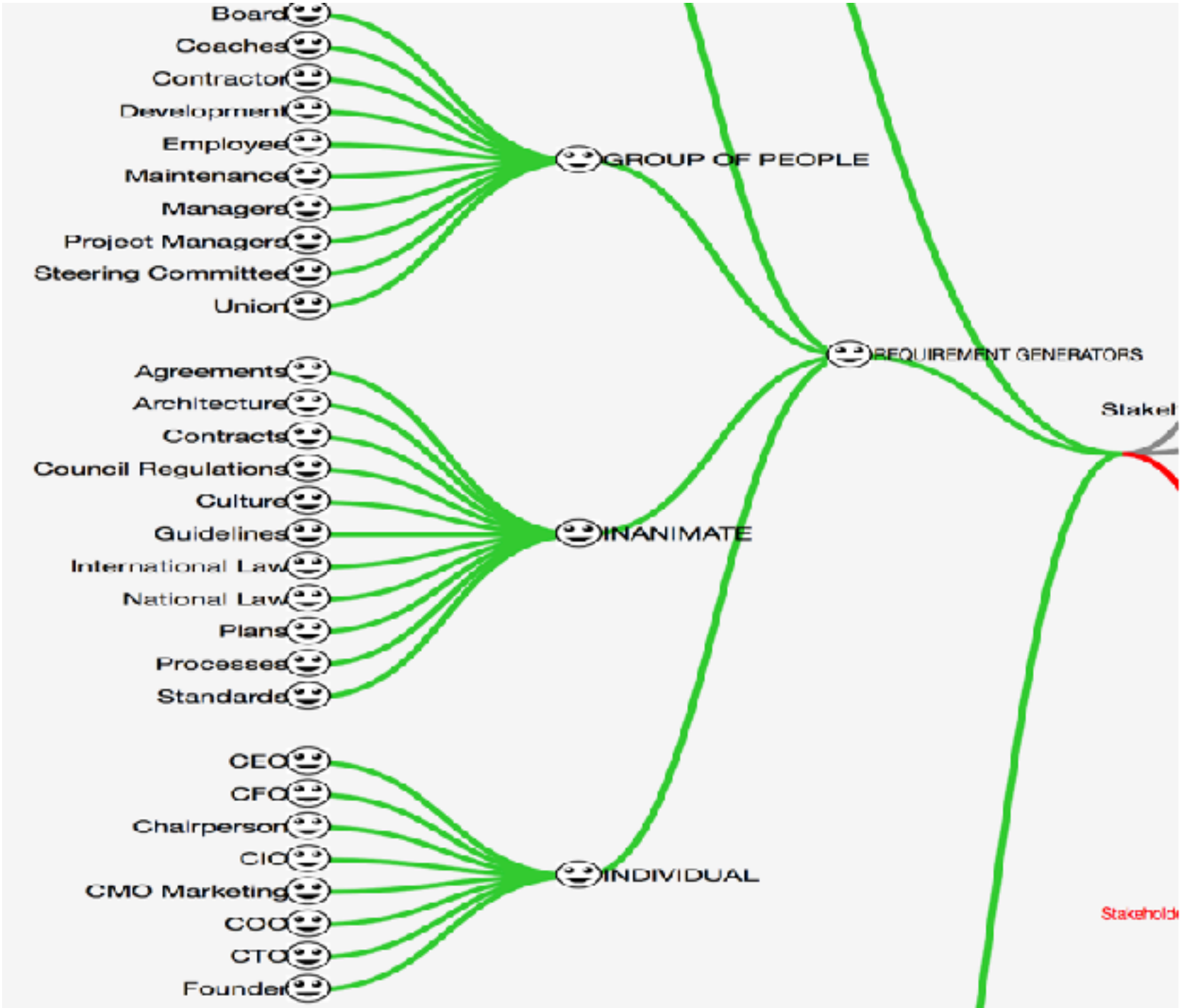
9. Involve the stakeholders, every week, in setting quantified goals

It is much easier to determine requirements with a little hindsight!

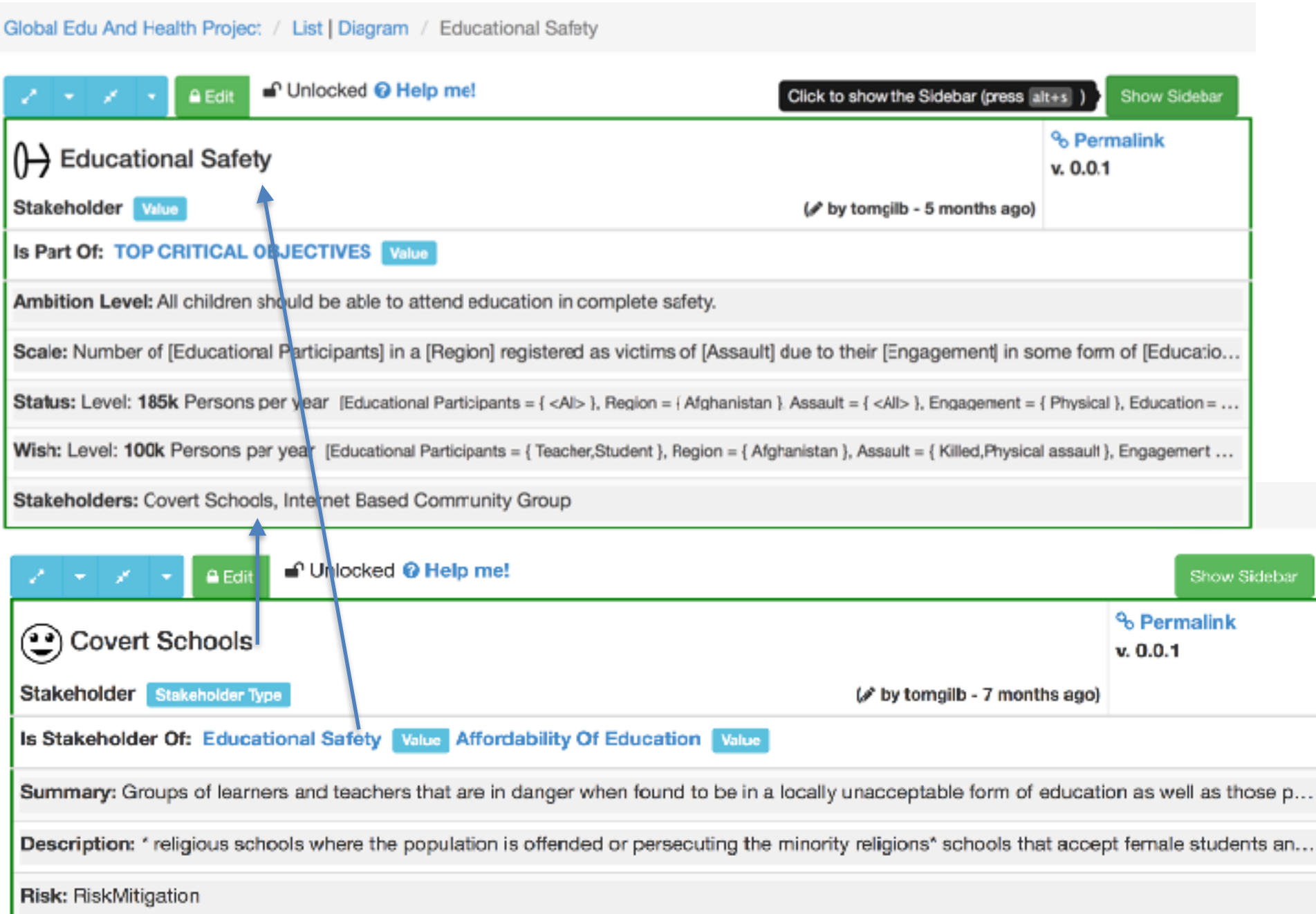
The eternal cycle of stakeholder priorities



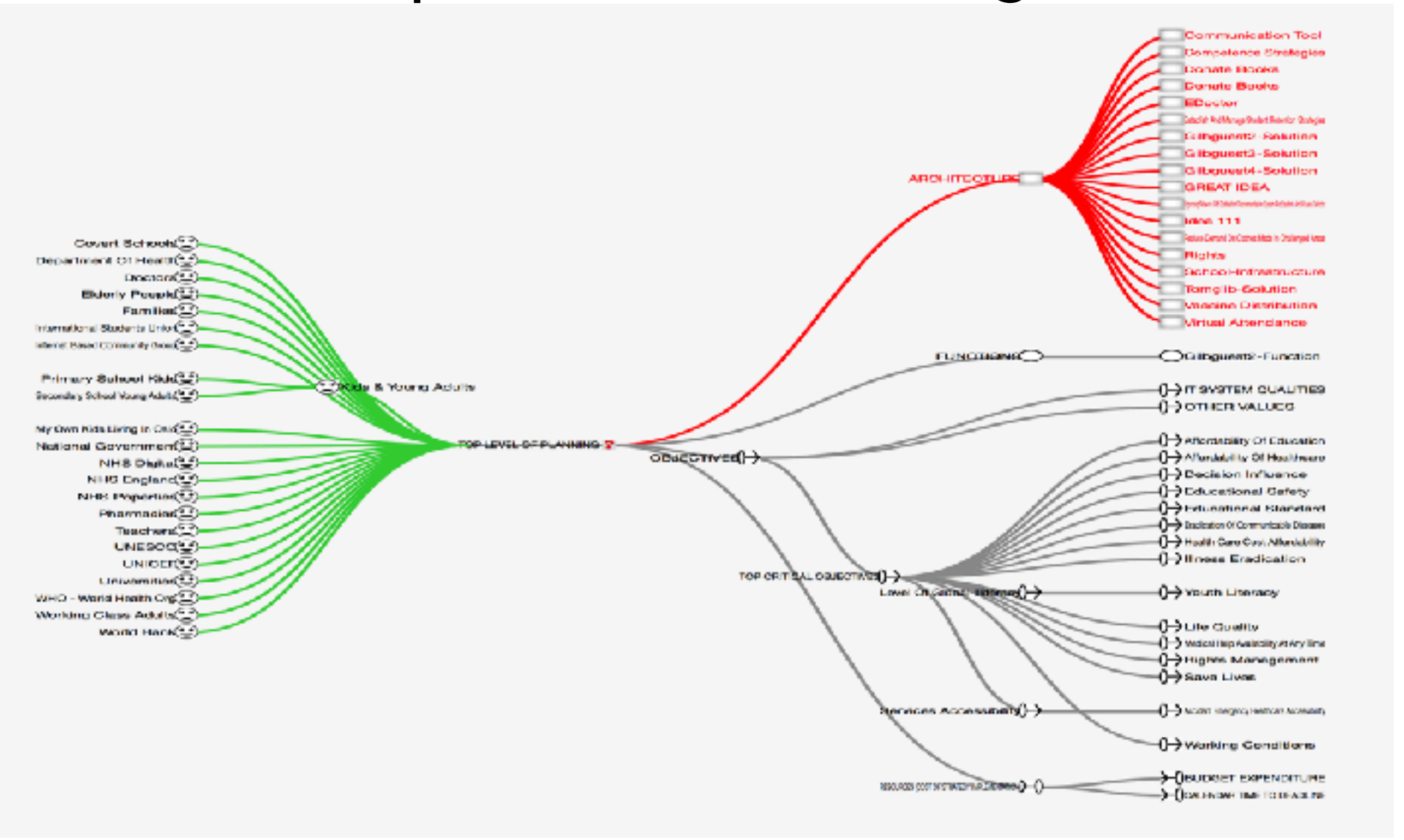

Bad Service People
Bad Suppliers
Disloyal Contractors
Greedy People
Individual Hackers
Inept Managers
Organized Crime
Terrorists
Vengeful Employees
ANTAGONISTS
Bankruptcy
Brexit
Economic Crisis
Merger
Terrorist Attack
War
Weather
Environments
Board
Coaches
Contractor
Development
Employees
Maintenance
Managers
Project Managers
Steering Committee
Union
GROUP OF PEOPLE
Agreements
Architecture
Contracts
Council Regulations
Culture
Guidelines
International Law
National Law
Plans
Processes
Standards
INANIMATE
CEO
CFO
Chairperson
CIO
CMO Marketing
COO
CTO
Founder
INDIVIDUAL
Charities
Councils
Courts
Government
Internet Security Bodies
Media
Pro Bono Lawyers
United Nations
DEFENDERS OF WEAK VICTIMS
Hacked On Internet
Handicapped
Jobless
Minors
Poor
Refugees
Sick
Single Mothers
Widowed
Weak Victims
REQUIREMENT GENERATORS
Stakeholder Attributes
COSTS
Learning Costs
Communication Costs
Influencing Costs
Maintenance Costs
Meeting
Negotiation
Training
Accessibility
Adaptability
Criticality
Fixed Overhead Costs
Fragility/Robustness
Future Potential
Influence
Information Security
Intelligibility
Neediness
Power
Resource Consumption
Value Realization
Visibility
Stakeholder Management Strategies
Analysis
Checklists
Coaching
Guidebooks
Information
Internet Security Tactics
Interview
Meetings
Motivation
Planning Tools
Recognition
Responsibility
Talking To Stakeholder
Training
Visibility


Board
Coaches
Contractor
Development
Employee
Maintenance
Managers
Project Managers
Steering Committee
Union
GROUP OF PEOPLE
Agreements
Architecture
Contracts
Council Regulations
Culture
Guidelines
International Law
National Law
Plans
Processes
Standards
INANIMATE
CEO
CFO
Chairperson
CIO
CMO Marketing
COO
CTO
Founder
INDIVIDUAL
REQUIREMENT GENERATORS
Stakeh
Stakehold

Stakeholders related to Requirements



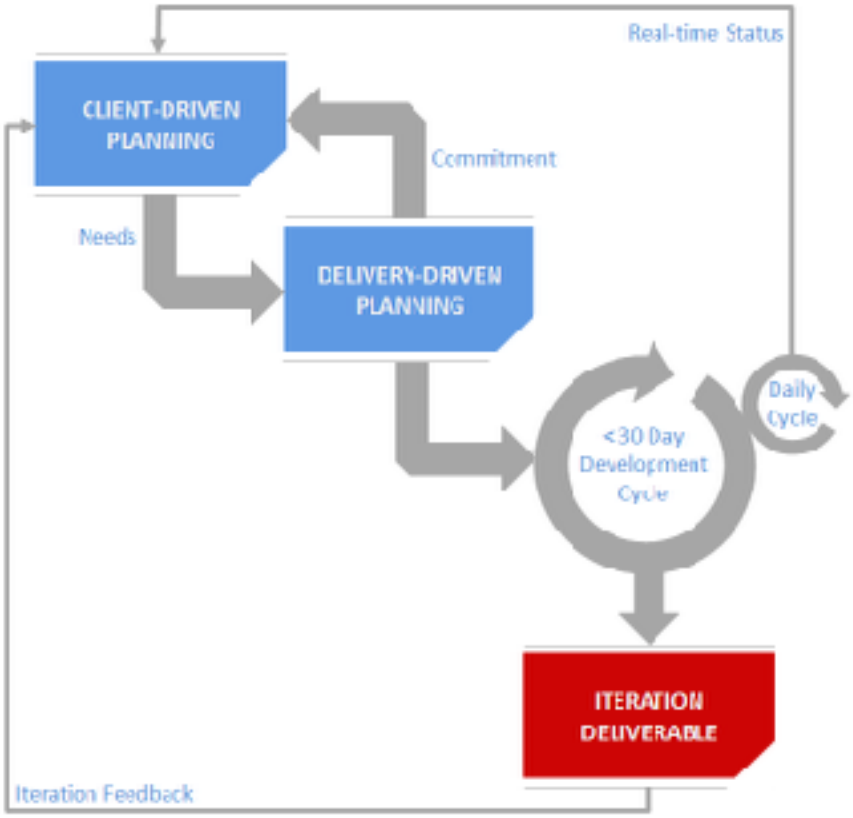
Big Picture: all stakeholders and requirement and designs



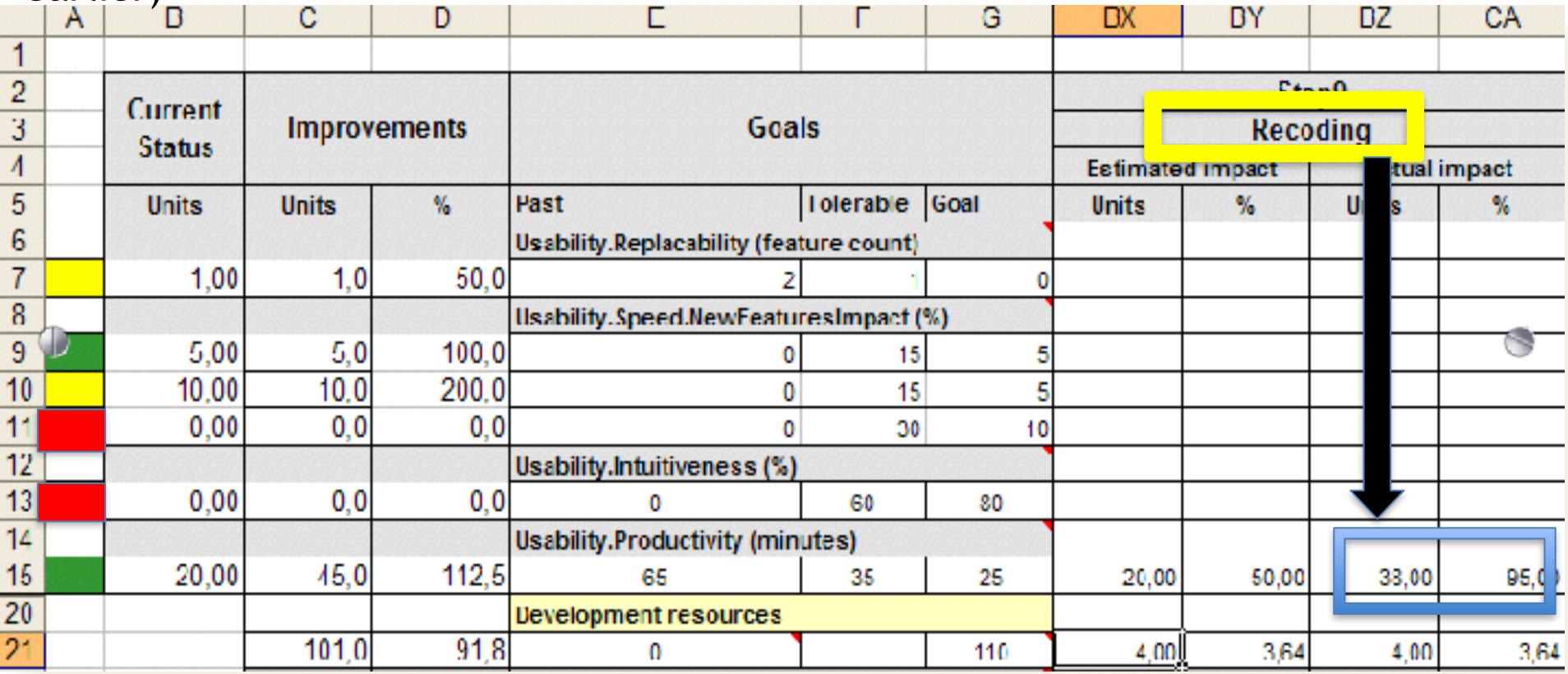
source needsandmeans.com gilb.com section, exercise done with OSWA Oslo

10. Involve the stakeholders, every week, in stakeholders actually **using** increments

- realistic measures, pilots of delivery of the planned improvement values



Example of Feedback: the design ('Recoding') was twice as effective (38) as estimated (20), for requirement 'Usability.Productivity' and we managed delivery the estimated 4 days work, for our team 4 people (slide as shown earlier)



	A	D	C	D	E	F	G	DX	DY	DZ	CA
1											
2		Current Status	Improvements		Goals			Step0			
3								Recoding			
4								Estimated impact		Actual impact	
5		Units	Units	%	Past	Tolerable	Goal	Units	%	Units	%
6					Usability.Replacability (feature count)						
7		1,00	1,0	50,0	2	1	0				
8					Usability.Speed.NewFeaturesImpact (%)						
9		5,00	5,0	100,0	0	15	5				
10		10,00	10,0	200,0	0	15	5				
11		0,00	0,0	0,0	0	30	10				
12					Usability.Intuitiveness (%)						
13		0,00	0,0	0,0	0	60	80				
14					Usability.Productivity (minutes)						
15		20,00	45,0	112,5	65	35	25	20,00	50,00	38,00	95,0
20					Development resources						
21			101,0	91,8	0		110	4,00	3,64	4,00	3,64

My 10 Agile Values?

- **Simplicity**
  - **1. Focus on real stakeholder values**
- **Communication**
  - **2. Communicate stakeholder values quantitatively**
  - **3. Estimate expected results and costs for weekly steps**
- **Feedback**
  - **4. Generate results, weekly, for stakeholders, in their environment**
  - **5. Measure all critical aspects of the improved results cycle.**
  - **6. Analyze deviation from your initial estimates**
- **Courage**
  - **7. Change plans to reflect weekly learning**
  - **8. Immediately implement valued stakeholder needs, next week**
    - **Don't wait, don't study (analysis paralysis), don't make excuses.**
    - **Just Do It!**
  - **9. Tell stakeholders exactly what you will deliver next week**
  - **10. Use any design, strategy, method, process that works quantitatively well - to get your results**
    - **Be a systems engineer, not a just programmer (a 'Softcrafter').**
    - **Do not be limited by your craft background, in serving your paymasters**

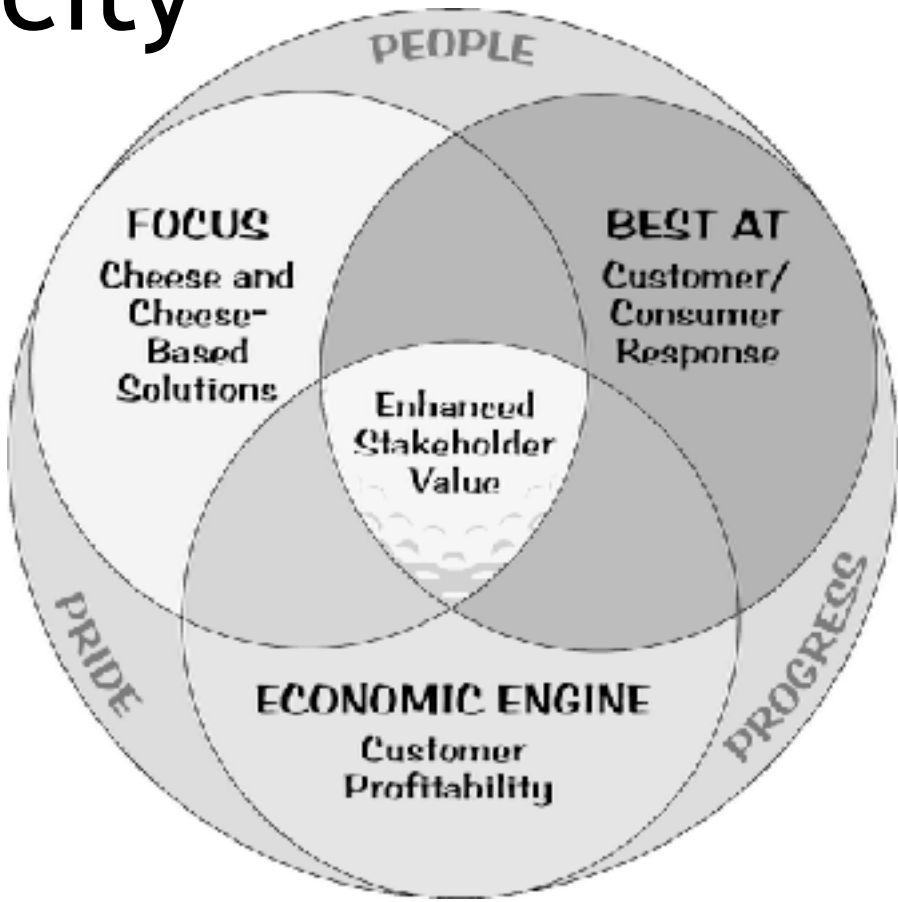
http://www.gilb.com/DL448
Agile Values in
AgileRecord.com, no. 4, 2010

My 10 Agile *Values*? (Detail)

- **Simplicity**
- **Communication**
- **Feedback**
- **Courage**

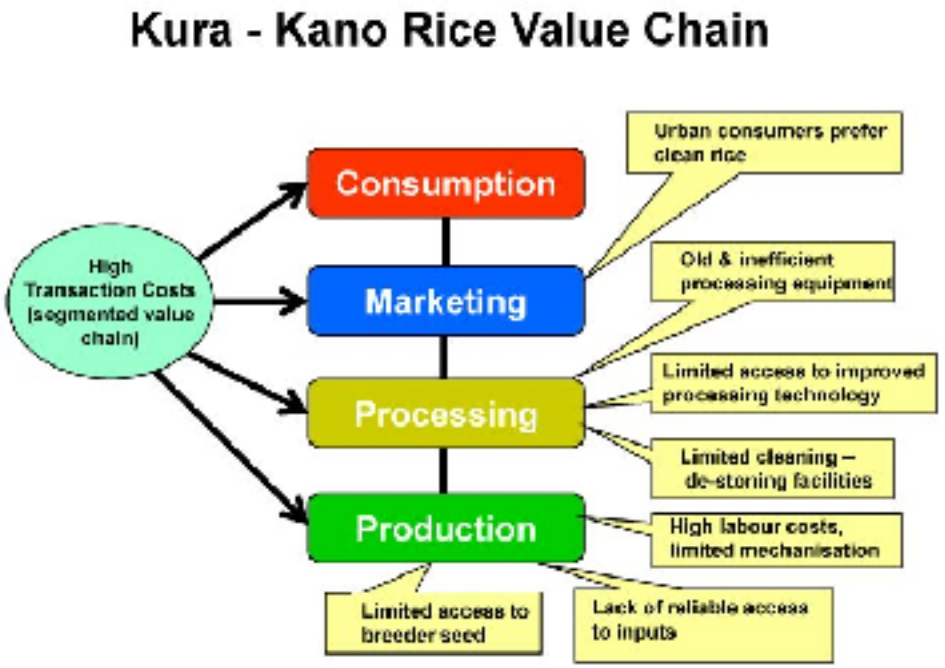
Simplicity

- **1. Focus on real stakeholder values**



Communication

- 2. Communicate stakeholder values quantitatively.

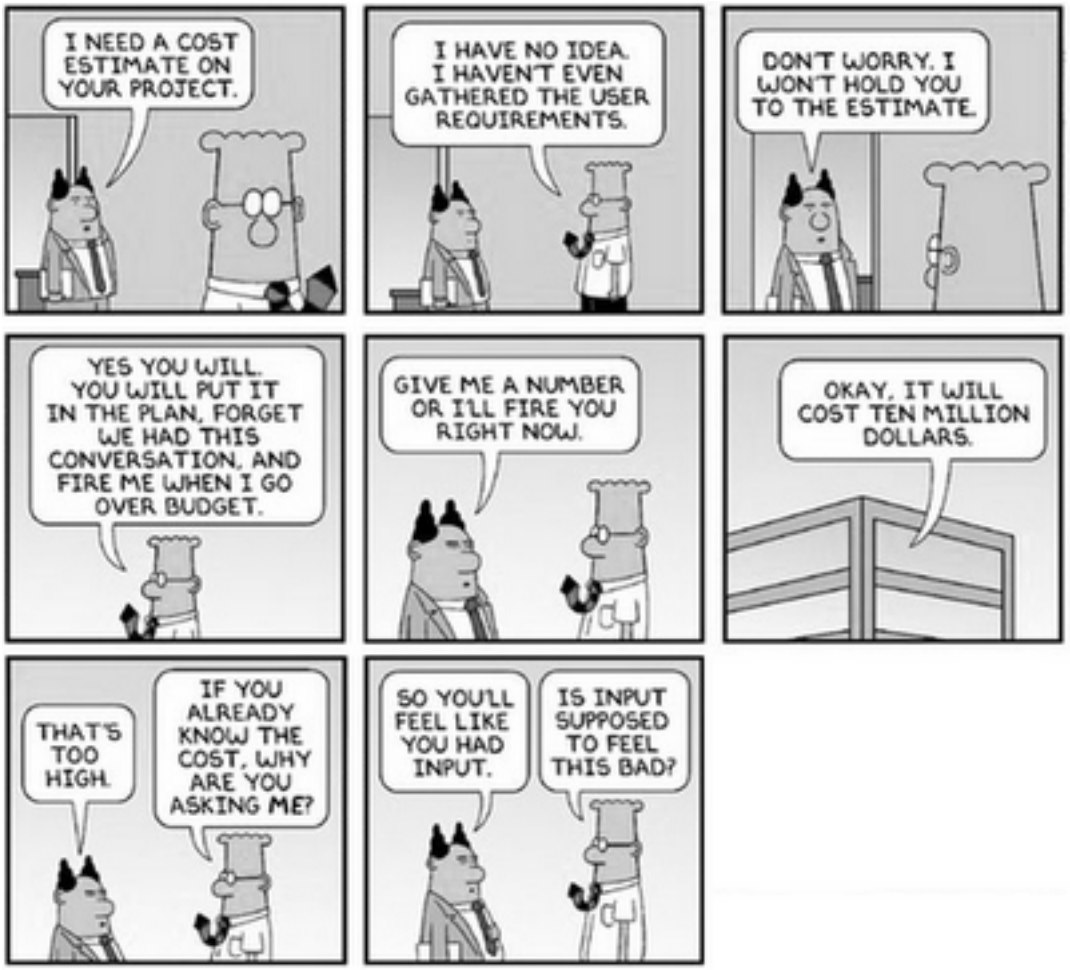


Measure Critical Stuff

- **5. Measure all critical aspects of the improved results cycle.**

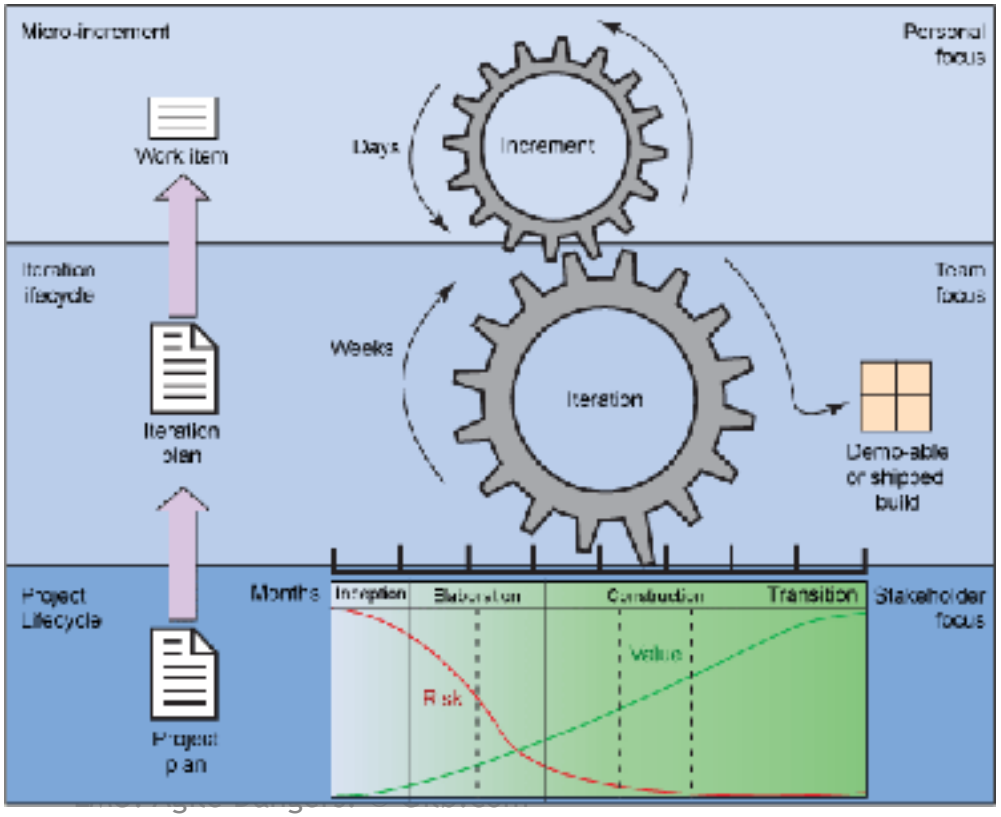
Estimate Often

- **3. Estimate expected results and costs for weekly steps**



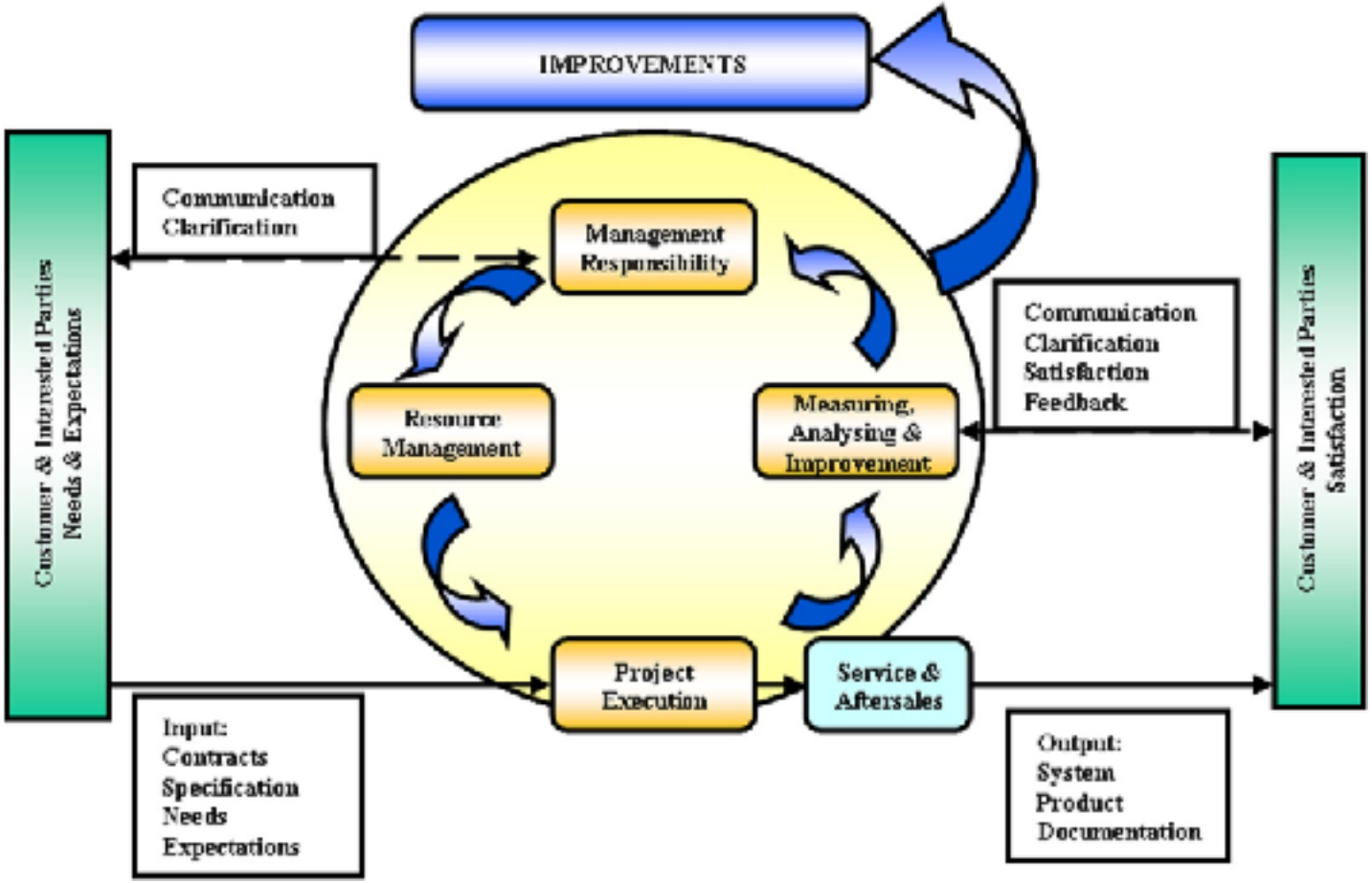
Feedback

- 4. Generate results, weekly, for stakeholders, in *their* environment



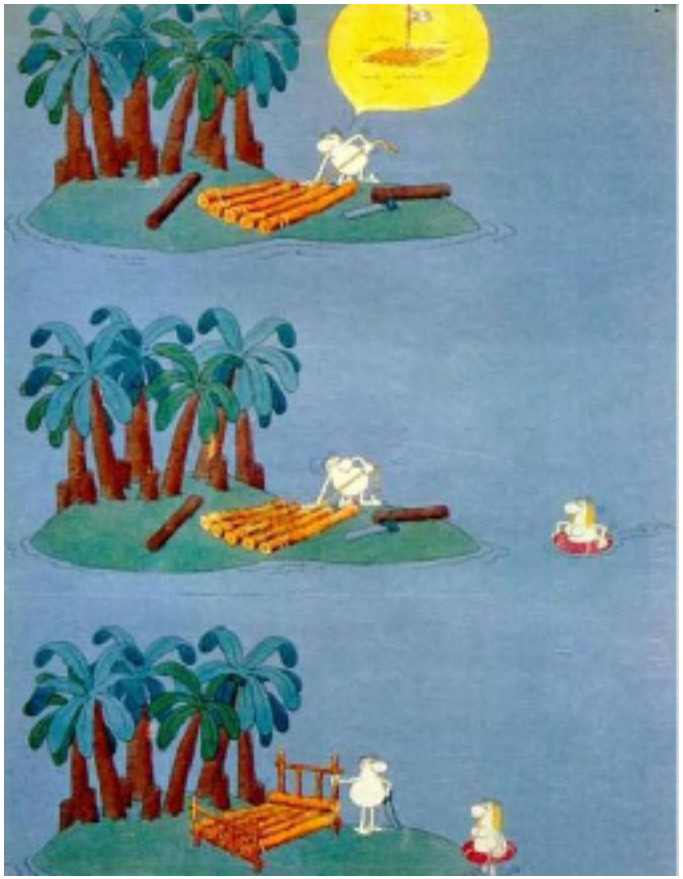
Learn from Deviations

- **6. Analyze deviation from your initial estimates.**



Courage

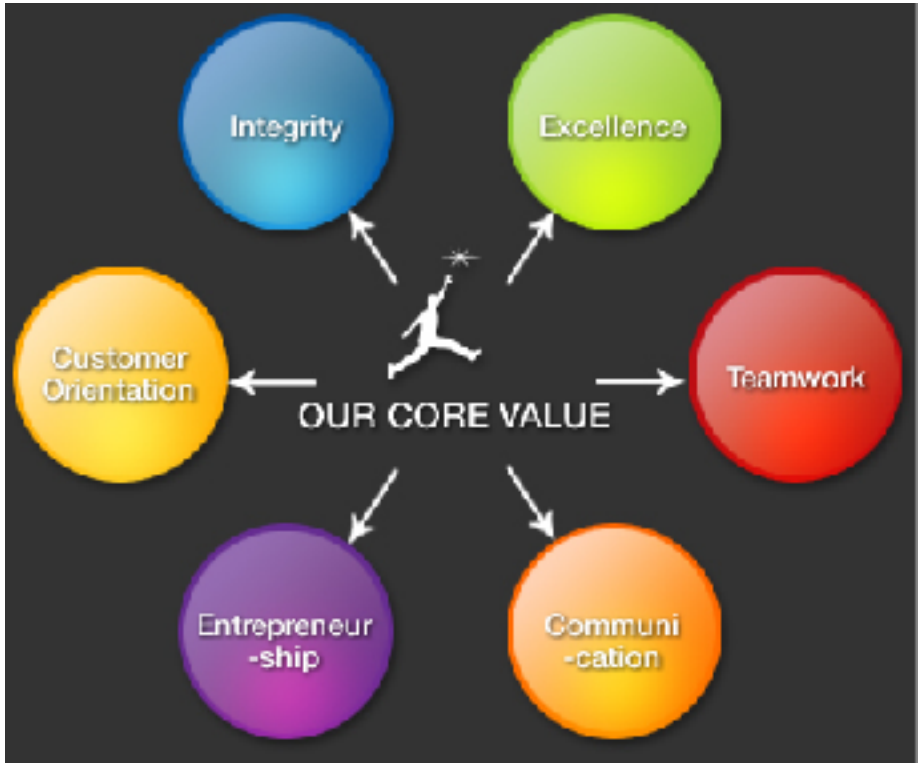
- **7. Change plans to reflect weekly learning.**



- **8. Immediately implement valued stakeholder needs, next week**
  - ***Don't wait, don't study (analysis paralysis), don't make excuses.***
  - ***Just Do It!***

Tell Stakeholders What's next

- **9. Tell stakeholders exactly what you will deliver next week**



If it works, do it!

- **10. Use any design, strategy, method, process that works quantitatively well - to get your results**
  - **Be a systems engineer, not a just programmer (a 'Softcrafter').**
  - **Do not be limited by your craft background, in serving your paymasters .**

So, what are Agile methods missing?

- **Stakeholder Focus**
  - **Real projects have dozens of stakeholders**
    - **Not just a customer in the next room**
    - **Not just a user with a use case or story**
- **Results Focus**
  - **It is not about writing code, it is about delivering value to stakeholders**
  - **It is not about programming, it is about making systems work, for real people**
- **Systems Focus**
  - **It is not about coding – (again ☺)**
  - **It is about reuse, data, hardware, training, motivation, sub-contracting, Outsourcing, help lines, user documentation, user interfaces, security, etc.**
  - **So, a systems engineering scope is necessary to deliver results.**
  - **Systems Engineering needs quantified performance and quality objectives**
    - **To synchronize all necessary disciplines, so that they deliver the results.**

- Ecstatic Stakeholder!

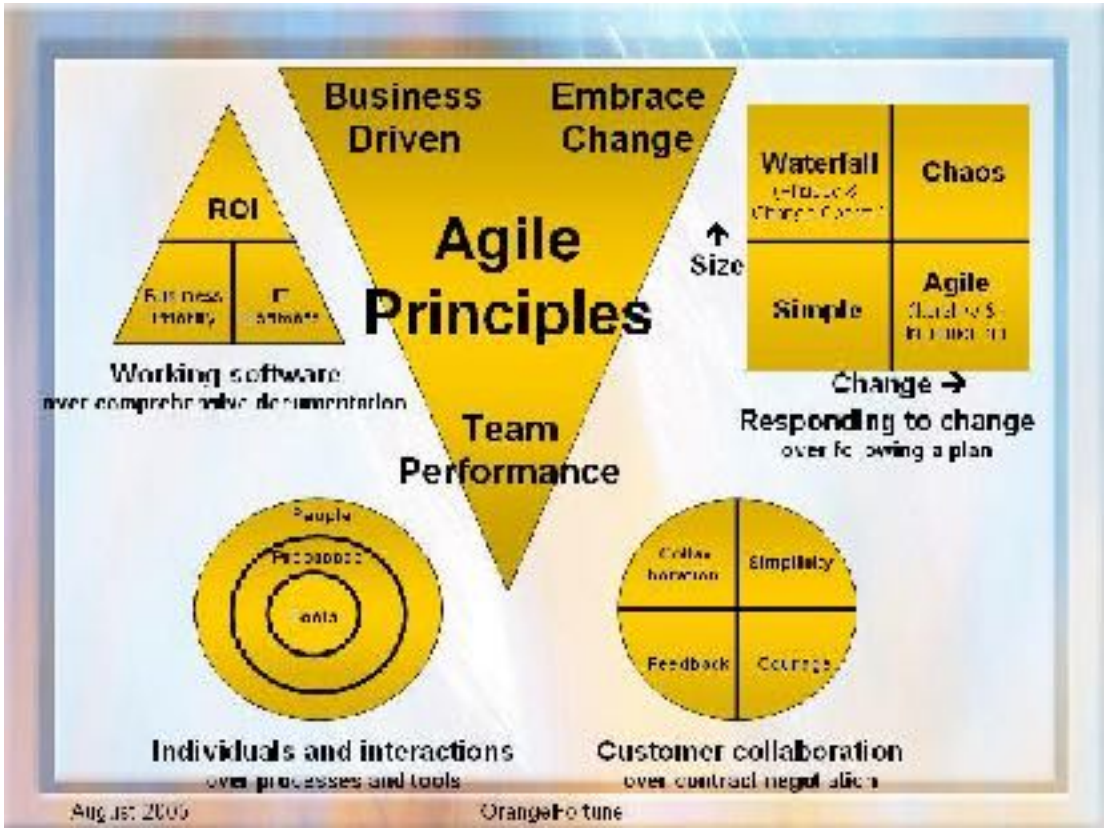
End of 1 Hour Lecture

- Discussion Remarks Questions ?
  - Now, and throughout the conference
- And by email
  - TomsGilb@Gmail.com
  - CELL +47 92066 705
  - @ ImTomGilb
  - these slides https://www.dropbox.com/s/y017zv1sq0gtiwy/What%20are%20the%20Dangers%20of%20Current%20Agile%20Practices%2C%20and%20How%20Can%20We%20Fix%20Them%20201117%20LMU.pptx?dl=0
-
- See Value slides, following these slides, as an extra reserve, another angle.
    - Source is London BCS SPA Lecture 2009

Does real Software Practice Advancement need yet another 'Manifesto'?

_"AGILE HAS DOOMED ITSELF - TO BECOME YET ANOTHER FAD “.
What is Seriously Wrong with Agile practices and interpretations - why AGILE, AS CURRENTLY PRACTICED, is PROJECT-failure-prone as a culture

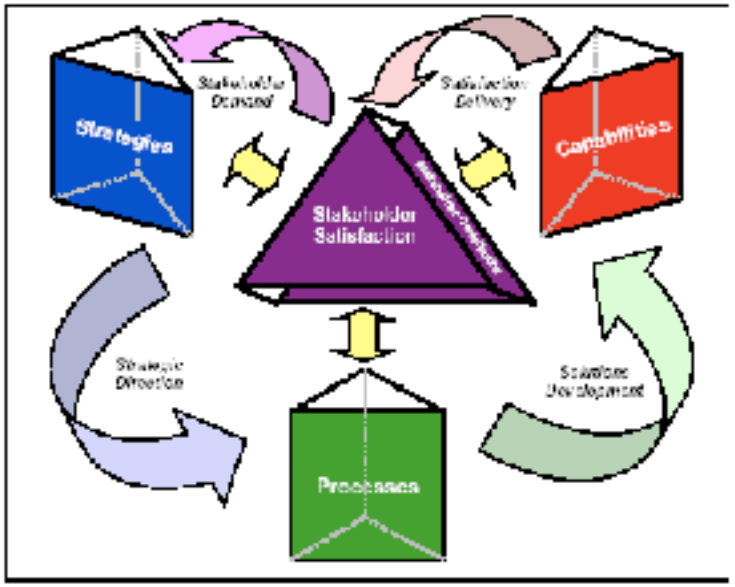
"What is Tom's advice, his own more value-oriented 'agile' principles and values (see below) and metrics-oriented agile practices in Evo?



Gilb's 'Value Driven Planning' Principles:

1. **Critical Stakeholders determine the values**
2. **Values can and must be quantified**
3. **Values are supported by Value Architecture**
4. **Value levels are determined by timing, architecture effect, and resources**
5. **Value levels can differ for different scopes (where, who)**
6. **Value can be delivered early**
7. **Value can be locked in incrementally**
8. **New Values can be discovered (external news, experience)**
9. **Values can be evaluated as a function of architecture (Impact Estimation)**
10. **Value delivery will attract resources.**

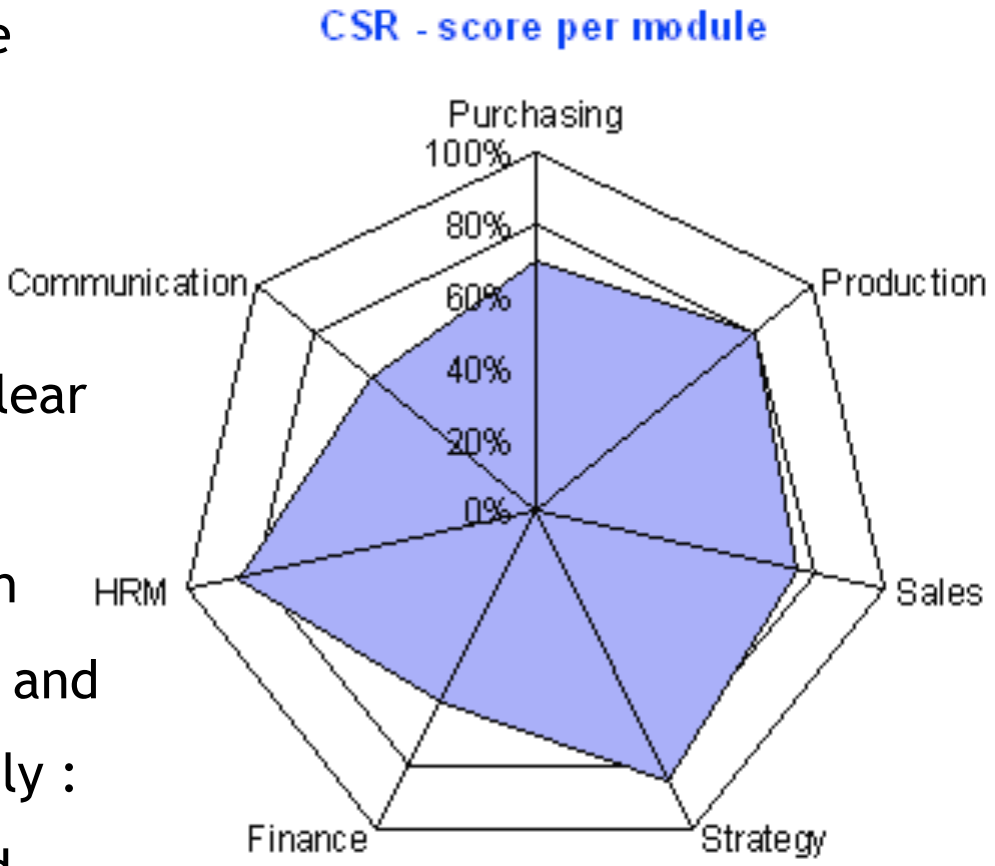
Value Driven Planning Principles in Detail:



Critical: "having a decisive or crucial importance in the success or failure of something" <-Dictionary

- The primary and prioritized values we need to deliver are determined by
  - analysis of the needs and values of stakeholders
    - stakeholders who can determine whether we *succeed* or *fail*.
- We cannot afford to satisfy *other (less critical)* levels, at other times and places, yet.
  - Because that might undermine our ability to satisfy the more critical stakeholders –
  - and consequently threaten our overall project success.

- Values can, if you want, be expressed numerically.
  - With a defined scale of measure
  - with a deliverable level of performance
  - and with qualifier info [Where, When, If]
- Quantification is useful:
  - to clarify your own thoughts
  - to get real agreement to one clear idea
  - to allow for varied targets and constraints
  - to allow direct comparison with benchmarks
  - to put in Request for bids, bids and contracts
  - to manage project evolutionarily : track progress
  - as a basis for measurement and testing
  - to enable research on methods



- Figure 1: Real (NON-CONFIDENTIAL version) example of an initial draft of setting the objectives that engineering processes must meet.

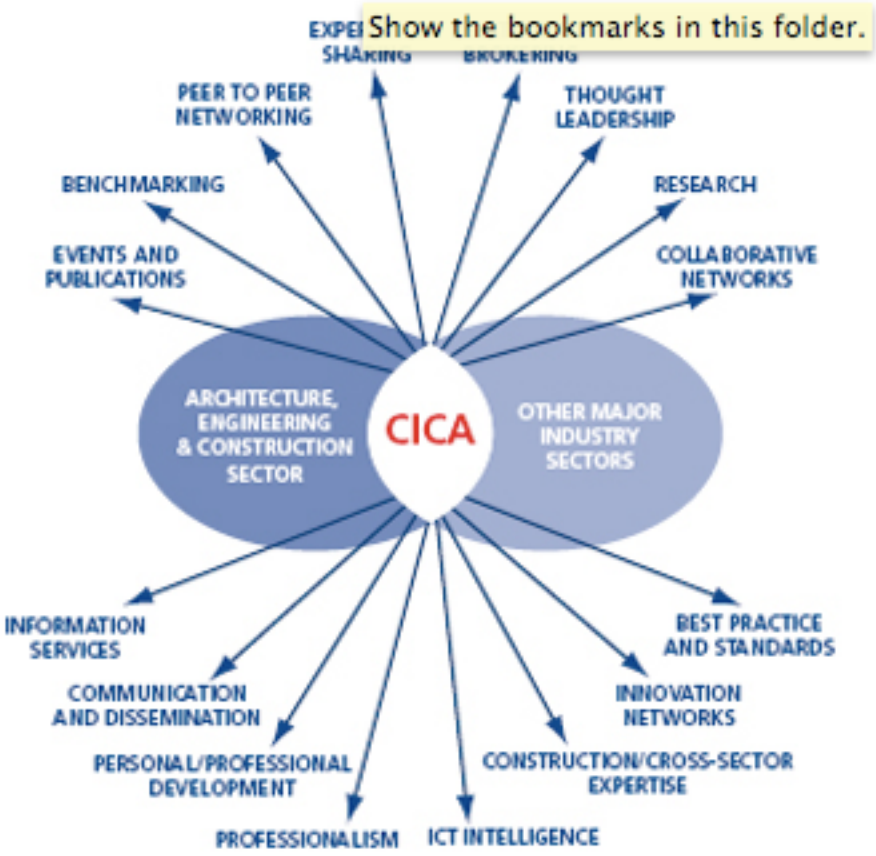
Business objective	Measure	Goal (200X)	Stretch goal (0X)	Volume	Value	Profit	Cash
Time to market	Normal project time from GT to GT5	<9 mo.	<6 mo.	X		X	X
Mid-range	Min BoM for The Corp phone	<$90	<$30	X		X	X
Platformisation Technology	# of Technology 66 Lic. shipping > 3M/yr	4	6	X		X	X
Interface	Interface units	>11M	>13M	X		X	X
Operator preference	Top-3 operators issue RFQ spec The Corp	1	2	X		X	X
Productivity							X
Get Torden	Lyn goes for Technology 66 in Sep-04	Yes		X		X	X
Fragmentation	Share of components modified	<10%	<5%		X	X	X
Commoditisation	Switching cost for a UI to another System	>1yr	>2yrs		X	X	X
Duplication	The Corp share of 'in scope' code in best-selling device	>90%	>95%		X	X	X
Competitiveness	Major feature comparison with MX	Same	Better	X		X	X
User experience	Key use cases superior vs. competition	5	10	X	X	X	X
Downstream cost saving	Project ROI for Licensees	>33%	>66%	X	X	X	X
Platformisation IFace	Number of shipping Lic.	33	55	X		X	X
Japan	Share of of XXXX sales	>50%	>60%	X		X	X
	Numbers are intentionally changed from real ones						

Business Values Quantified

3. Values are supported by Value Architecture

- Value Architecture: defined as:
  - anything you *implement* with a view to satisfying stakeholder values.

- Value Architecture:
  - includes product/system objectives
    - Which are a 'design' for satisfying stakeholder values
  - Has a multitude of performance and cost impacts
  - can impact a given system differently, depending on what is in the system, or what gets put in later
  - Needs to try to maximize value delivered for resources used.



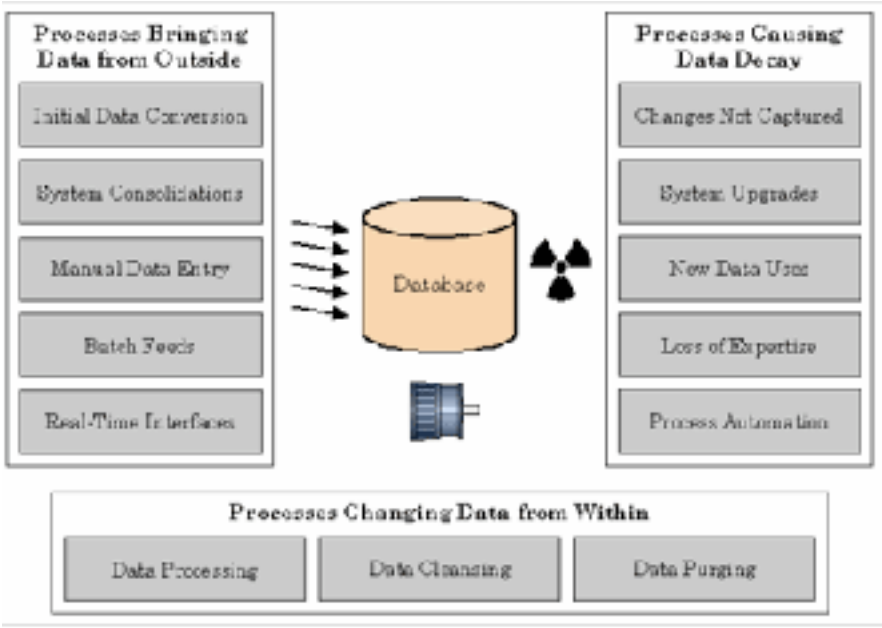
4. Value *levels* are determined by *timing*, *architecture effect*, and *resources*

Value levels: defined as:

the degree of satisfaction of value needs.

Value level:

- depends on *when* you observe the level
  - The environment, the people, other system performance characteristics (security, speed, usability)
- depends on the *current incremental power* of *particular value architecture* components
- depends on *resources available* both in development and operation

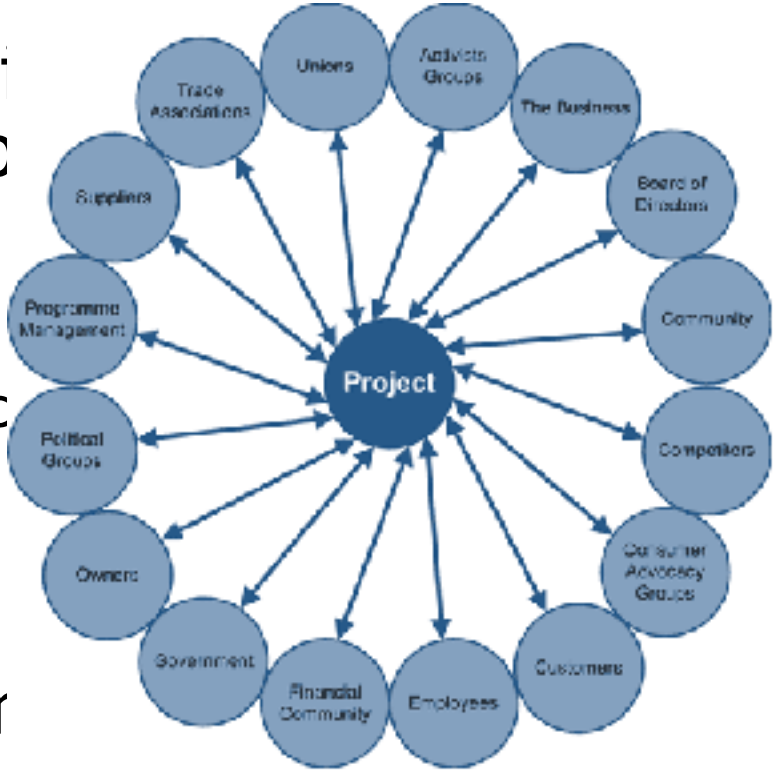


5. Required Value *levels* can differ for different scopes (where, who)

The level of value needed, and the level of value delivered - for a single attribute dimens (like Ease of Use) can vary fo

- different stakeholders
- at different times
  - (peak, holiday, slack, emergenc early implementation)
- for different ‘locations’
  - countries, companies, industries

There is nothing simple like ‘or level for all’



- 6. Value can be delivered *early*

You do not have to wait until ‘the project is done’ to deliver useful stakeholder value satisfaction.

You can intentionally target the highest priority stakeholders, and their highest priority value area, and levels.

You can deliver them early and continuously

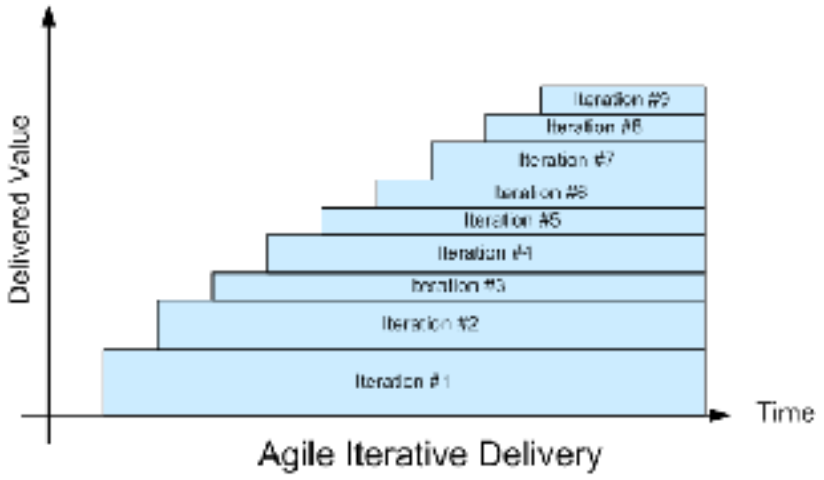
You can learn what is possible

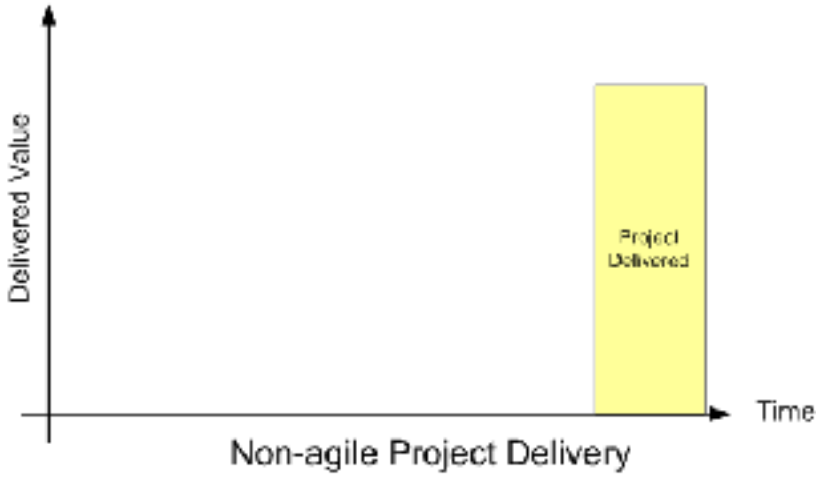
And what stakeholders really value.

Discover new value ideas

Discover new stakeholders

Discover new levels of satisfaction



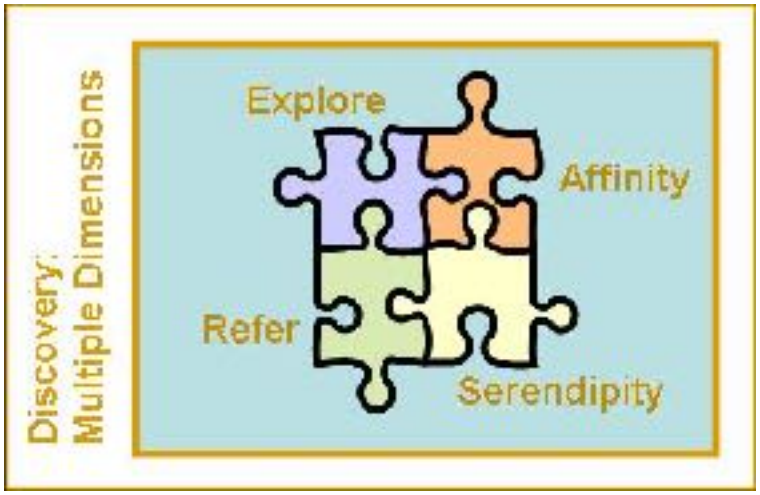


• 7. Value can be locked in incrementally

- You can increment the value satisfaction
  - *towards* longer term Goal levels
- You can spread the value deliveries
  - that are *proven* in *some* places,
  - more widely in the next increments
- This probably assumes that you have really handed over real results to real people.
  - Not just developed systems without delivery

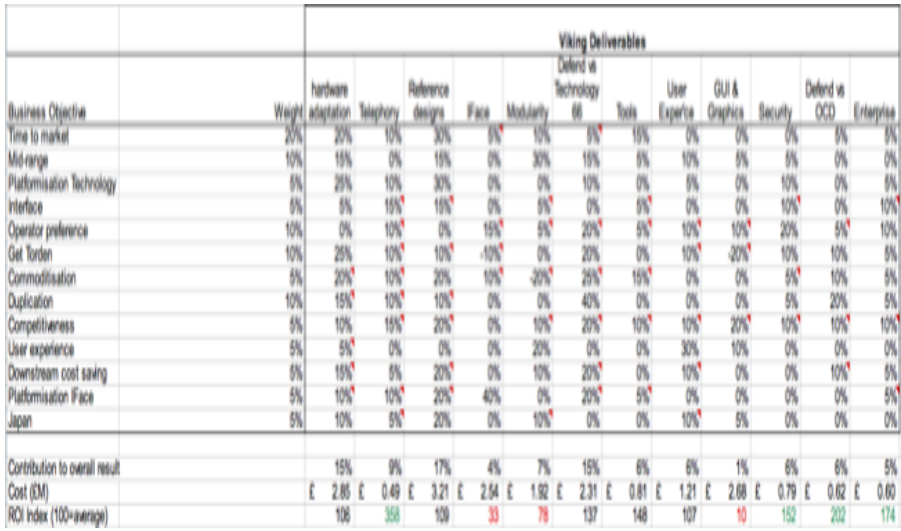
8. New Values can be discovered (external news, experience)

- *Expect*, and try to discover,
  - entirely new stakeholder values.
- These will of course emerge *after you start delivering* some satisfaction, because:
  - Stakeholders believe you can help
  - Things *change*



9. Values can be *evaluated* as a function of *architecture*
(using 'Impact Estimation')

- It is possible to get an **overview** of
  - the totality of impacts
  - that your **architecture**
  - (all designs and strategies)
  - **might** have
  - on all your defined stakeholder **needs**.



		Viking Deliverables											
Business Objective	Weight	hardware adaptation	Telephony	Reference designs	IFace	Modularity	Defend vs Technology 6fl	Tools	User Experie	GUI & Graphics	Security	Defend vs OCD	Enterprise
Time to market	20%	20%	10%	30%	0%	15%	0%	15%	0%	0%	0%	5%	5%
Mid-range	10%	15%	0%	15%	0%	30%	15%	5%	10%	5%	5%	0%	0%
Platformisation Technology	5%	25%	10%	30%	0%	0%	10%	0%	5%	0%	10%	0%	5%
Interface	5%	5%	15%	15%	0%	5%	0%	5%	0%	0%	10%	0%	10%
Operator preference	10%	0%	10%	0%	15%	5%	20%	5%	10%	10%	20%	5%	10%
Get Torden	10%	25%	10%	10%	-10%	0%	20%	0%	10%	-20%	10%	10%	5%
Commoditisation	5%	20%	10%	20%	10%	-20%	25%	15%	0%	0%	5%	10%	5%
Duplication	10%	15%	10%	10%	0%	0%	40%	0%	0%	0%	5%	20%	5%
Competitiveness	5%	10%	15%	20%	0%	10%	20%	10%	10%	20%	15%	10%	10%
User experience	5%	5%	0%	0%	0%	20%	0%	0%	30%	10%	0%	0%	0%
Downstream cost saving	5%	15%	5%	20%	0%	10%	20%	0%	10%	0%	0%	10%	5%
Platformisation IFace	5%	10%	10%	20%	40%	0%	20%	5%	0%	0%	0%	0%	5%
Japan	5%	10%	5%	20%	0%	10%	0%	0%	10%	5%	0%	0%	0%
Contribution to overall result		15%	9%	17%	4%	7%	15%	6%	6%	1%	6%	6%	5%
Cost (EM)		£ 2.85	£ 0.49	£ 3.21	£ 2.64	£ 1.92	£ 2.31	£ 0.81	£ 1.21	£ 2.68	£ 0.79	£ 0.62	£ 0.60
ROI Index (100=average)		106	358	109	33	78	137	148	107	10	152	202	174

- Use an Impact Estimation table
  - and you will be able to spot *opportunities* for
    - high value and
    - low cost early deliveries
      - by analyzing the numbers on the table

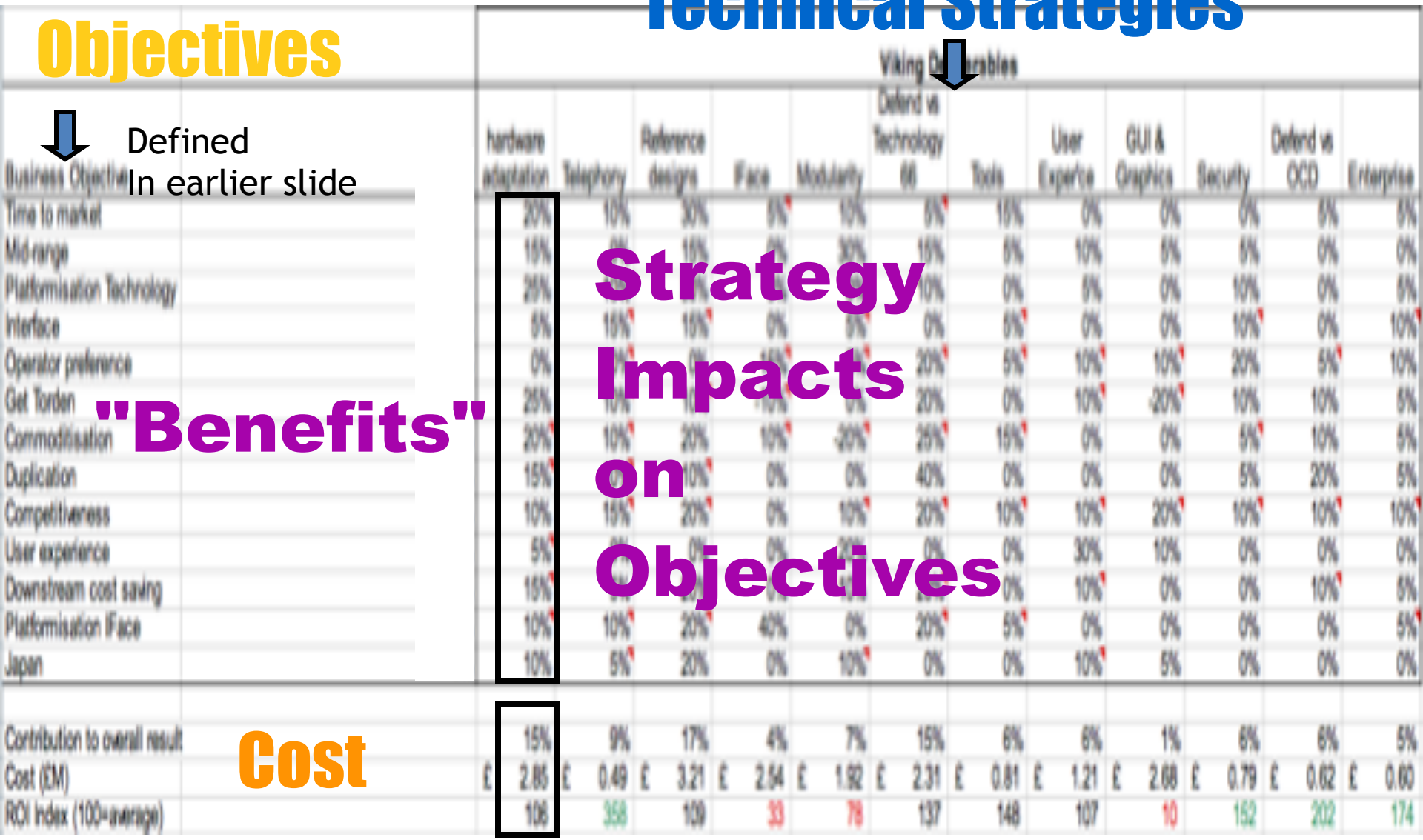
See next slide
For enlargement

Strategy Impact Estimation:
for a $100,000,000 Organizational Improvement Investment

Technical Strategies

Objectives

⇩ Defined In earlier slide



"Benefits"

Strategy Impacts on Objectives

Cost

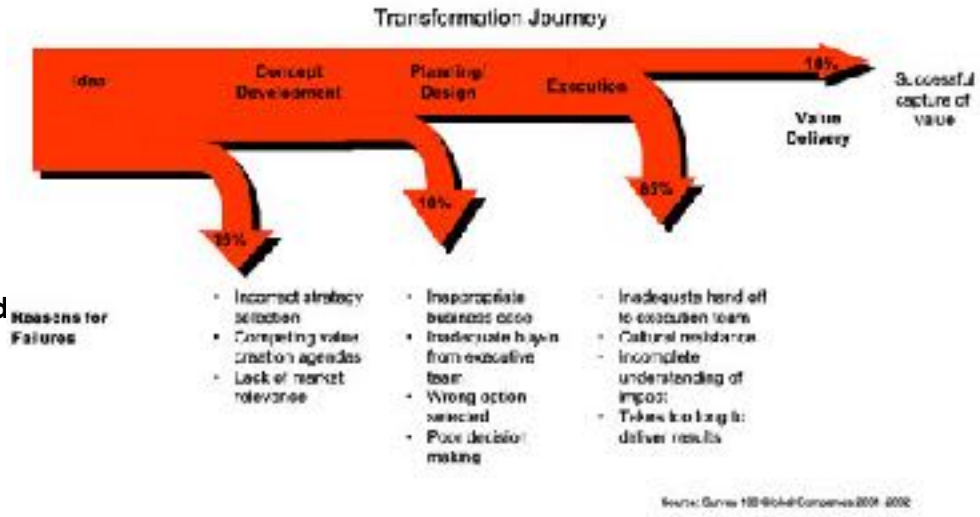
358 !

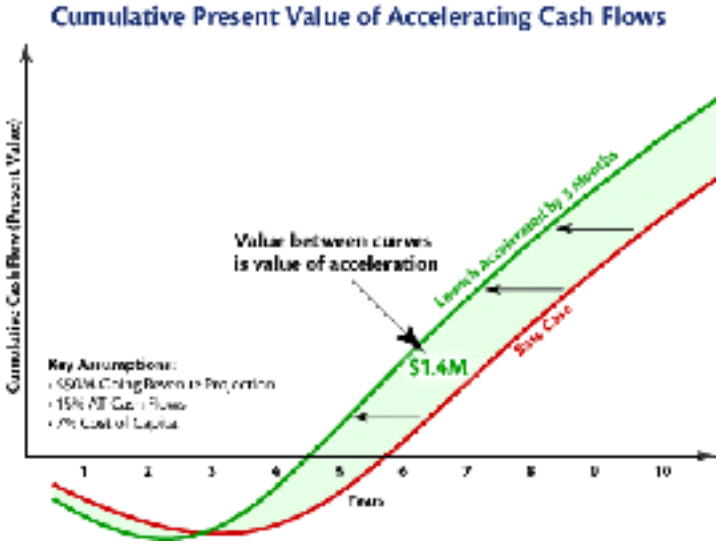
10. Value delivery will attract resources.

- If you are really good at delivering value
  - You can expect to attract
    - even more funding
  - Managers like
    - to be credited with succes
  - Money seeks
    - best interest rates

Gilb's Value Manifesto: A Management Policy?

1. **Really useful value, for real stakeholders will be defined measurably.**
   No nice-sounding emotive words please.
2. **Value will be seen in light of total long term costs as a decent return on investment.**
3. **Powerful management devices, like motivation and follow-up, will make sure that the value for money is really delivered –**
   or that the failure is punished, and the success is rewarded.
4. **The value will be delivered evolutionarily –**
   not all at the end.
5. **That is, we will create a stream of prioritized value delivery to stakeholders, at the beginning of our value delivery projects;**
   and continue as long as the real return on investment is suitably large.
6. **The CEO is primarily responsible for making all this happen effectively.**
   1. **The CFO will be charged with tracking all value to cost progress.**
   2. **The CTO and CIO will be charged with formulating all their efforts in terms of measurable value for resources.**





Source "Value Delivery in Systems Engineering" available at www.gilb.com
Unpublished paper http://www.gilb.com/community/tiki-download_file.php?fileId=137

The Value Delivery Problem

- **Sponsors who order and pay for systems engineering projects,**
  - **must justify their money spent**
  - **based on the expected consequential effects (hereafter called 'value') of the systems.**

- **The value of the technical system is often expressed**
  - **in presentation slides and requirements documents**
  - **as a set of nice-sounding words,**
  - **under various titles such as "System Objectives", and "Business Problem Definition"**

Some Assertions

Assertion 1. When top management allows large projects to proceed, with such badly formulated primary objectives, then

- **they are responsible as managers for the outcome (failure).**
- **They cannot plead ignorance.**

Assertion 2. The failure of technical staff (project management) to react to the lack of primary objective formulation by top management is also a total failure to do reasonable systems engineering.

- **Management might have a poor requirements culture, but we should routinely save them from themselves.**

Assertion 3. Both top managers and project personnel can be trained and motivated to clarify and quantify critical objectives routinely.

- **But until the poor external culture of education and practice changes, it may take strong CEO action to make this happen in your corporation.**
- **My experience is that no one else will fight for this.**

Assertion 4. All top level system performance improvements, are by definition, variables.

- **So, we can expect to define them quantitatively.**
- **We can also expect to be able to measure or test the current level of performance.**
- **Words like 'enhanced', 'reduced', 'improved' are not serious systems engineering requirements terms.**