‘Lean QA’

by Tom Gilb

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These slides will be at:
http://www.gilb.com/

WCCD ?

World Conference on

Code Debugging ?

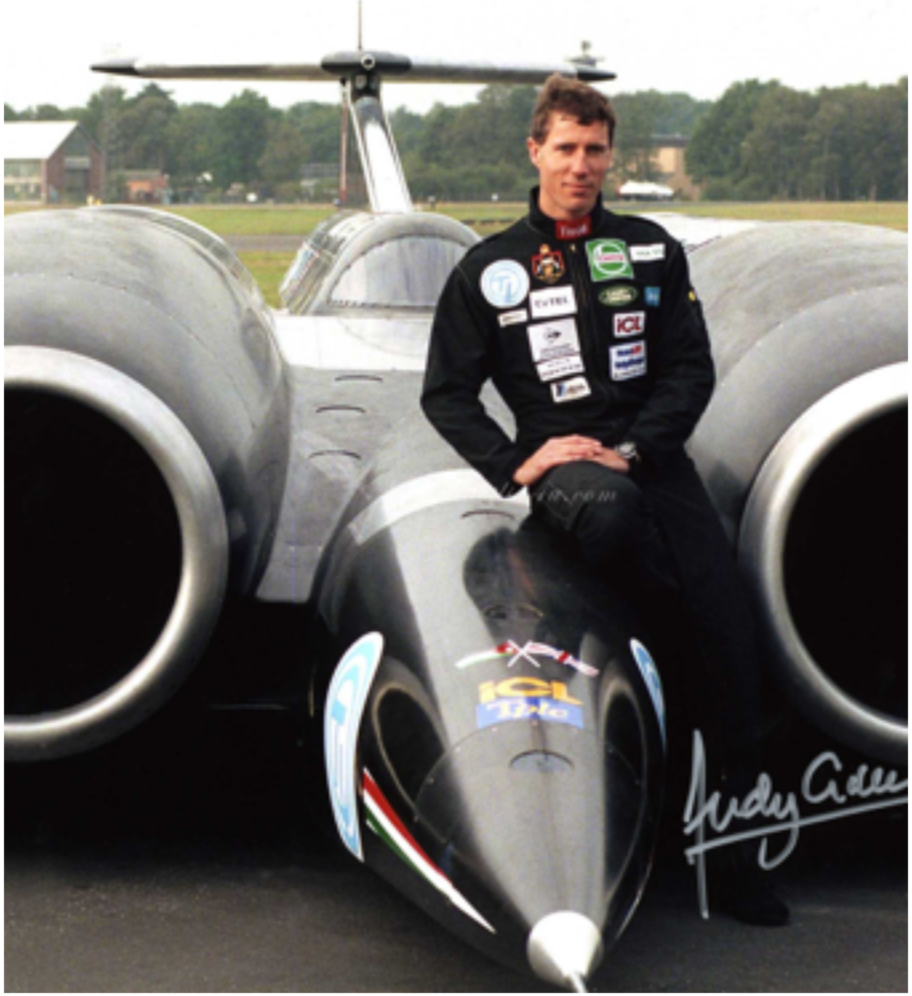
The Lean Quality Assurance Methods

- Everything ‘not adding value to the Customer’ is considered to be waste.
  - This includes:
    - unnecessary code and functionality
    - Delay in the software development process
    - Unclear requirements
    - Bureaucracy
    - Slow internal communication
  - Amplify Learning
    - The learning process is sped up by usage of short iteration cycles – each one coupled with refactoring and integration testing. Increasing feedback via short feedback sessions with Customers helps when determining the current phase of development and adjusting efforts for future improvements.
  - Decide as late as possible
  - Deliver as fast as possible
  - Empower the team
  - Build integrity in
    - separate components work well together as a whole with balance between flexibility, maintainability, efficiency, and responsiveness.
  - See the whole
    - “Think big, act small, fail fast; learn rapidly”

What messages did we get from yesterday's Keynote from Andy Green?

- "How are you going to measure that quality?" (to his Sw Engineer)
- Very systematically DESIGNING IN the quality
  - Not testing it in

    But, testing and measuring to see if it is ENGINEERED in.
- *Systems* engineering; not software engineering
  - People, Product, Marketplace, Resource
- Multiple Measures of Quality
  - Race Track dirt estimate 6k Tons
  - Current estimate 20,000 tons



Quandary: Who are you? Test or Quality

- ***Option 1: 'Specialist'***
- ***I want to test,***
  - *even if the systems quality,*
    - *as seen by the users and other stakeholders*
  - *is BAD*

- **Option 2: 'Useful Human'**
- **I want to be on a team**
- **delivering exceptional qualities**
- **to all stakeholders**
- **even if I never 'test' again'**

Main Take-away Points

Quality Assurance is far more than ‘test’,
and it can be far more cost-effective

‘Quality’ is far more than ‘bugs’

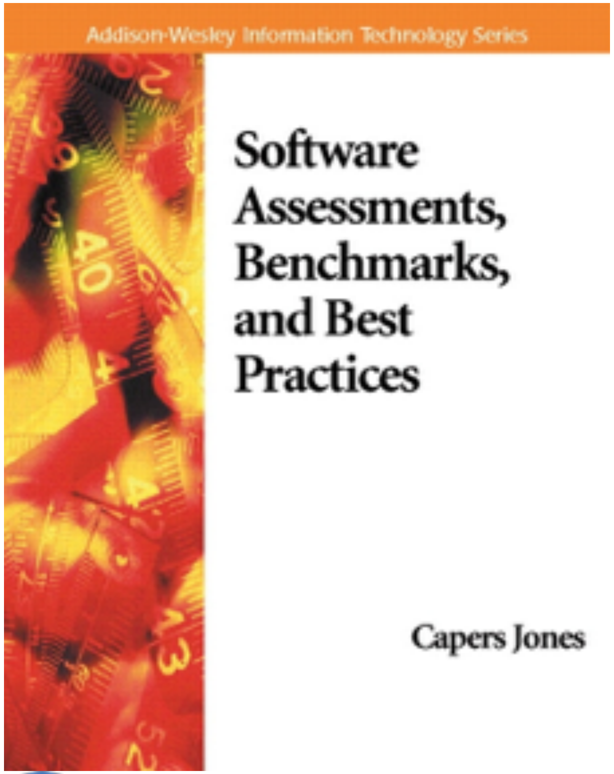
You probably have a lot to learn,
if you want real competitive quality

Begin:
Quality Assurance is far more than ‘test’

and it can be far more cost-effective

Inspection Effectiveness

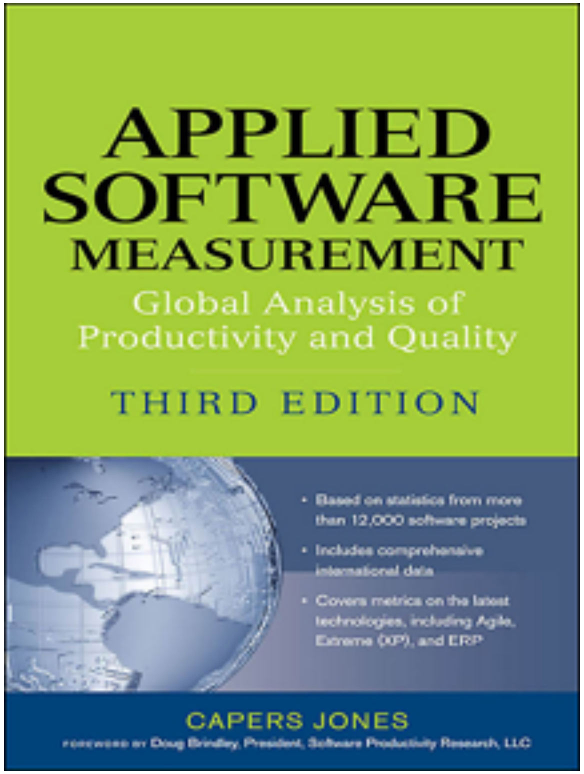
Capers Jones



Addison-Wesley Information Technology Series

Software Assessments, Benchmarks, and Best Practices

Capers Jones



APPLIED SOFTWARE MEASUREMENT

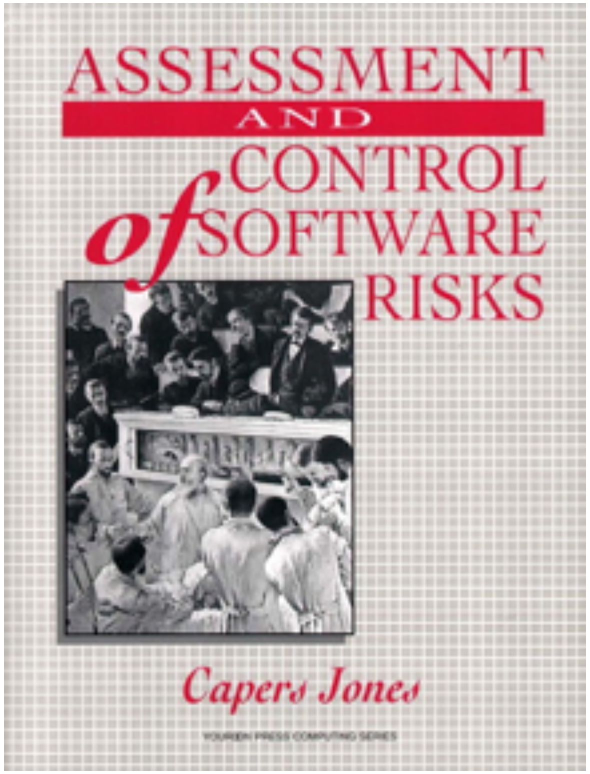
Global Analysis of Productivity and Quality

THIRD EDITION

- Based on statistics from more than 12,000 software projects
- Includes comprehensive international data
- Covers metrics on the latest technologies, including Agile, Extreme (XP), and ERP

CAPERS JONES

FOREWORD BY Doug Brindley, President, Software Productivity Research, LLC



ASSESSMENT AND CONTROL of SOFTWARE RISKS

Capers Jones

YOURDON PRESS COMPUTING SERIES

Regression test ?

15% to 30%

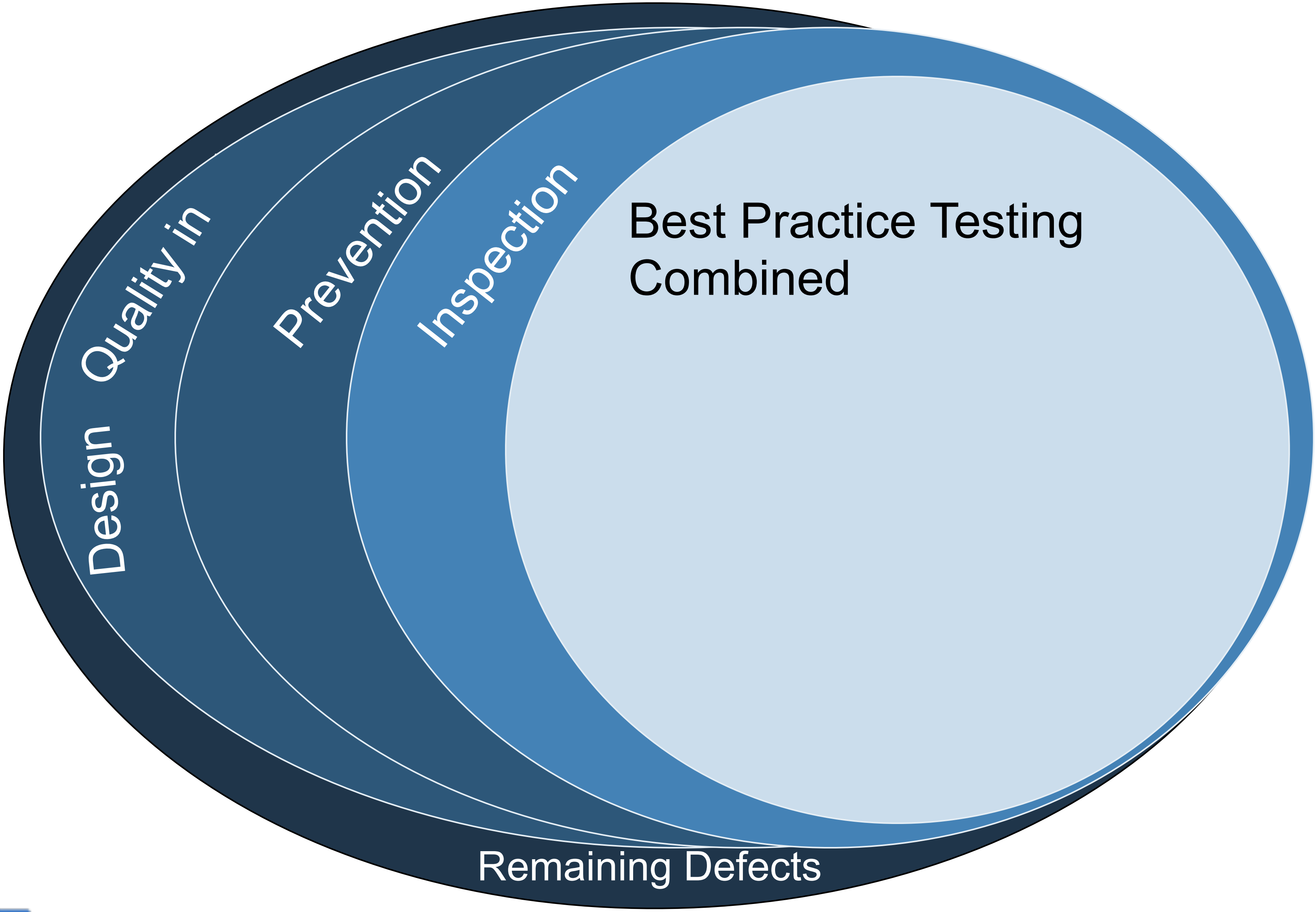
Integration test ?

25% to 40%

Unit test	15% to 50%
New function test	20% to 35%
Performance test	20% to 40%
System test	25% to 55%
Acceptance test (1 client)	25% to 35%
Low-volume Beta test (< 10 clients)	25% to 40%
High-volume Beta test (> 1000 clients)	60% to 85%

Inspections?

Informal design reviews	25% to 40%
Formal design inspections	45% to 65%
Informal code reviews	20% to 35%
Formal code inspections	45% to 70%


Design Quality in
Prevention
Inspection
Best Practice Testing Combined
Remaining Defects

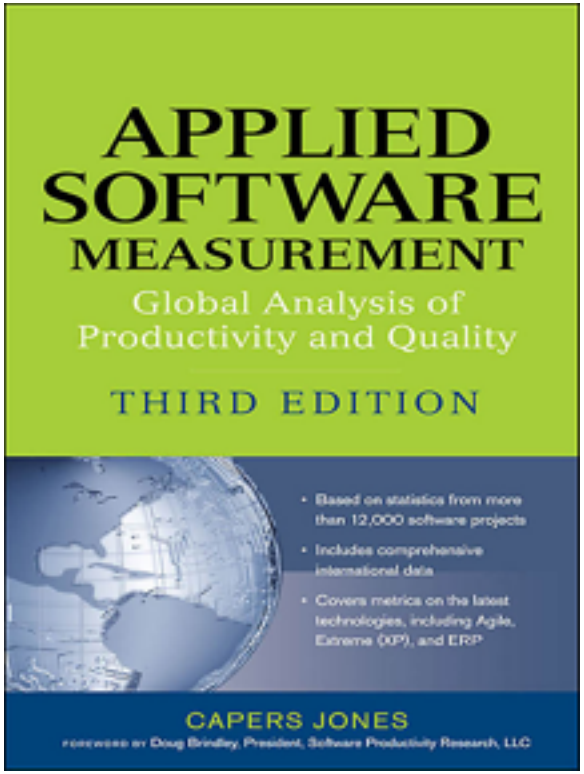
Little hope of ‘zero defects’

“Between

8 and 10

defect removal stages required to achieve removal effectiveness of

95%”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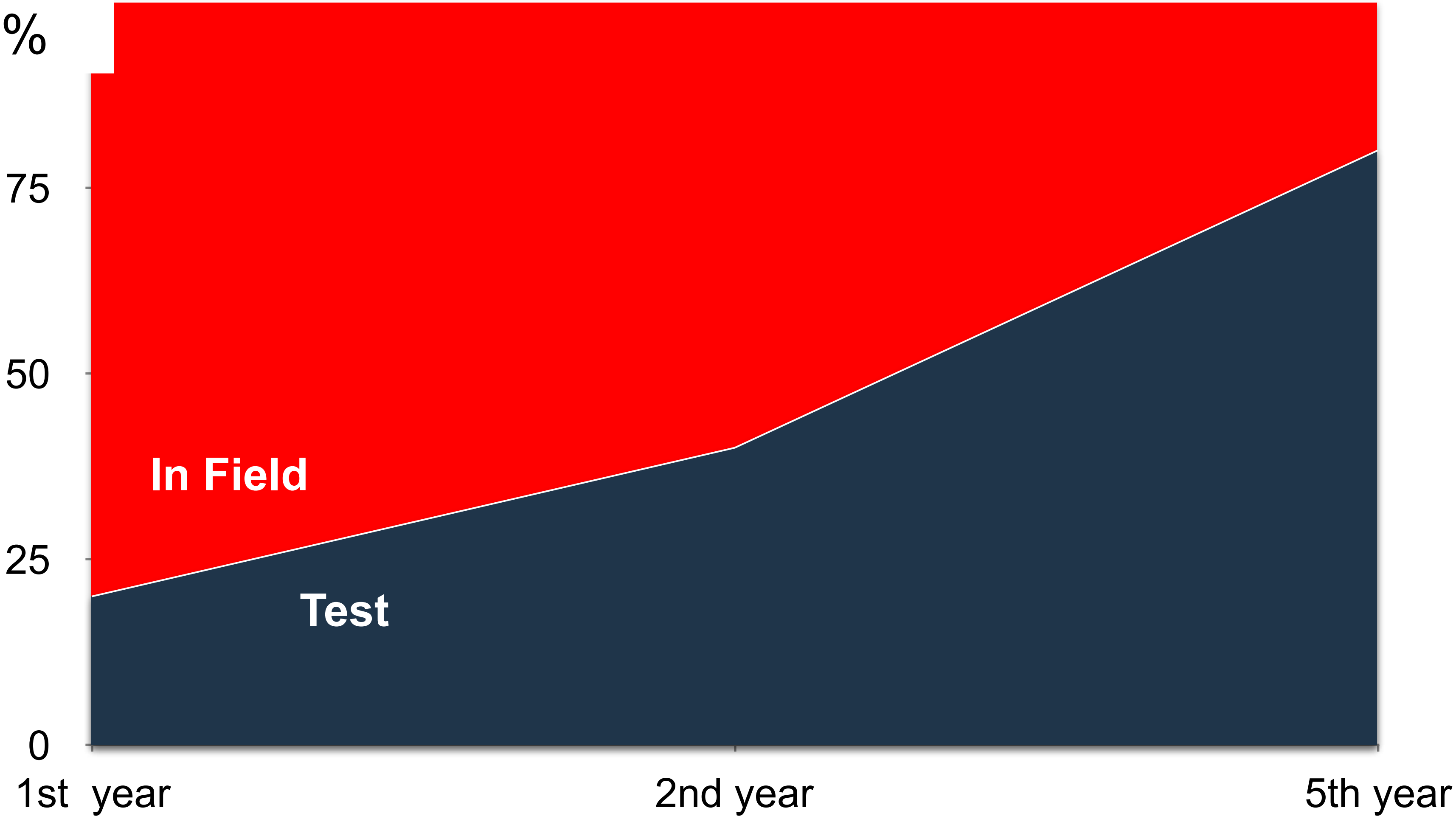
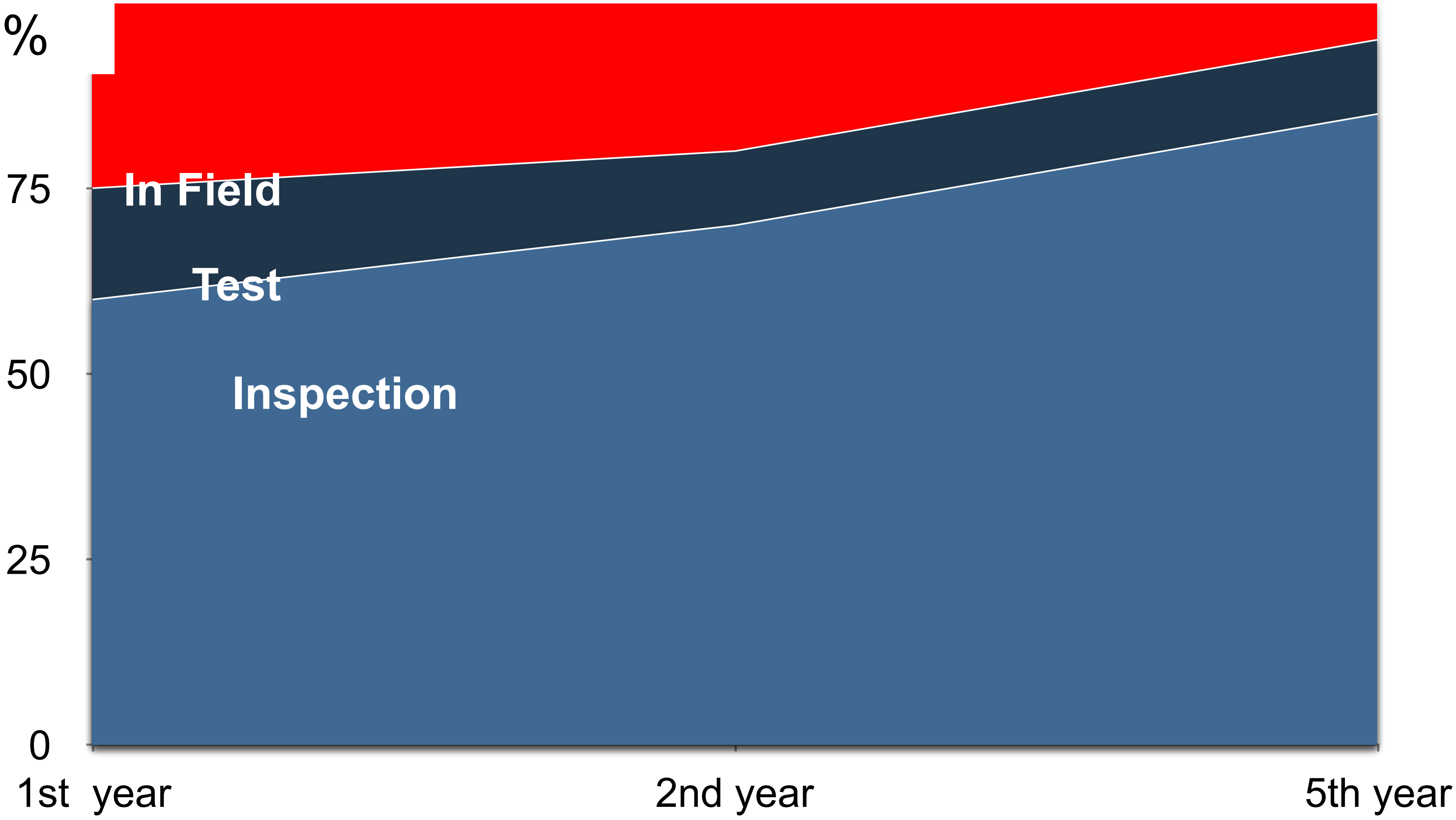
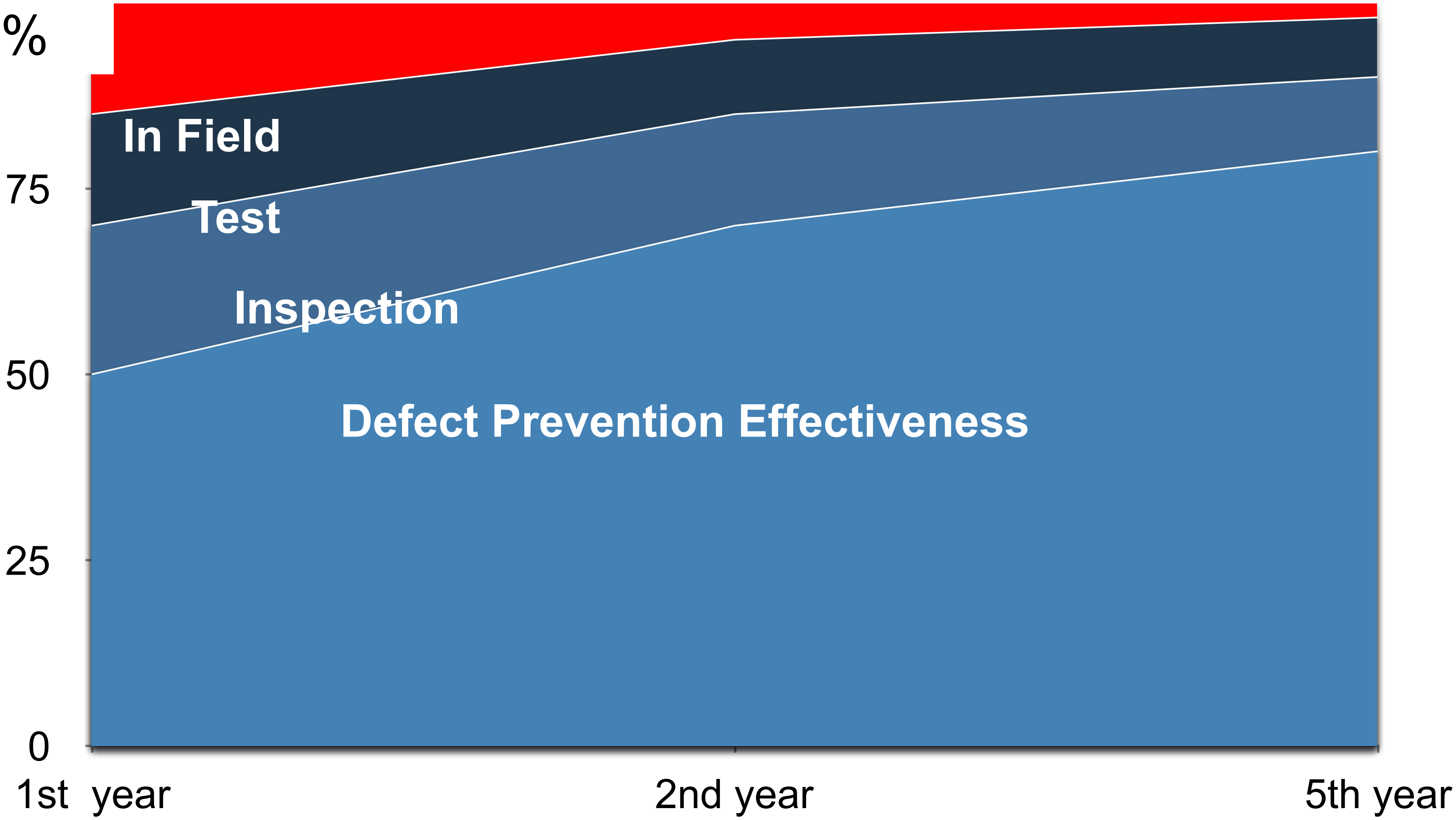
Testing Capability (C. Jones)



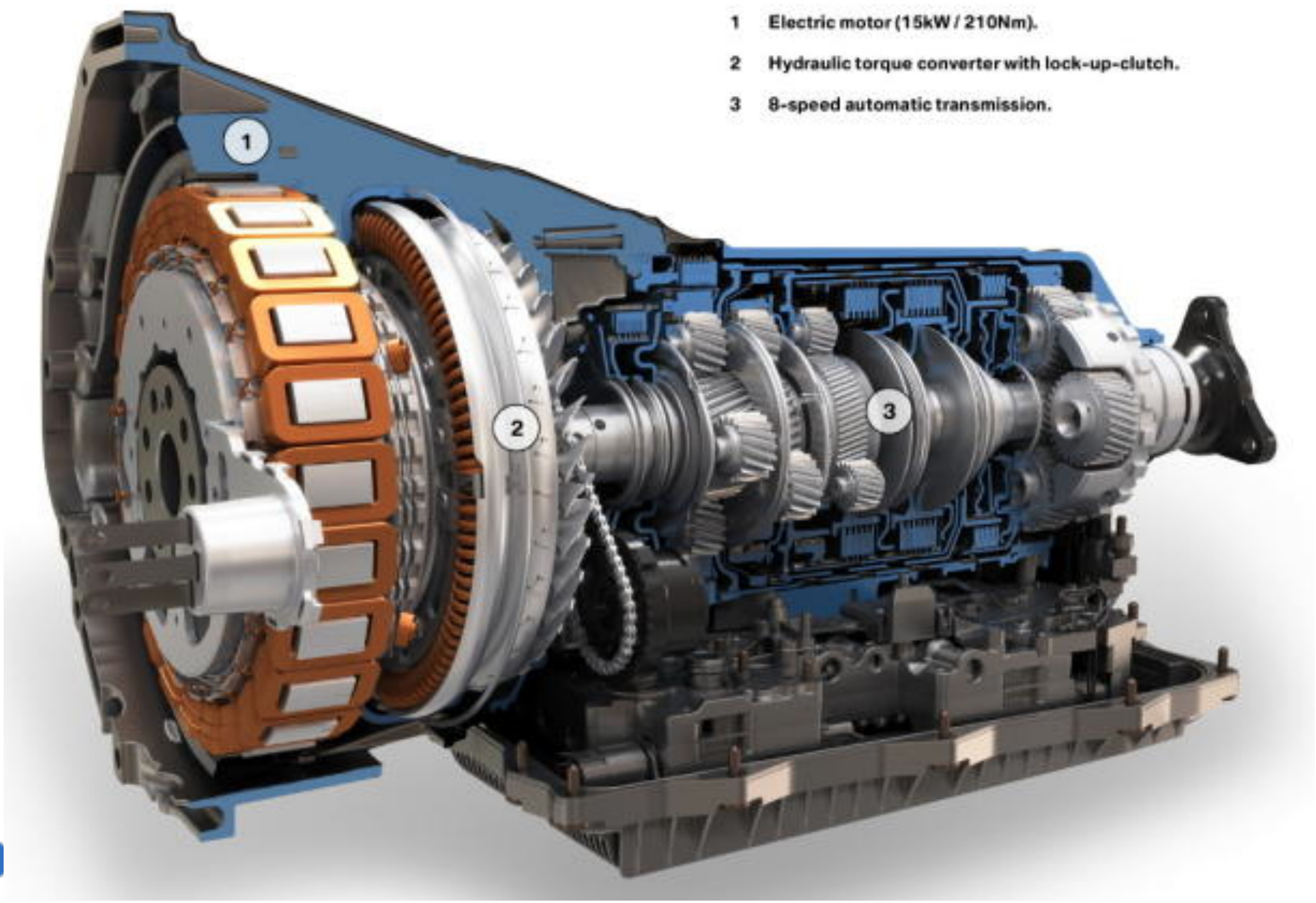
Defect Detection Capability (C. Jones)



IBM Defect Avoidance Experience



Design Quality In



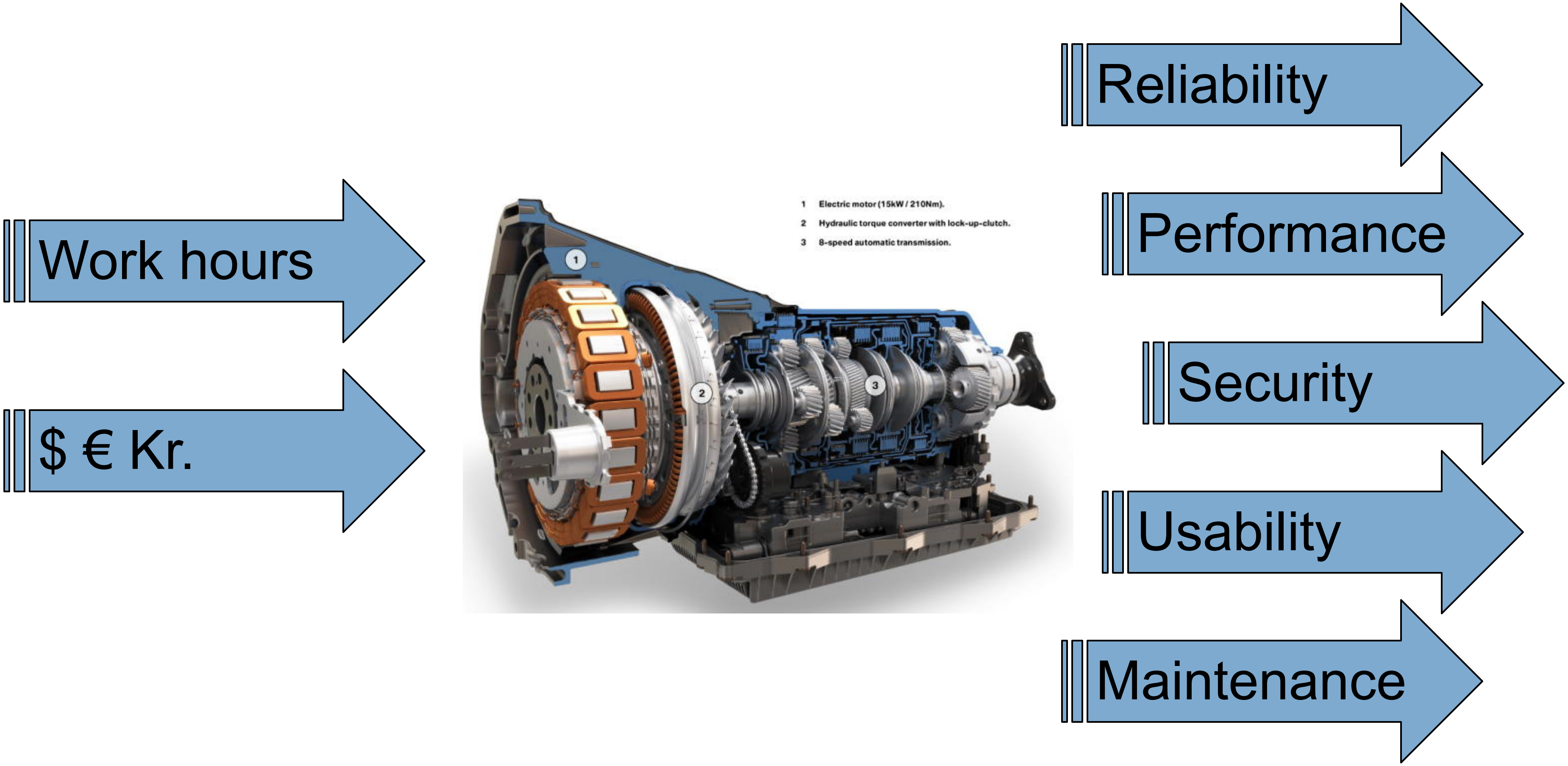
1 Electric motor (15kW / 210Nm).

2 Hydraulic torque converter with lock-up-clutch.

3 8-speed automatic transmission.

You don't get quality by testing it in

but by ‘Engineering’ Quality In



Work hours

$ € Kr.

Reliability

Performance

Security

Usability

Maintenance

1 Electric motor (15kW / 210Nm).
2 Hydraulic torque converter with lock-up-clutch.
3 8-speed automatic transmission.
1
2
3

Setting Quality Goals
simple example

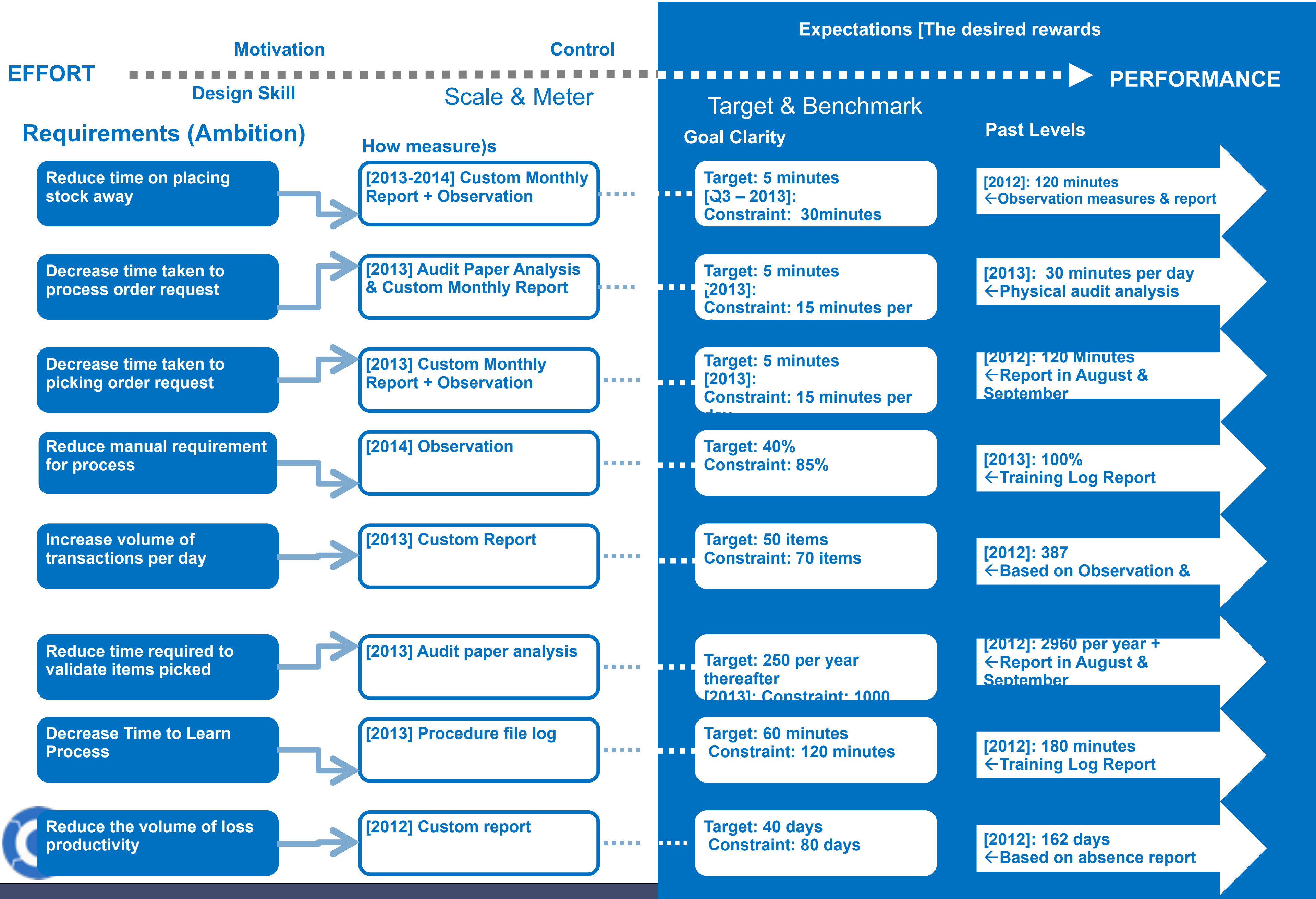
Usability.**Learn**

Scale: average time to Learn how to operate the computer, from .. to ..

Status [today] 3 hours

Goal [next year] 10 min.

PLANGUAGE SAMPLE: Man-Chie Tse & Ravi Singh Kahlon, U of Ulster . NHS Project 2014



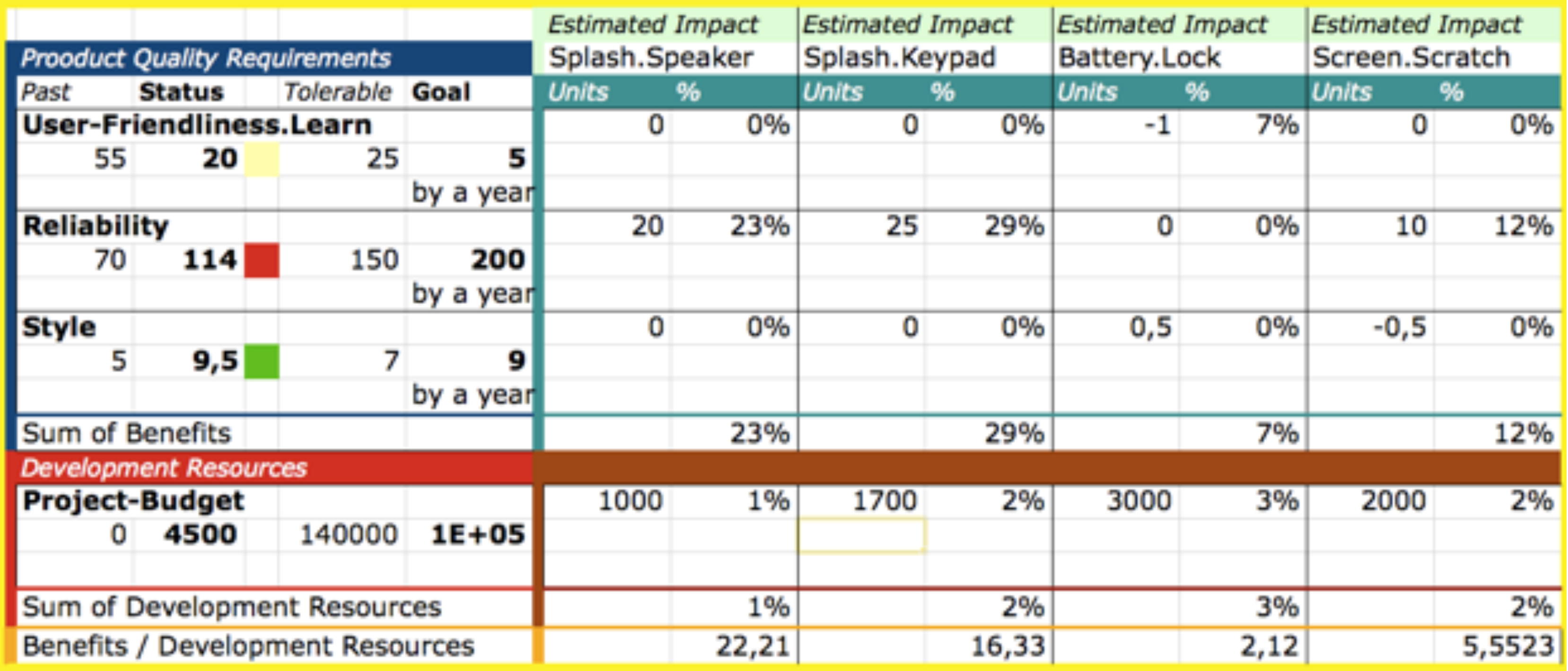
Requirements (Ambition)	How measure)s	Goal Clarity	Past Levels
Reduce time on placing stock away	[2013-2014] Custom Monthly Report + Observation	Target: 5 minutes [Q3 – 2013]: Constraint: 30minutes	[2012]: 120 minutes ←Observation measures & report
Decrease time taken to process order request	[2013] Audit Paper Analysis & Custom Monthly Report	Target: 5 minutes [2013]: Constraint: 15 minutes per	[2013]: 30 minutes per day ←Physical audit analysis
Decrease time taken to picking order request	[2013] Custom Monthly Report + Observation	Target: 5 minutes [2013]: Constraint: 15 minutes per day	[2012]: 120 Minutes ←Report in August & September
Reduce manual requirement for process	[2014] Observation	Target: 40% Constraint: 85%	[2013]: 100% ←Training Log Report
Increase volume of transactions per day	[2013] Custom Report	Target: 50 items Constraint: 70 items	[2012]: 387 ←Based on Observation &
Reduce time required to validate items picked	[2013] Audit paper analysis	Target: 250 per year thereafter [2013]: Constraint: 1000	[2012]: 2960 per year + ←Report in August & September
Decrease Time to Learn Process	[2013] Procedure file log	Target: 60 minutes Constraint: 120 minutes	[2012]: 180 minutes ←Training Log Report
Reduce the volume of loss productivity	[2012] Custom report	Target: 40 days Constraint: 80 days	[2012]: 162 days ←Based on absence report

Designing to meet Quality within Costs
A systematic Quantitative Method
Using ‘Impact Estimation’ Tables

Design Ideas

Qualities

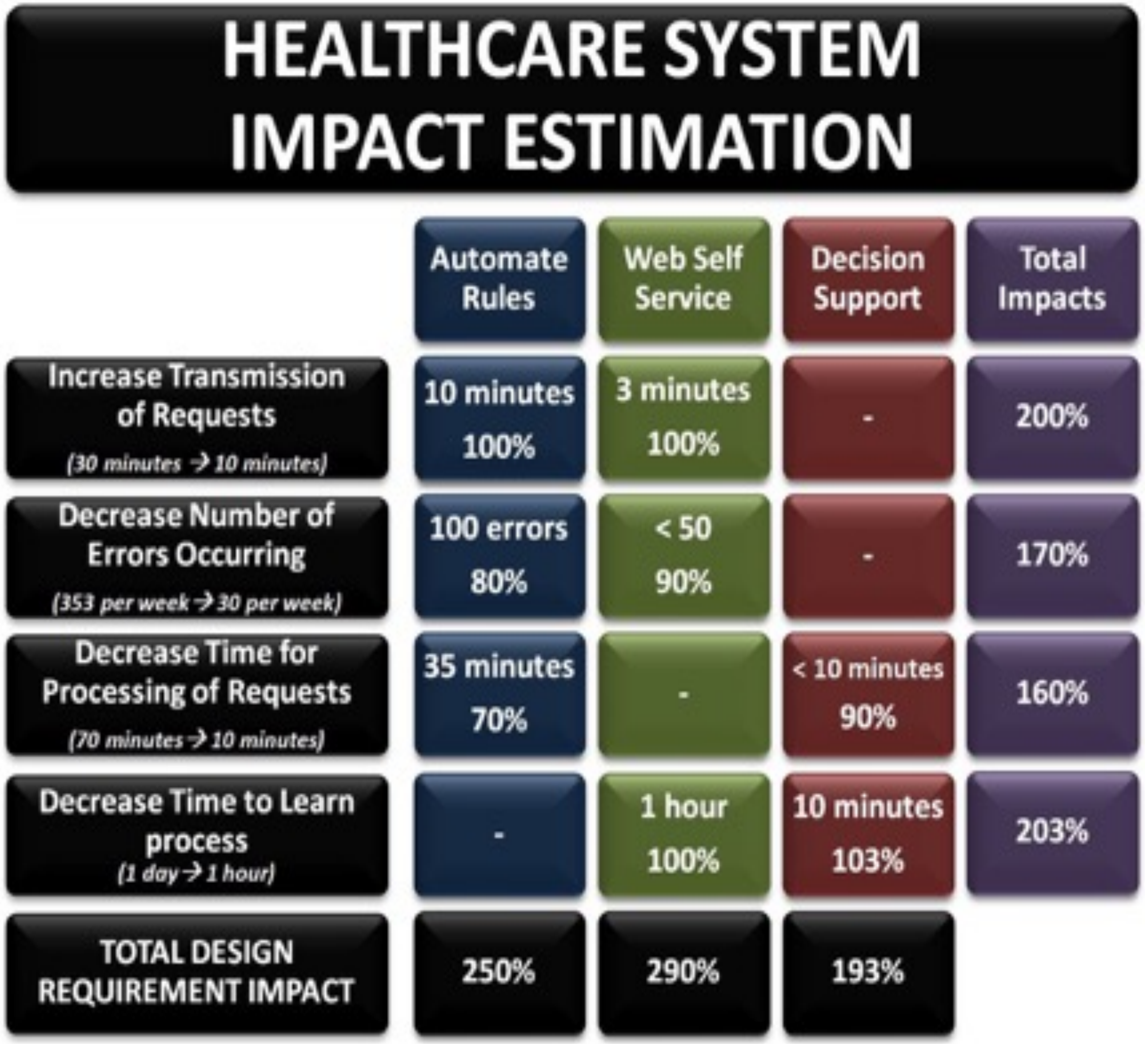
€ $



					Estimated Impact		Estimated Impact		Estimated Impact		Estimated Impact	
Prooduct Quality Requirements					Splash.Speaker		Splash.Keypad		Battery.Lock		Screen.Scratch	
Past	**Status**		*Tolerable*	**Goal**	*Units*	*%*	*Units*	*%*	*Units*	*%*	*Units*	*%*
User-Friendliness.Learn					0	0%	0	0%	-1	7%	0	0%
55	**20**	🟨	25	**5**								
				by a year								
Reliability					20	23%	25	29%	0	0%	10	12%
70	**114**	🟥	150	**200**								
				by a year								
Style					0	0%	0	0%	0,5	0%	-0,5	0%
5	**9,5**	🟩	7	**9**								
				by a year								
Sum of Benefits						23%		29%		7%		12%
Development Resources												
Project-Budget					1000	1%	1700	2%	3000	3%	2000	2%
0	**4500**		140000	**1E+05**								
Sum of Development Resources						1%		2%		3%		2%
Benefits / Development Resources						22,21		16,33		2,12		5,5523

Healthcare Impact Estimation

Man-Chie Tse1,2 & Ravinder Singh Kahlon 1,2
{Man-Chie, Ravi}@dkode.co

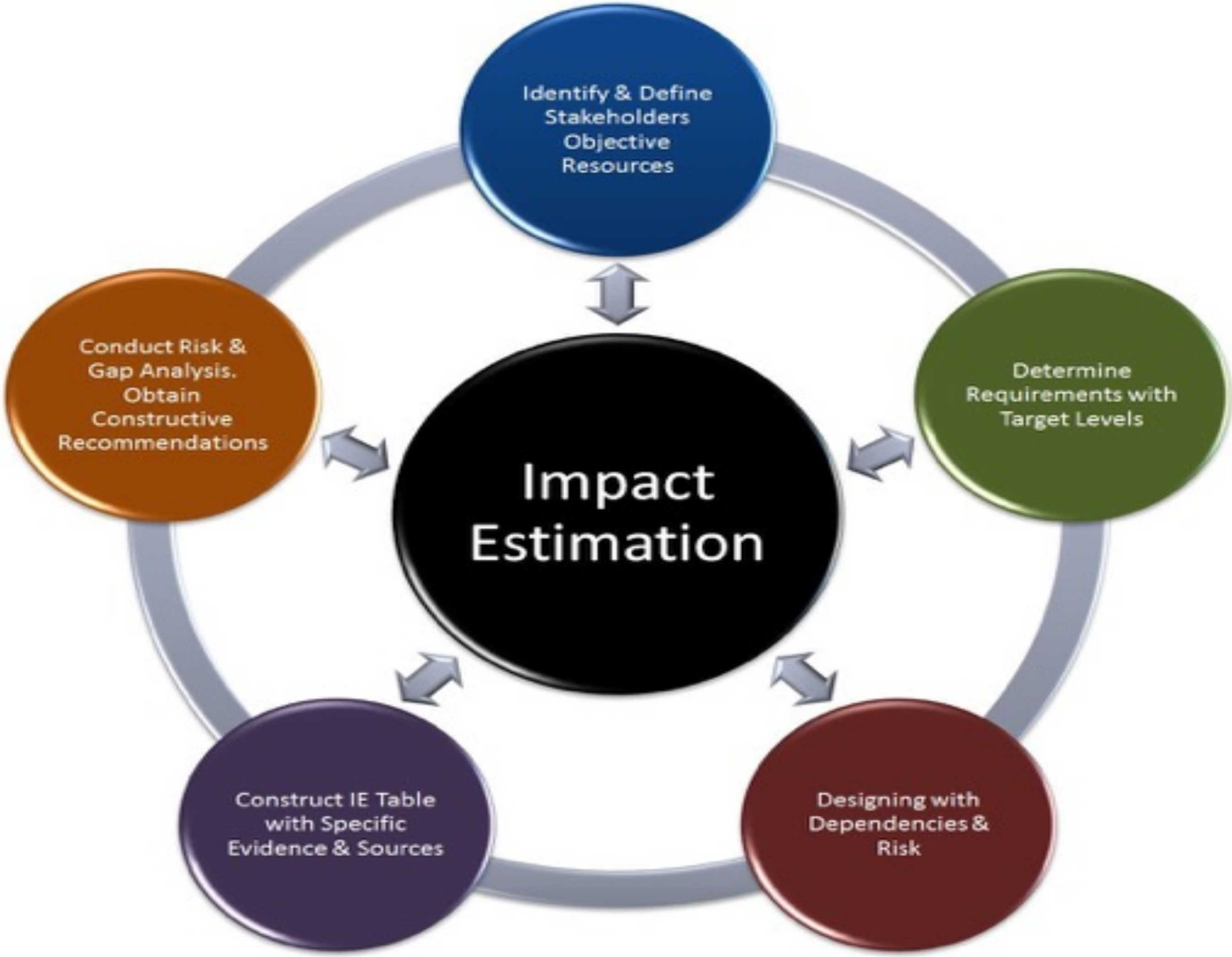


HEALTHCARE SYSTEM IMPACT ESTIMATION

	Automate Rules	Web Self Service	Decision Support	Total Impacts
Increase Transmission of Requests *(30 minutes → 10 minutes)*	10 minutes 100%	3 minutes 100%	-	200%
Decrease Number of Errors Occurring *(353 per week → 30 per week)*	100 errors 80%	< 50 90%	-	170%
Decrease Time for Processing of Requests *(70 minutes → 10 minutes)*	35 minutes 70%	-	< 10 minutes 90%	160%
Decrease Time to Learn process *(1 day → 1 hour)*	-	1 hour 100%	10 minutes 103%	203%
TOTAL DESIGN REQUIREMENT IMPACT	250%	290%	193%	

Impact Estimation Elements

Man-Chie Tse1,2 & Ravinder Singh Kahlon 1,2
{Man-Chie, Ravi}@dkode.co



Identify & Define
Stakeholders
Objective
Resources

Determine
Requirements with
Target Levels

Designing with
Dependencies &
Risk

Construct IE Table
with Specific
Evidence & Sources

Conduct Risk &
Gap Analysis.
Obtain
Constructive
Recommendations

Impact
Estimation

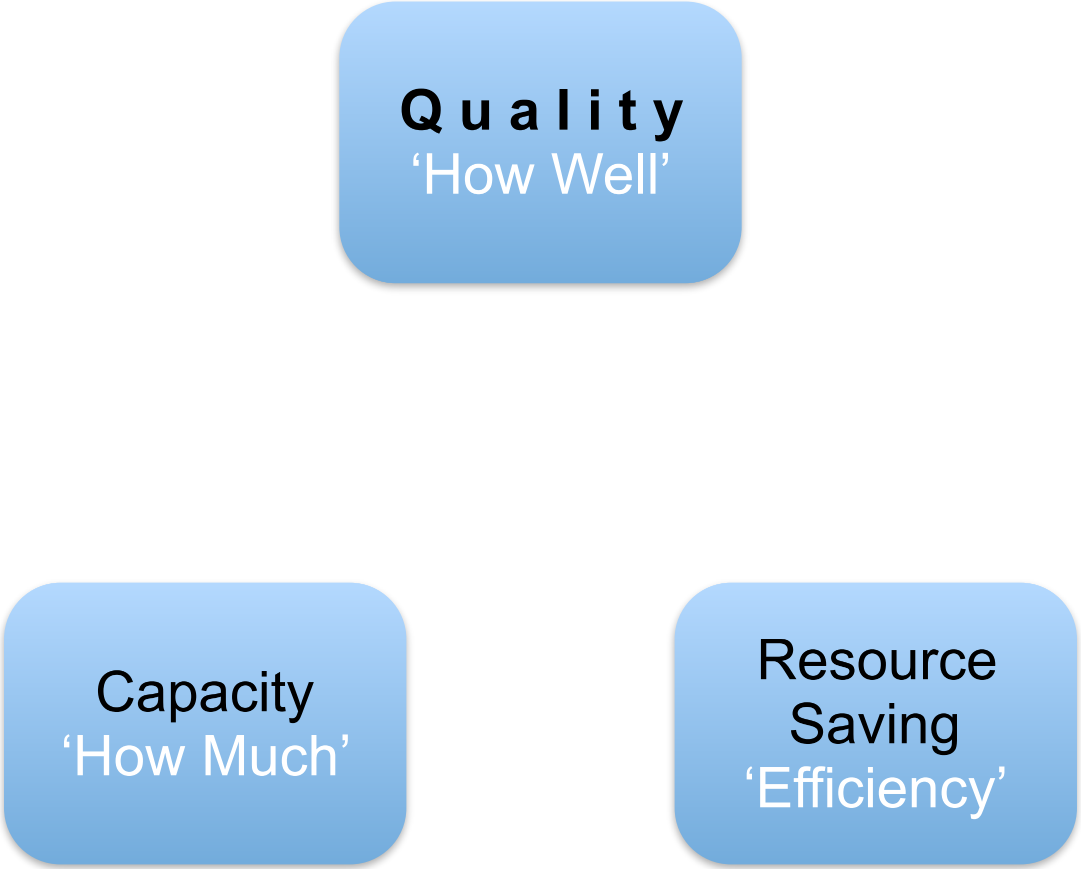
Quality Assurance is far more than ‘test’

and, QA can be far more cost-effective
Than ‘test’ approaches

Cost-Effective = Quality Delivered / Cost

Quality is far more than 'bugs'

System Performance



Quality
'How Well'

Capacity
'How Much'

Resource
Saving
'Efficiency'

Qualities are many and variable

Usability

- Learning
- Doing
- Error Rate

Adaptability

- Portability
- Enhancability
- Compatibility

Integrity

- Threat Type and Frequency
- Security Mitigation

Availability

- Reliability
- Maintainability (fault fix speed)

http://www.gilb.com/tiki-download_file.php?fileId=26

Chapter 5: Scales of Measure:
http://www.gilb.com/tiki-download_file.php?fileId=26

Quantify the Quality to ‘Assure’ It

“…I often say that

when you can **measure**
what you are speaking about,

and **express it in numbers**,

you know something about it;

but when you **cannot measure** it,

when you **cannot express it in numbers**,

your knowledge is of a meagre and unsatisfactory kind;…”

- Lord Kelvin, 1893

Main Idea, again

- There are many much smarter ways to get quality than ‘testing it in’

- For example, at Google ..

Google, is now experimenting in real Google projects. No Professional Testers

He has **totally eliminated** the use of **professional testers** on his team, replacing them with a set of *more cost effective means* for ‘testing’ the software.. (Construx Summit Talk, Oct 2011, Seattle)

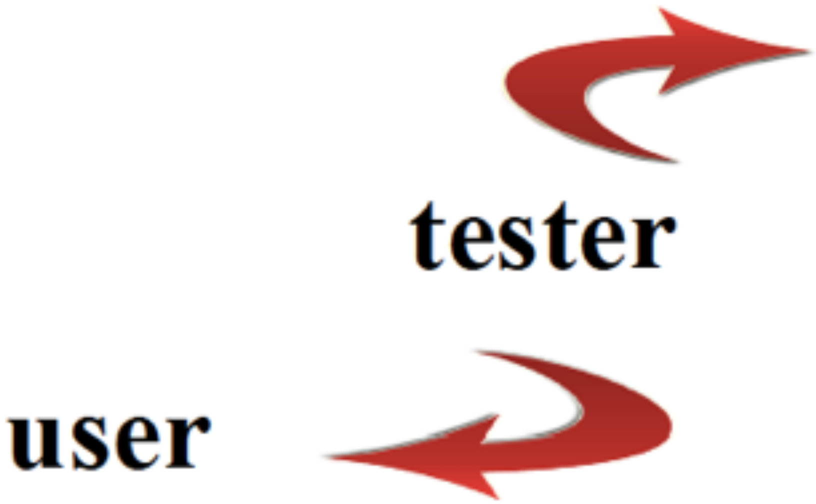
James Whittaker

Engineering Director
Google

If following my work appeals to you:
+docjamesw (Google+)
@docjamesw (Twitter)
googledevspot.blogspot.com
googletesting.blogspot.com

Google
How to Break Software
How to Break Software Security
How to Break Web Software
How Google Tests Software
Exploratory Software Testing

Google/Whittaker Summary 2011
"Where does testing fit in this world" JW



developer

- treat testing as a feature
- gets managed in dev workflow
- product is the focus, not the role

tester

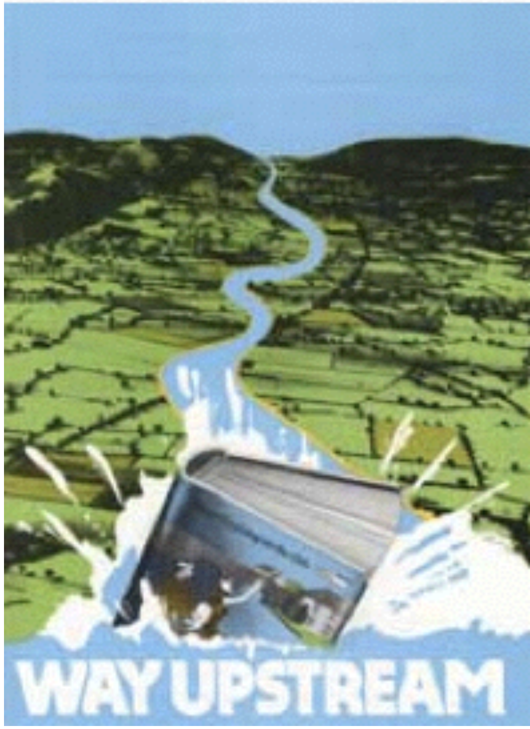
user

- it doesn't matter *who* does the testing, only that it gets done
- establish test goals, measure progres toward these goals
- specialized testing is focus

However

- *Optimizing* the *testing process* is great….

- But,
  - a **lean, upstream, proactive** approach is even far more powerful



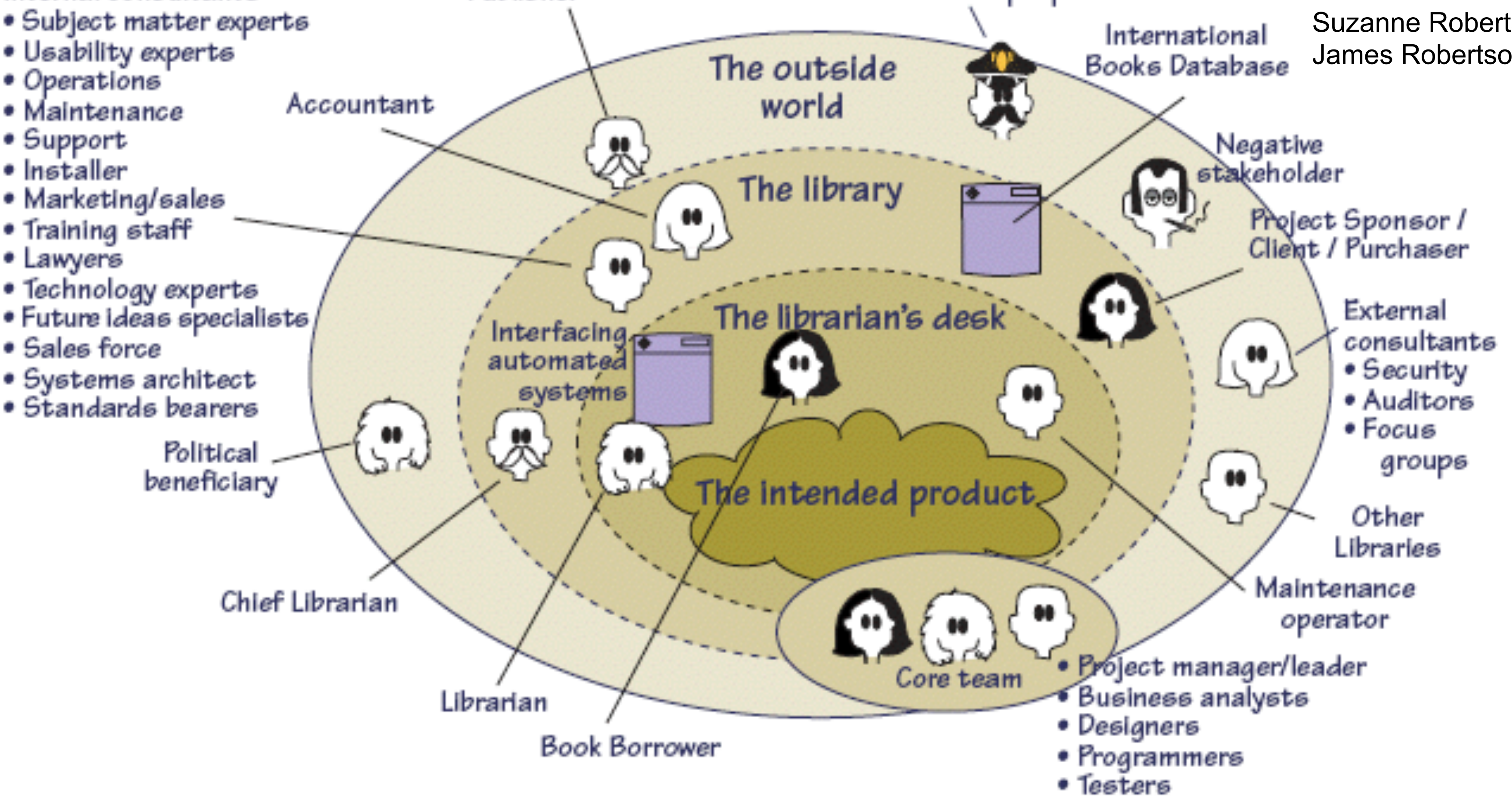
- (for getting critical qualities, cost-effectively)

7

Competitive Lean QA methods to Learn

1. Stakeholders Decide Qualities

Suzanne Robertson & James Robertson

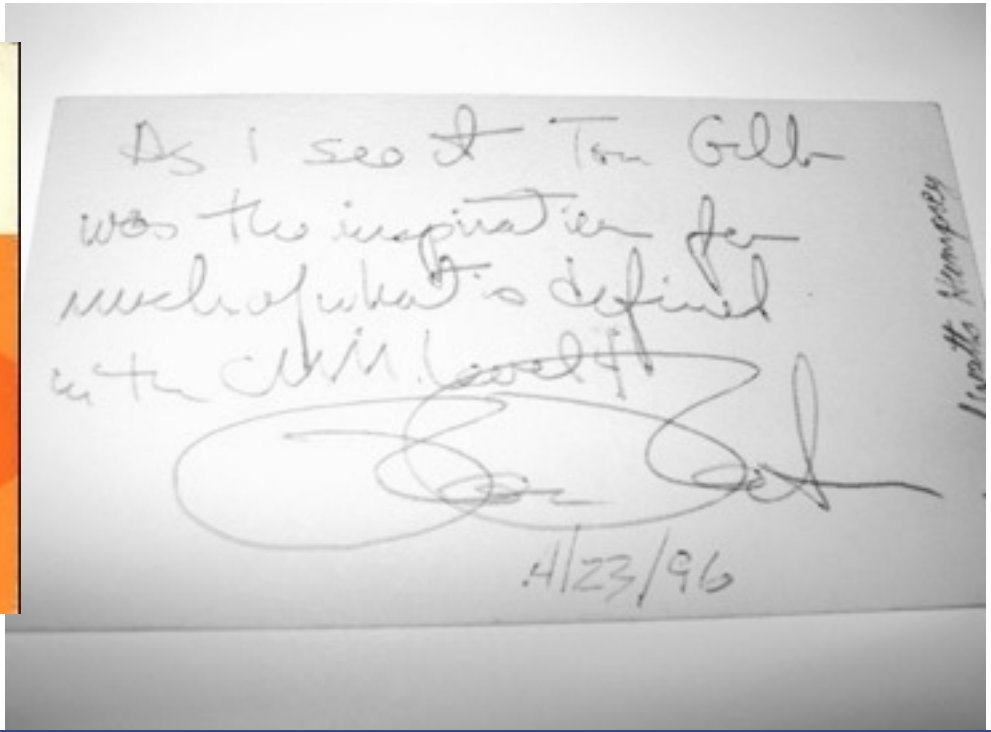


ysis	QC	Management	Requirements	Motivatio
omparative valuation eadline ompletion stimation ata Collection & earning esearch	• Quality Requirement Testing • Design Inspections and Reviews	• Project Management	• Communication of Primary Requirements • Simplify requirements to Top Ten Critical Ones	• Contracti results • Paying C for results • Reward t results ac • Motivate towards E

CMM Level 4 Basis

Tom Gilb Software Metrics

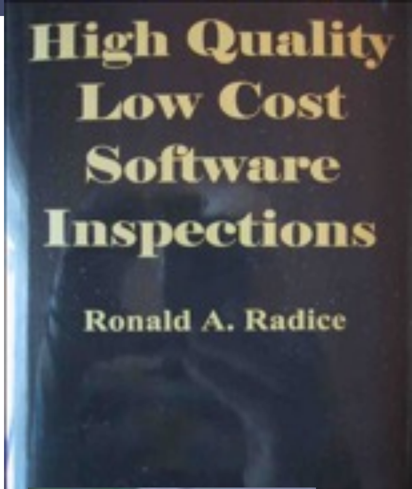
Studentlitteratur



As I see it Tom Gilb was the inspiration for much of what is defined in the CMM Level 4

4/23/96

Watts Humphrey



High Quality Low Cost Software Inspections

Ronald A. Radice

- **"As I see it Tom Gilb was the inspiration for much of what is defined in CMM Level 4."**
- *Ron Radice (CMM Inventor at IBM) 1996 Salt lake City (agreed orally by Watts Humpreys - his IBM Director)*
- *stt@stt.com, www.stt.com*

Lack of clear top level project objectives has seen real projects fail for $100+ million: personal experience, real case

Bad Objectives, for 8 years

*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 partial rewrite in example at right)*

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

Quantified Objectives (in Planguage),

Robustness.Testability:

Type: Software Quality Requirement.
Version: 20 Oct 2006-10-20
Status: Demo draft,
Stakeholder: {Operator, Tester}.
Ambition: Rapid-duration automatic testing of <critical complex tests>, with extreme operator setup and initiation.

Scale: the duration of a defined [Volume] of testing, or a defined [Type], by a defined [Skill Level] of system operator, under defined [Operating Conditions].

Goal [All Customer Use, Volume = 1,000,000 data items, Type = WireXXXX Vs DXX, Skill = First Time Novice, Operating Conditions = Field, {Sea Or Desert}. <10 mins.

VALUE CLARITY:
Quantify the most-critical project objectives on day 1

P&L-Consistency&T P&L: **Scale:** total adjustments btw Flash/ Predict and Actual (T+1) signed off P&L. per day. **Past 60 Goal**: **15**

Speed-To-Deliver: **Scale**: average Calendar days needed from New Idea Approved until Idea Operational, for given Tasks, on given Markets.
Past [2009, Market = EURex, Task =Bond Execution] **2-3 months** ?
Goal [Deadline =End 20xz, Market = EURex, Task =Bond Execution] **5 days**

Operational-Control: **Scale**: % of trades per day, where the calculated economic difference between OUR CO and Marketplace/ Clients, is less than "1 Yen"(or equivalent).
Past [April 20xx] **10%** change this to 90% NH **Goal** [Dec. 20xy] **100%**

Operational-Control.Consistent: **Scale**: % of defined [Trades] failing full STP across the transaction cycle. **Past** [April 20xx, Trades=Voice Trades] **95%**
Past [April 20xx, Trades=eTrades] **93%**
Goal [April 20xz, Trades=Voice Trades] <**95 ± 2%**>
Goal [April 20xz, Trades=eTrades] **98.5 ± 0.5 %**

Operational-Control.Timely.End&OvernightP&L Scale: number of times, per quarter, the P&L information is not delivered timely to the defined [Bach-Run].
Past [April 20xx, Batch-Run=Overnight] 1 **Goal** [Dec. 20xy, Batch-Run=Overnight] <**0.5**> **Past** [April 20xx, Batch-Run= **T+1**] **1 Goal** [Dec. 20xy, Batch-Run=End-Of-Day, Delay<1hour] **1**

Operational-Control.Timely.IntradayP&L Scale: number of times per day the intraday P&L process is delayed more than 0.5 sec.

Operational-Control.Timely.Trade-Bookings Scale: number of trades per day that are not booked on trade date. **Past** [April 20xx] **20 ?**

Front-Office-Trade-Management-Efficiency Scale: Time from Ticket Launch to trade updating real-time risk view
Past [20xx, Function = Risk Mgt, Region = Global] **~ 80s** +/- **45s** ??
Goal [End 20xz, Function = Risk Mgt, Region = Global] **~ 50%** better?

Managing Risk – Accurate – Consolidated – Real Time

Risk.Cross-Product Scale: % of financial products that risk metrics can be displayed in a single position blotter in a way appropriate for the trader (i.e. – around a benchmark vs. across the curve).
Past [April 20xx] **0%** 95%. **Goal** [Dec. 20xy] **100%**

Risk.Low-latency Scale: number of times per day the intraday risk metrics is delayed by more than 0.5 sec. **Past** [April 20xx, NA] **1%** **Past** [April 20xx, EMEA] ??**%** **Past** [April 20xx, AP] 100**%** **Goal** [Dec. 20xy] **0%**

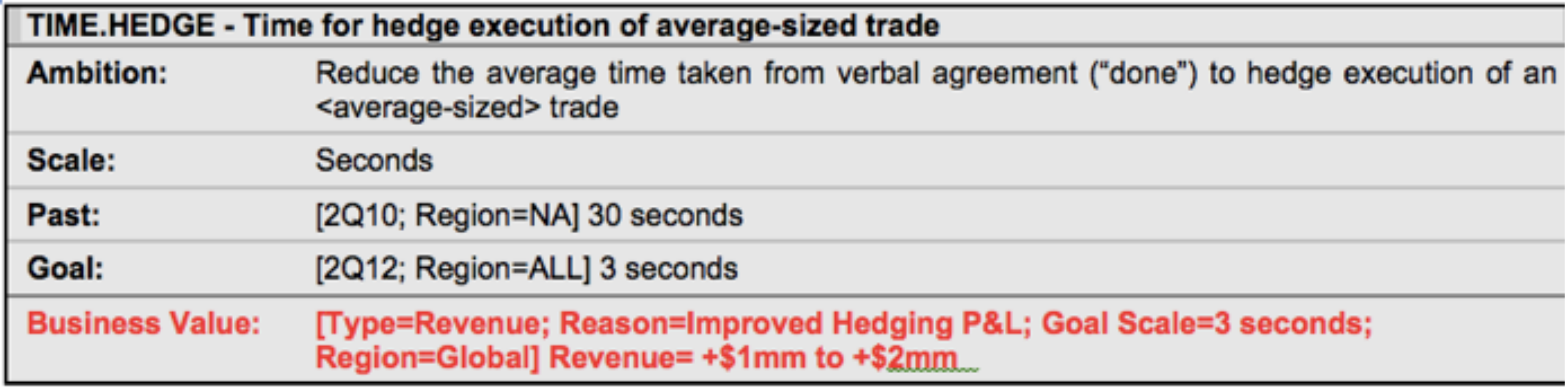
Risk.Accuracy

Risk. user-configurable Scale: ??? pretty binary – feature is there or not – how do we represent?
Past [April 20xx] **1% Goal** [Dec. 20xy] **0%**

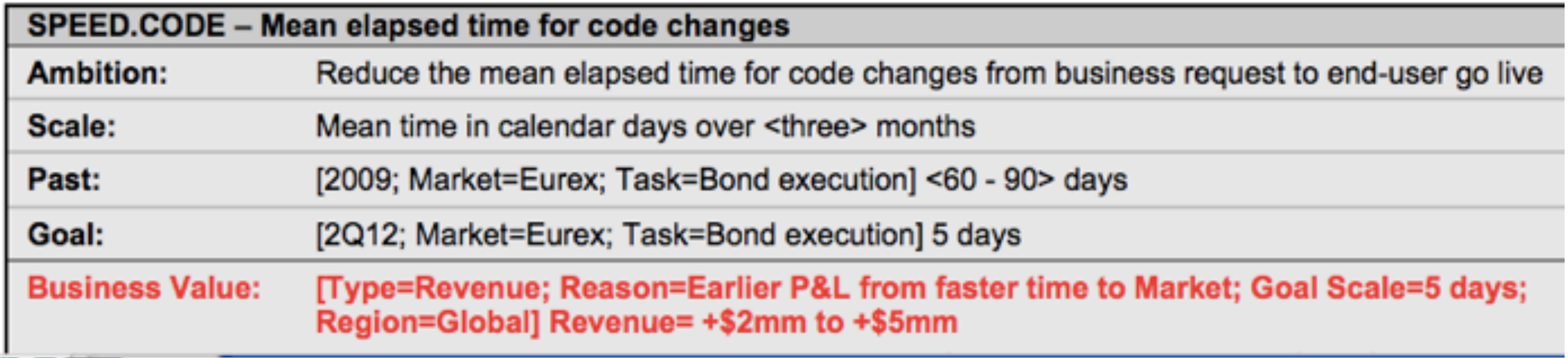
Operational Cost Efficiency Scale: <Increased efficiency (Straight through processing STP Rates)>

Cost-Per-Trade Scale: % reduction in Cost-Per-Trade
Goal (EOY 20xy, cost type = I 1 – REGION = ALL) **Reduce cost by 60%** (BW)
Goal (EOY 20xy, cost type = I 2 – REGION = ALL) **Reduce cost by x %**
Goal (EOY 20xy, cost type = E1 – REGION = ALL) **Reduce cost by x %**
Goal (EOY 20xy, cost type = E 2 – REGION = ALL) **Reduce cost by 100%**
Goal (EOY 20xy, cost type = E 3 – REGION = ALL) **Reduce cost by x %**

Example of Estimating the Value of a Technical IT System Improvement (20xx)



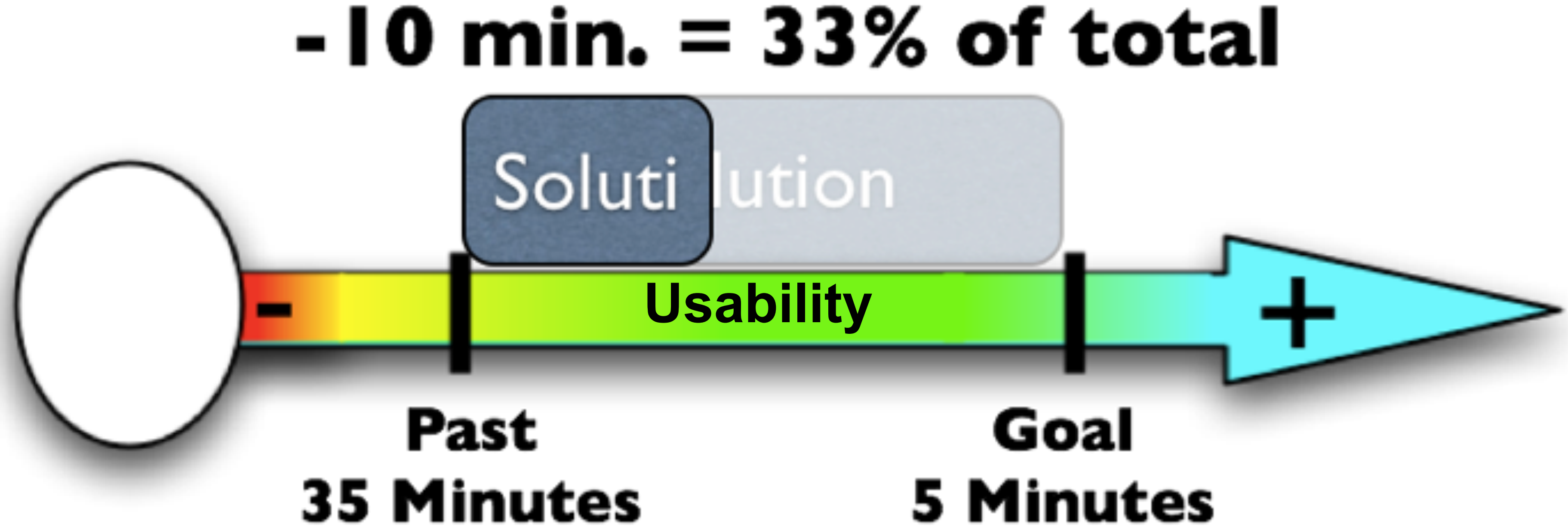
TIME.HEDGE - Time for hedge execution of average-sized trade	
Ambition:	Reduce the average time taken from verbal agreement ("done") to hedge execution of an <average-sized> trade
Scale:	Seconds
Past:	[2Q10; Region=NA] 30 seconds
Goal:	[2Q12; Region=ALL] 3 seconds
Business Value:	**[Type=Revenue; Reason=Improved Hedging P&L; Goal Scale=3 seconds; Region=Global] Revenue= +$1mm to +$2mm**



SPEED.CODE – Mean elapsed time for code changes	
Ambition:	Reduce the mean elapsed time for code changes from business request to end-user go live
Scale:	Mean time in calendar days over <three> months
Past:	[2009; Market=Eurex; Task=Bond execution] <60 - 90> days
Goal:	[2Q12; Market=Eurex; Task=Bond execution] 5 days
Business Value:	**[Type=Revenue; Reason=Earlier P&L from faster time to Market; Goal Scale=5 days; Region=Global] Revenue= +$2mm to +$5mm**

This is an example made to reason about specification standards and is not supposed to be a real spec. Just realistic.

3. Assuring that Designs give Qualities



-10 min. = 33% of total

Soluti lution

-

Usability

+

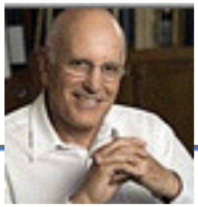
Past
35 Minutes

Goal
5 Minutes

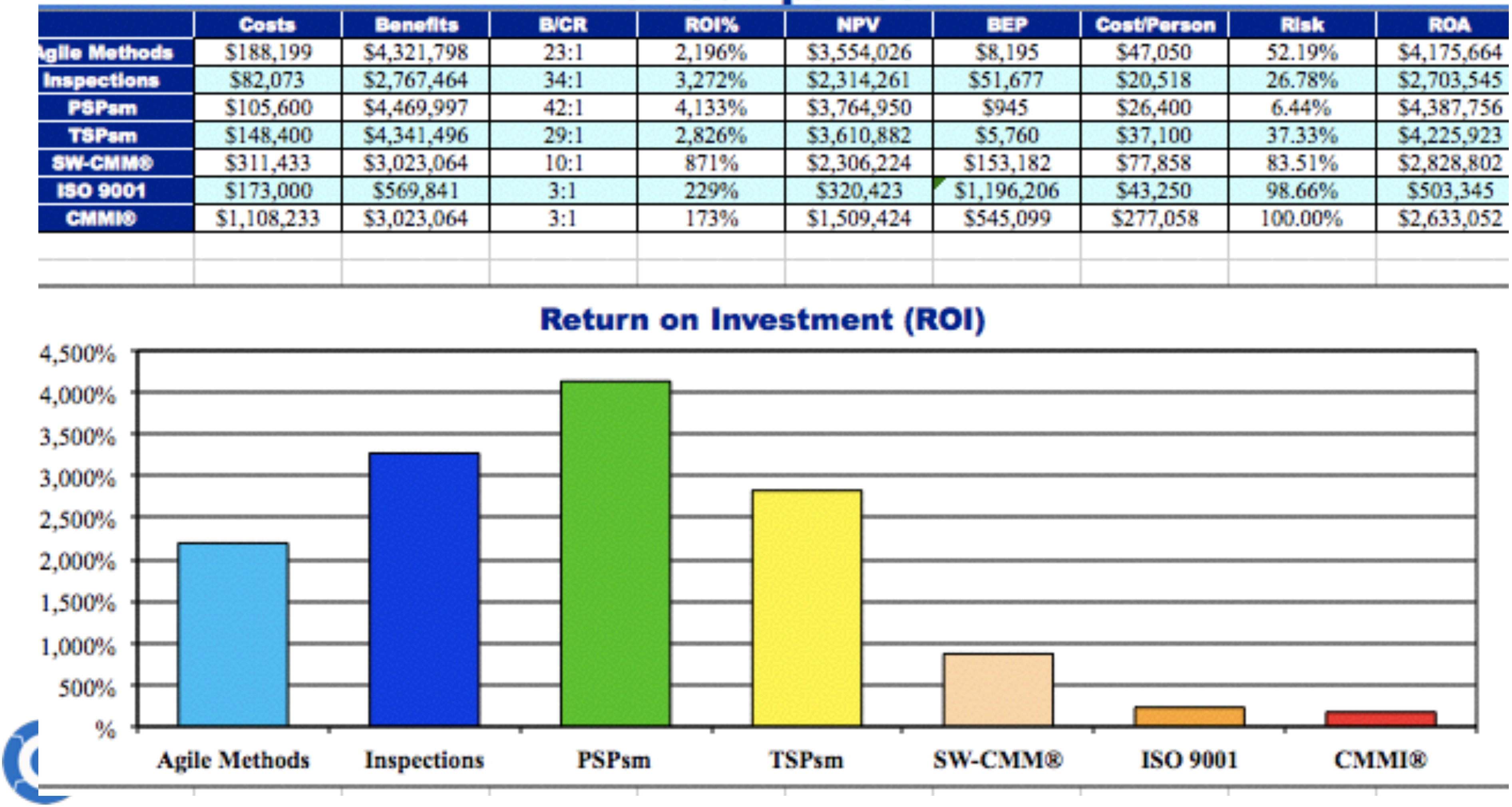
4. Measure Quality Levels in Specifications with Inspection

Value for Money Inspection and CMMI

David Rico, http://davidfrico.com



ROI Comparison



	Costs	Benefits	B/CR	ROI%	NPV	BEP	Cost/Person	Risk	ROA
gile Methods	$188,199	$4,321,798	23:1	2,196%	$3,554,026	$8,195	$47,050	52.19%	$4,175,664
Inspections	$82,073	$2,767,464	34:1	3,272%	$2,314,261	$51,677	$20,518	26.78%	$2,703,545
PSPsm	$105,600	$4,469,997	42:1	4,133%	$3,764,950	$945	$26,400	6.44%	$4,387,756
TSPsm	$148,400	$4,341,496	29:1	2,826%	$3,610,882	$5,760	$37,100	37.33%	$4,225,923
SW-CMM®	$311,433	$3,023,064	10:1	871%	$2,306,224	$153,182	$77,858	83.51%	$2,828,802
ISO 9001	$173,000	$569,841	3:1	229%	$320,423	$1,196,206	$43,250	98.66%	$503,345
CMMI®	$1,108,233	$3,023,064	3:1	173%	$1,509,424	$545,099	$277,058	100.00%	$2,633,052

Return on Investment (ROI)

A Recent Example

Source Eric Simmons, erik.simmons@intel.com 25 Oct 2011
Personal Public Communication

Application of Specification Quality Control (Gilb Inspections) by a SW team resulted in the following defect density reduction in requirements over several months:

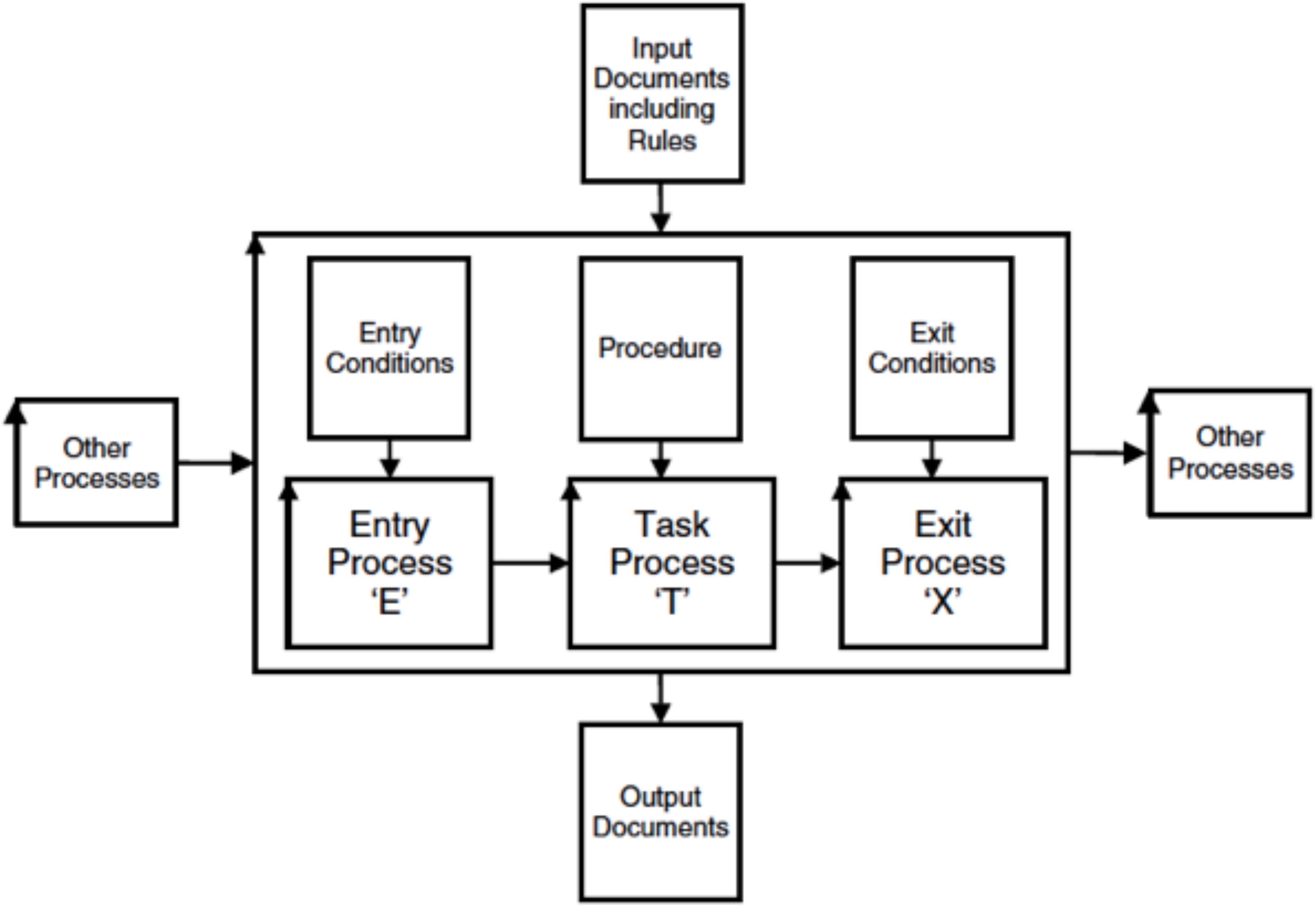
Rev.	# of Defects	# of Pages	Defects/ Page (DPP)	% Change in DPP
0.3	312	31	10.06	
0.5	209	44	4.75	-53%
0.6	247	60	4.12	-13%
0.7	114	33	3.45	-16%
0.8	45	38	1.18	-66%
1.0	10	45	0.22	-81%
Overall % change in DPP revision 0.3 to 1.0:				-98%

Downstream benefits:
- Scope **delivered** at the Alpha milestone increased **300%**, released scope up **233%**
- SW defects reduced by ~**50%**
- Defects that did occur were resolved in far less time on average

Let me translate this,
Intel Experience with my methods,
for testers

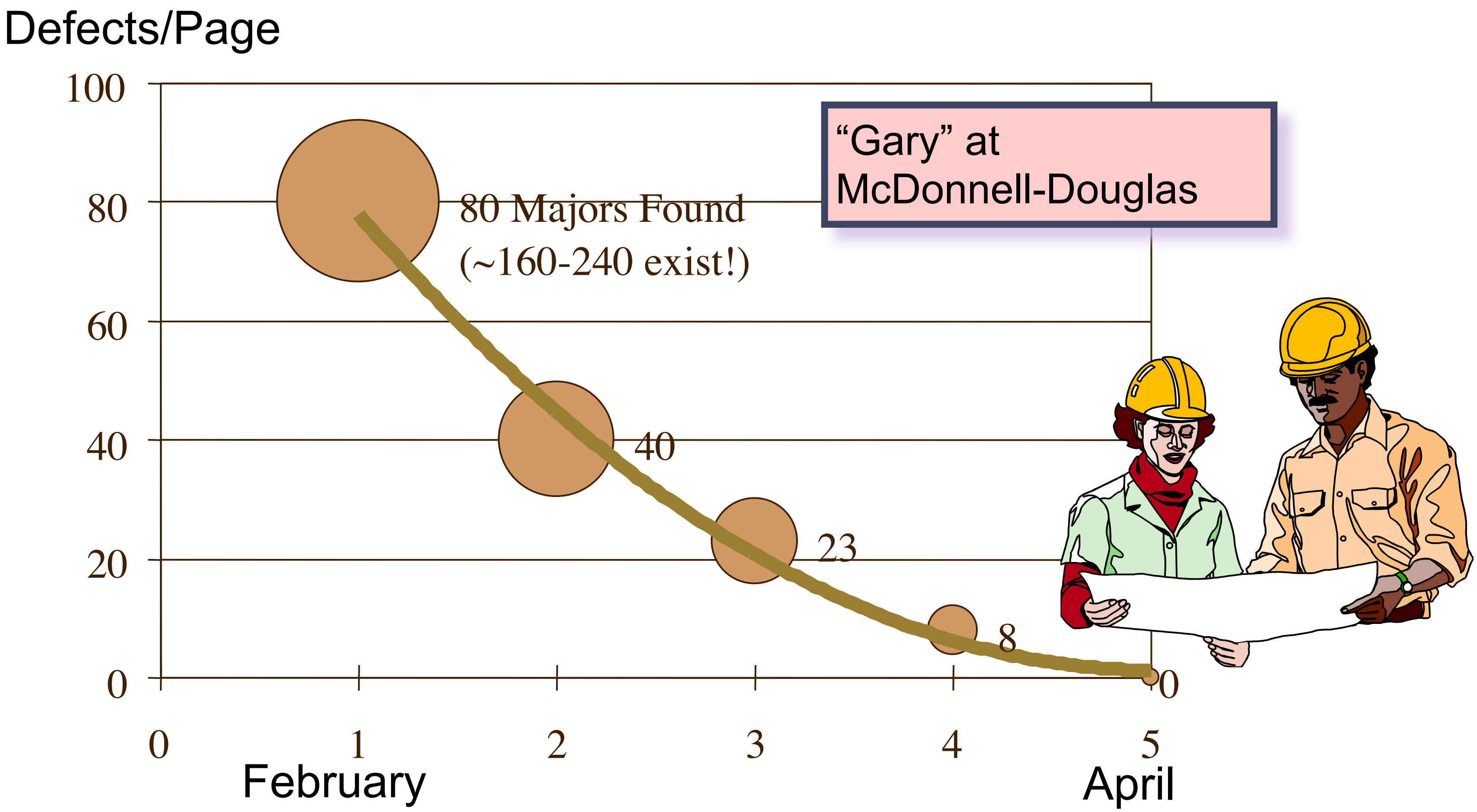
- 0.2 Majors/page (maximum)
  - Compared to the 100 M/P you currently suffer
- Means 500 times fewer major defects to work with
- It means 170 times fewer bugs to contend with than you probably have today
- Did you notice the productivity went up by factor 2.3 to 3x at Intel?
- There were 50% fewer bugs than Intel had before they used my methods
- This means that correct writing of test cases will be that much better
- And that wasted test execution and rework is that much better

5a. Numeric Quality Gateways



5a.

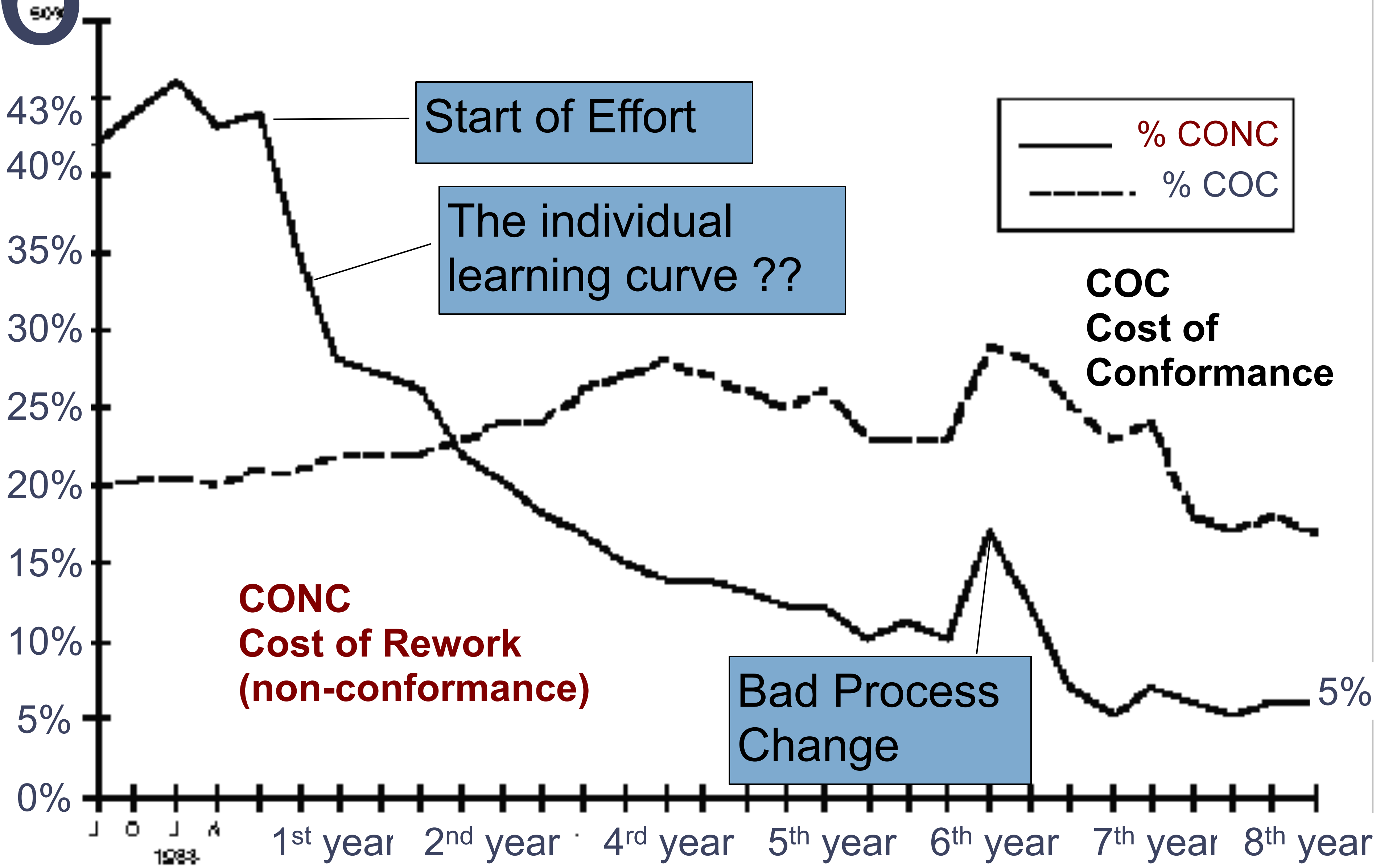
Numeric Quality Gateways Improve Quality of work



“Gary” at McDonnell-Douglas

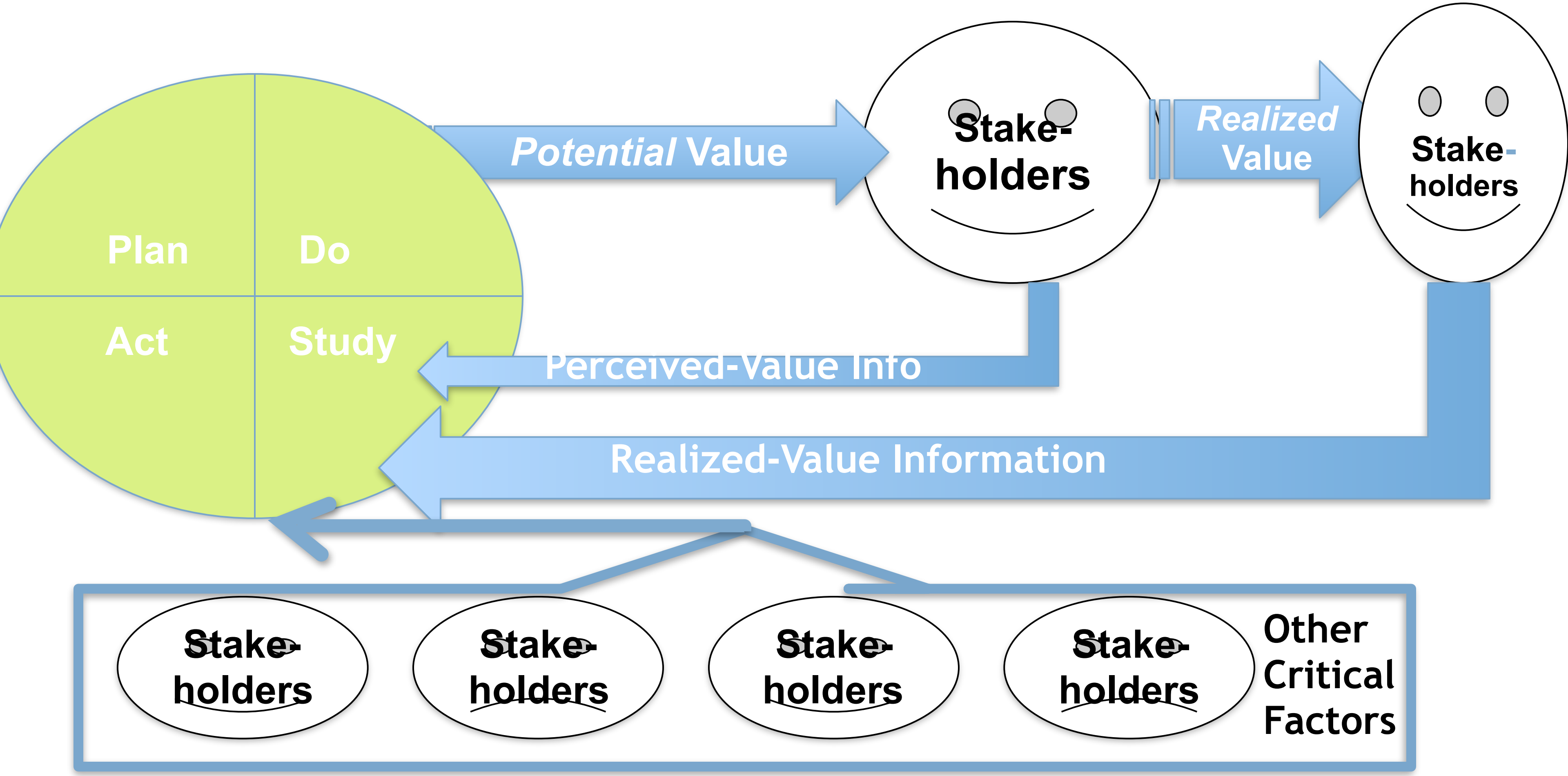
Inspections of Gary’s Designs

PP (=CMM 5) Improves Quality by 10x: Raytheo



www.sei.cmu.edu/publications/documents/95.reports/95.tr.017.html

7a Frequent feedback and improvement assure quality



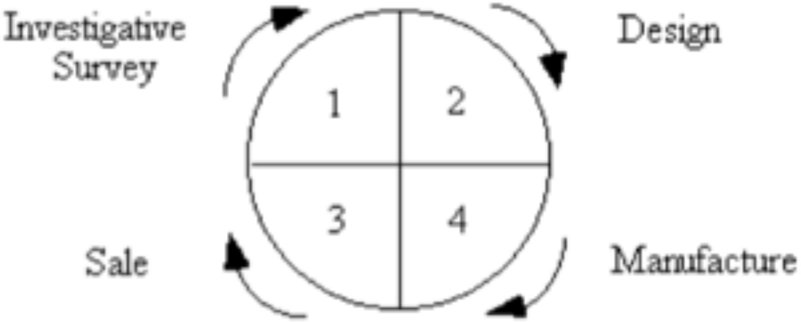
- 2 Kinds of Feedback from Stakeholders, when value increment is *really* exploited in practice after delivery.
- Combined with other information from the relevant environment. Like budget, deadline, technology, politics, laws, marketing changes.

Recent (20 Sept, 2011) Report on Gilb Evo method (Richard Smith, Citigroup)

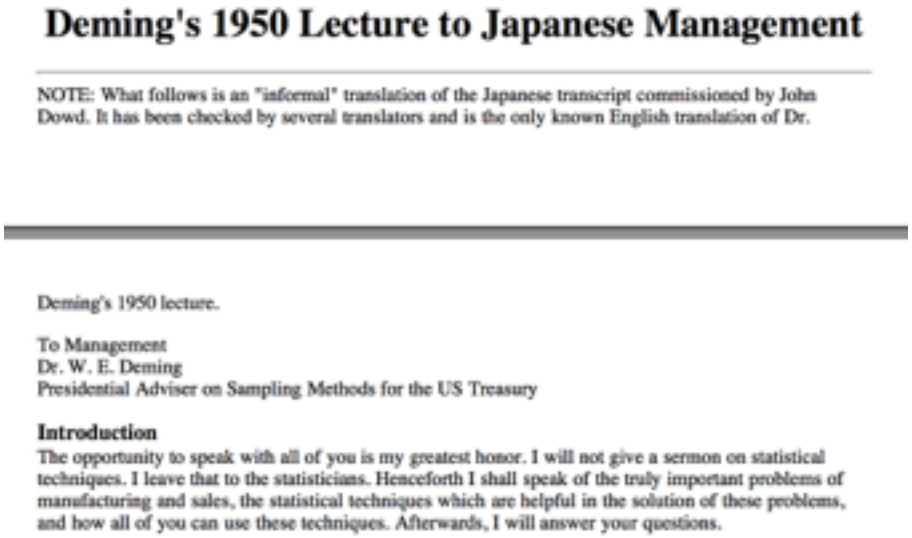
- http://rsbatechnology.co.uk/blog:8
- Back in 2004, I was employed by a large investment bank in their FX e-commerce IT department as a business analyst.
- The wider IT organisation used a complex waterfall-based project methodology that required use of an intranet application to manage and report progress.
- However, it's main failings were that it almost **totally missed the ability to track delivery of actual value improvements to a project's stakeholders**, and **the ability to react to changes in requirements and priority for the project's duration.**
- The toolset generated lots of charts and stats that provided **the illusion of risk control**. but actually provided very little help to the analysts, developers and testers actually doing the work at the coal face.
- The proof is in the pudding;
  - I have **used Evo** (albeit in disguise sometimes) on two large, high-risk projects in front-office investment banking businesses, and several smaller tasks.
  - On the largest critical project, the original business functions & performance objective **requirements document, which included no design, essentially remained unchanged** over the 14 months the project took to deliver,
  - but the detailed **designs** (of the GUI, business logic, performance characteristics) **changed** many many times, guided by lessons learnt and **feedback** gained by delivering a succession of early deliveries to real users.
  - In the end, the new system responsible for 10s of USD billions of notional risk, **successfully went live over over one weekend for 800 users worldwide**, and **was seen as a big success by the sponsoring stakeholders.**

" I attended a 3-day course with you and Kai whilst at Citigroup in 2006"

Original Shewhart Cycle 1950
Deming, Japan (paper at tiny.cc/WCSQGilb)



Concepts regarding product quality
Sense of responsibility for product quality



Deming's 1950 Lecture to Japanese Management

NOTE: What follows is an "informal" translation of the Japanese transcript commissioned by John Dowd. It has been checked by several translators and is the only known English translation of Dr.

Deming's 1950 lecture.

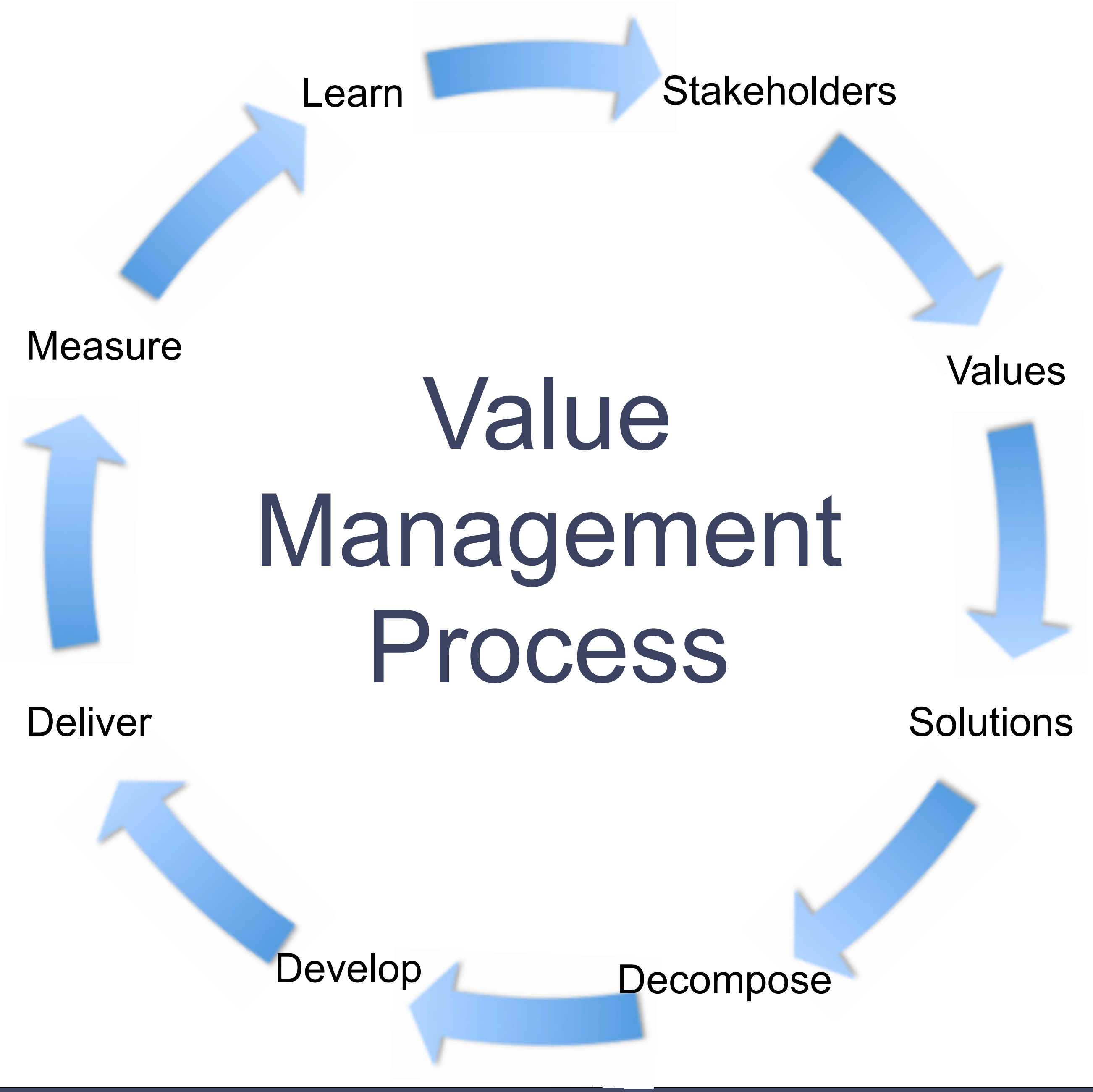
To Management
Dr. W. E. Deming
Presidential Adviser on Sampling Methods for the US Treasury

Introduction
The opportunity to speak with all of you is my greatest honor. I will not give a sermon on statistical techniques. I leave that to the statisticians. Henceforth I shall speak of the truly important problems of manufacturing and sales, the statistical techniques which are helpful in the solution of these problems, and how all of you can use these techniques. Afterwards, I will answer your questions.

For fellow Keynote Speaker, Susumu Sasabe, and my Japanese friends

7b

Value Management Process



Learn

Stakeholders

Values

Solutions

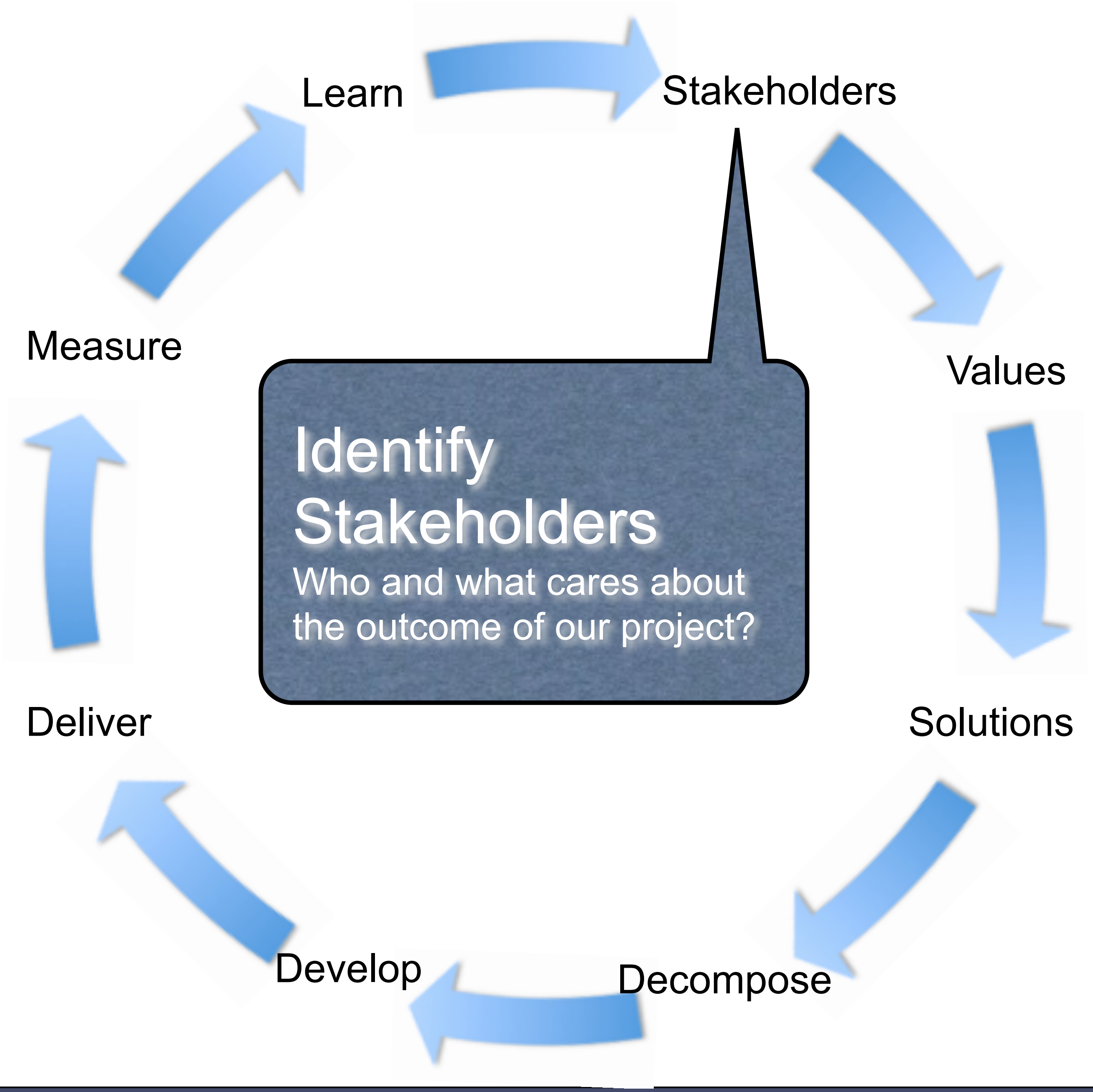
Decompose

Develop

Deliver

Measure

7b



Learn

Stakeholders

Values

Solutions

Decompose

Develop

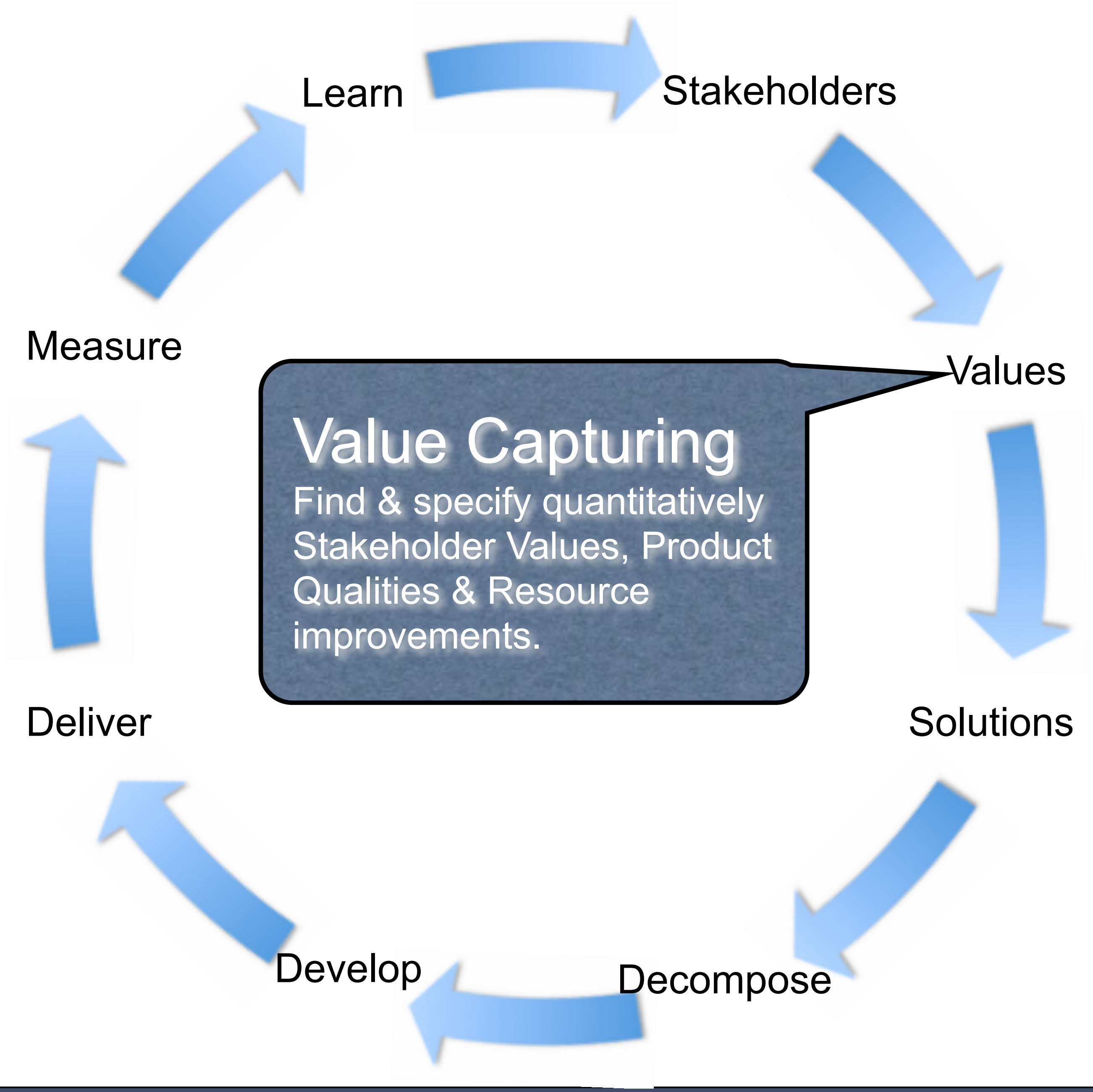
Deliver

Measure

Identify Stakeholders

Who and what cares about the outcome of our project?

7b



Learn

Stakeholders

Values

Solutions

Decompose

Develop

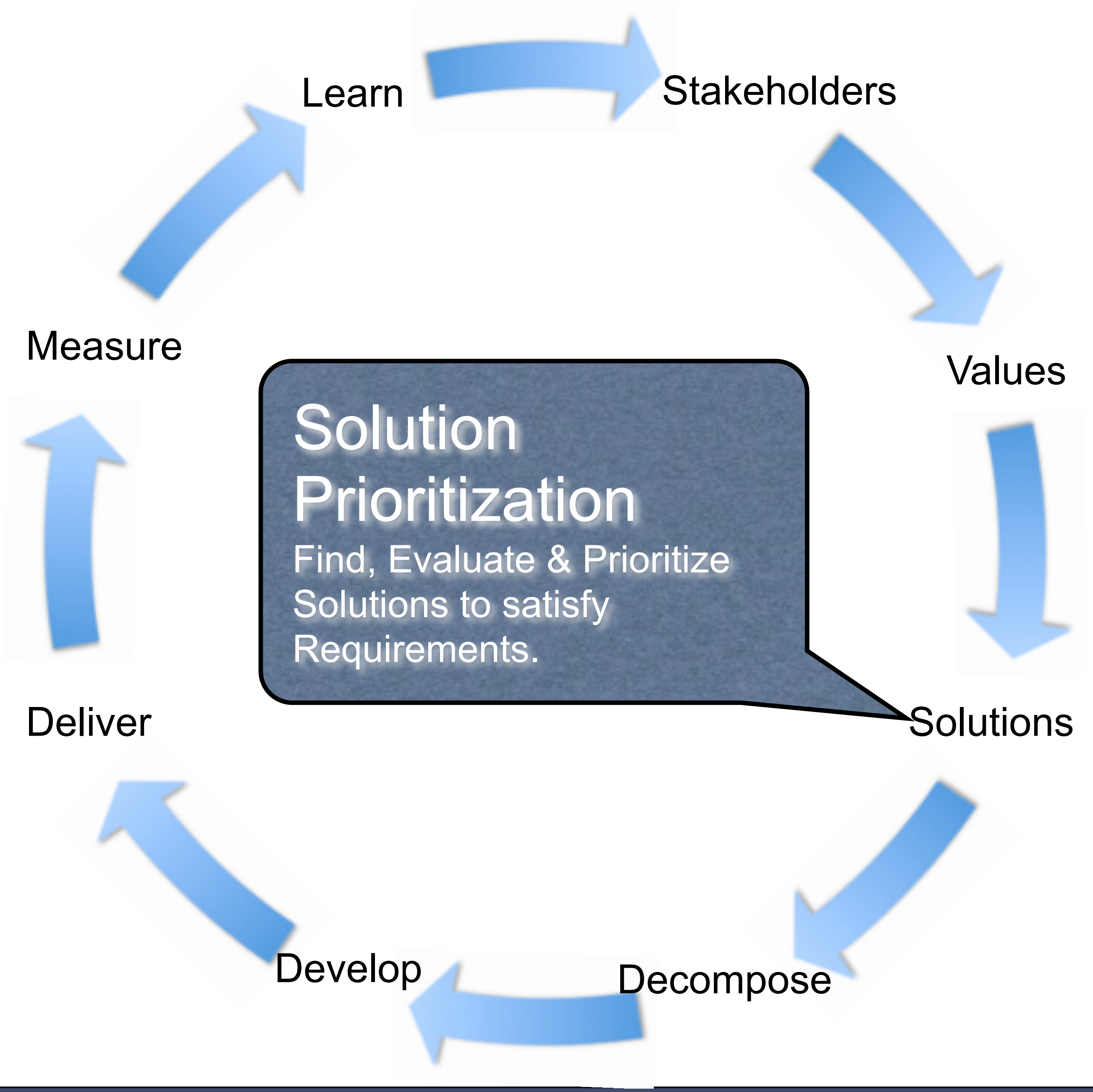
Deliver

Measure

Value Capturing

Find & specify quantitatively Stakeholder Values, Product Qualities & Resource improvements.

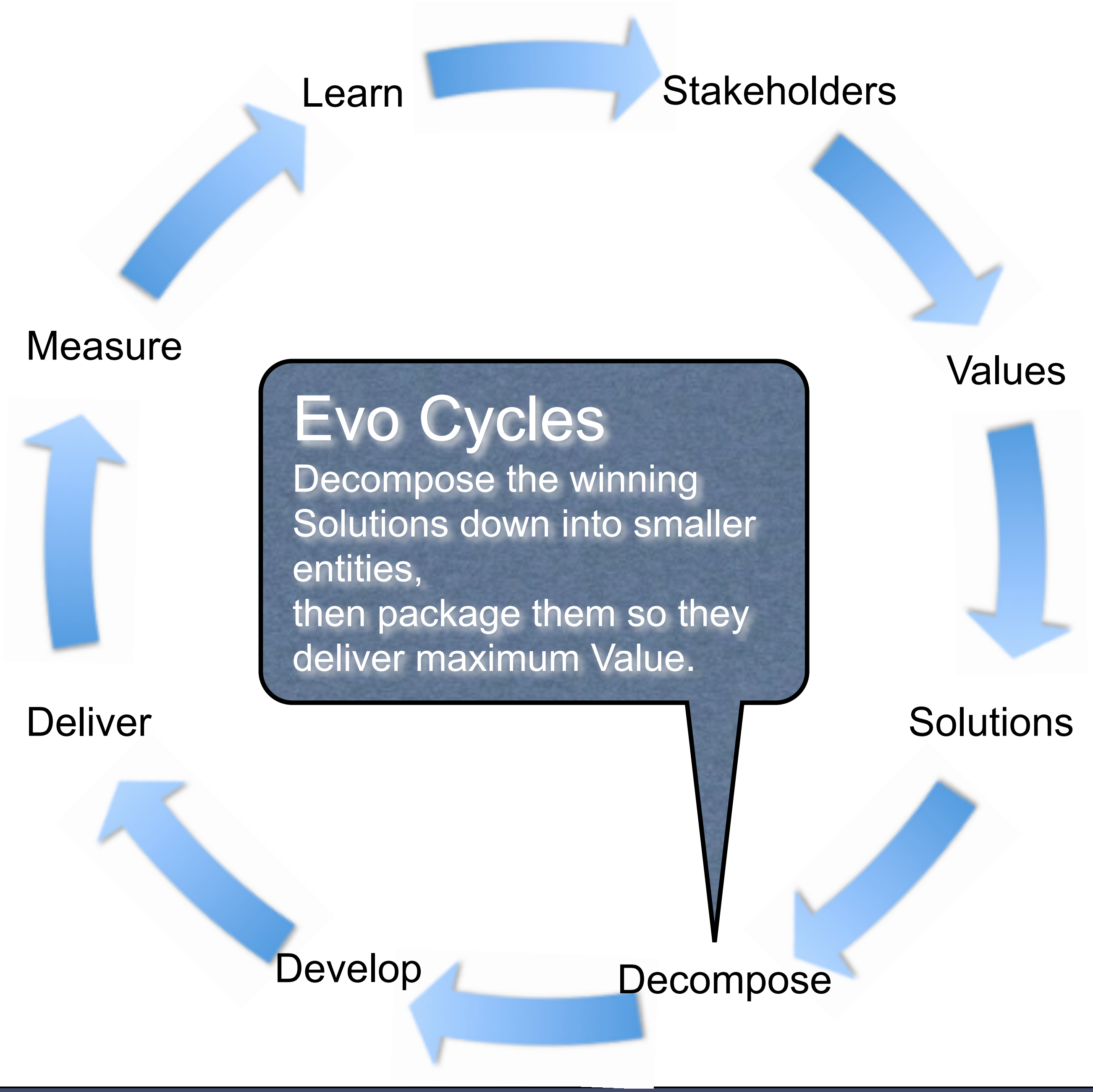
7b



Solution Prioritization

Find, Evaluate & Prioritize Solutions to satisfy Requirements.

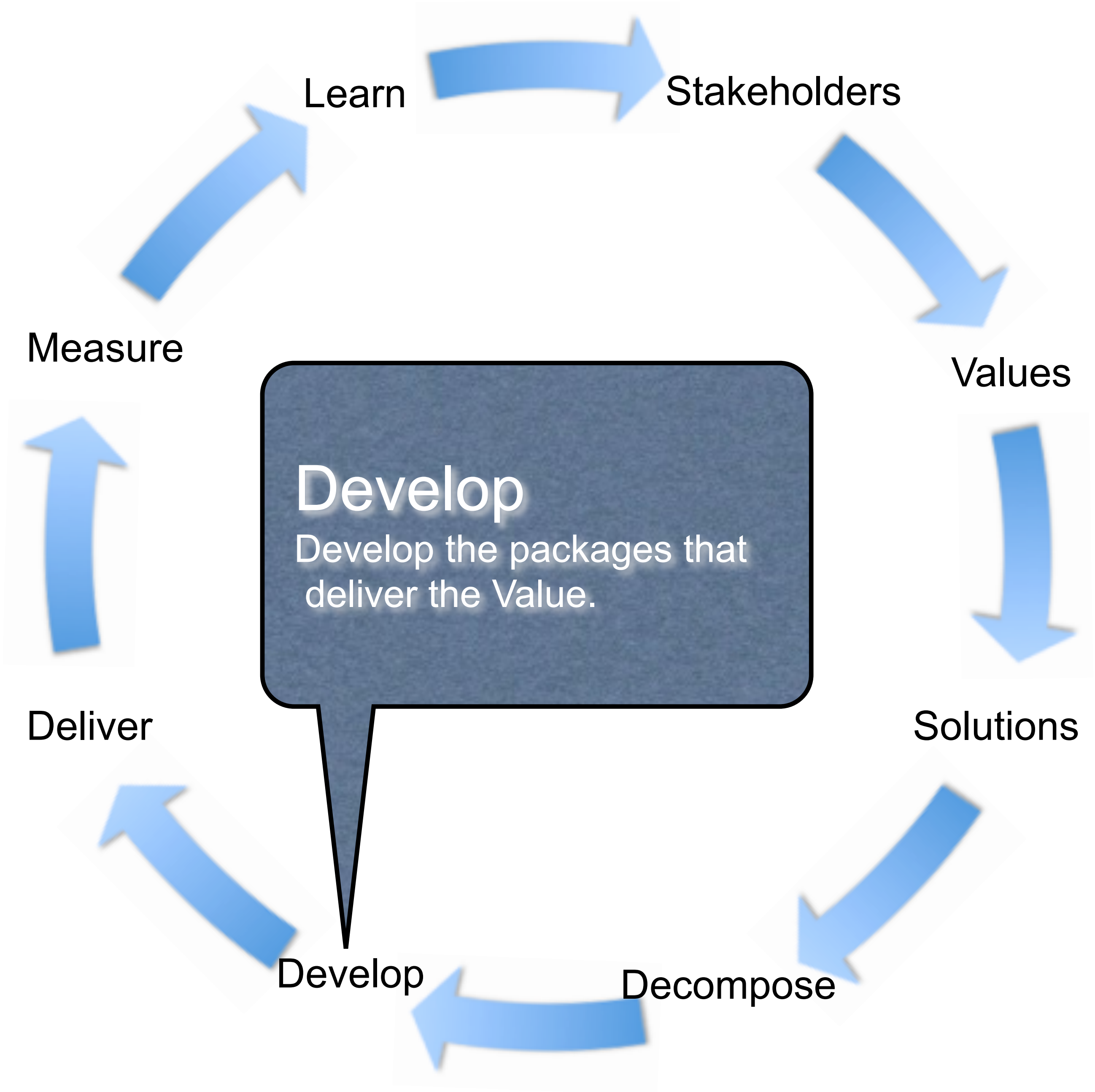
7b



Evo Cycles

Decompose the winning Solutions down into smaller entities,
then package them so they deliver maximum Value.

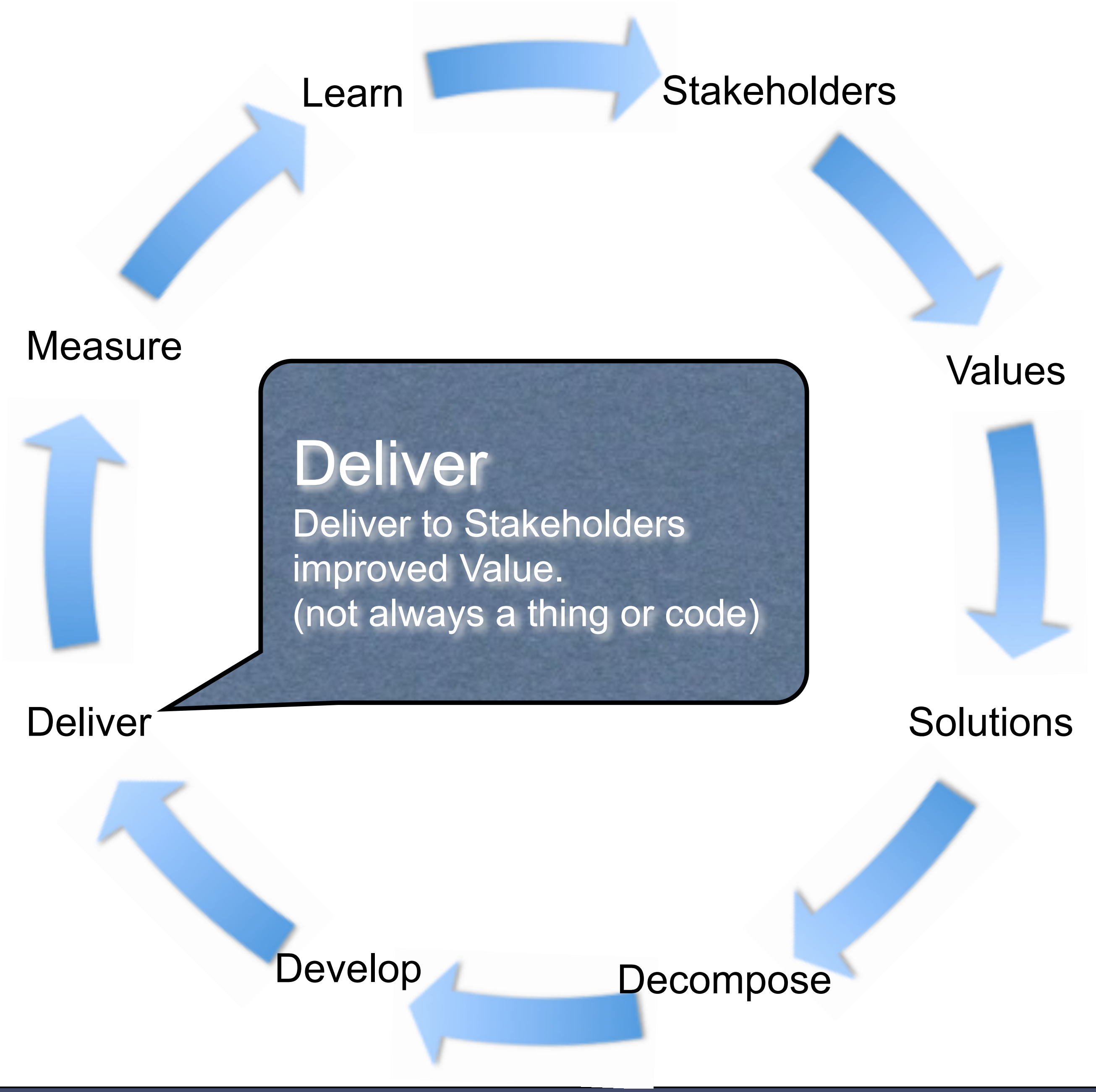
7b



Develop

Develop the packages that deliver the Value.

7b



Learn

Stakeholders

Values

Solutions

Decompose

Develop

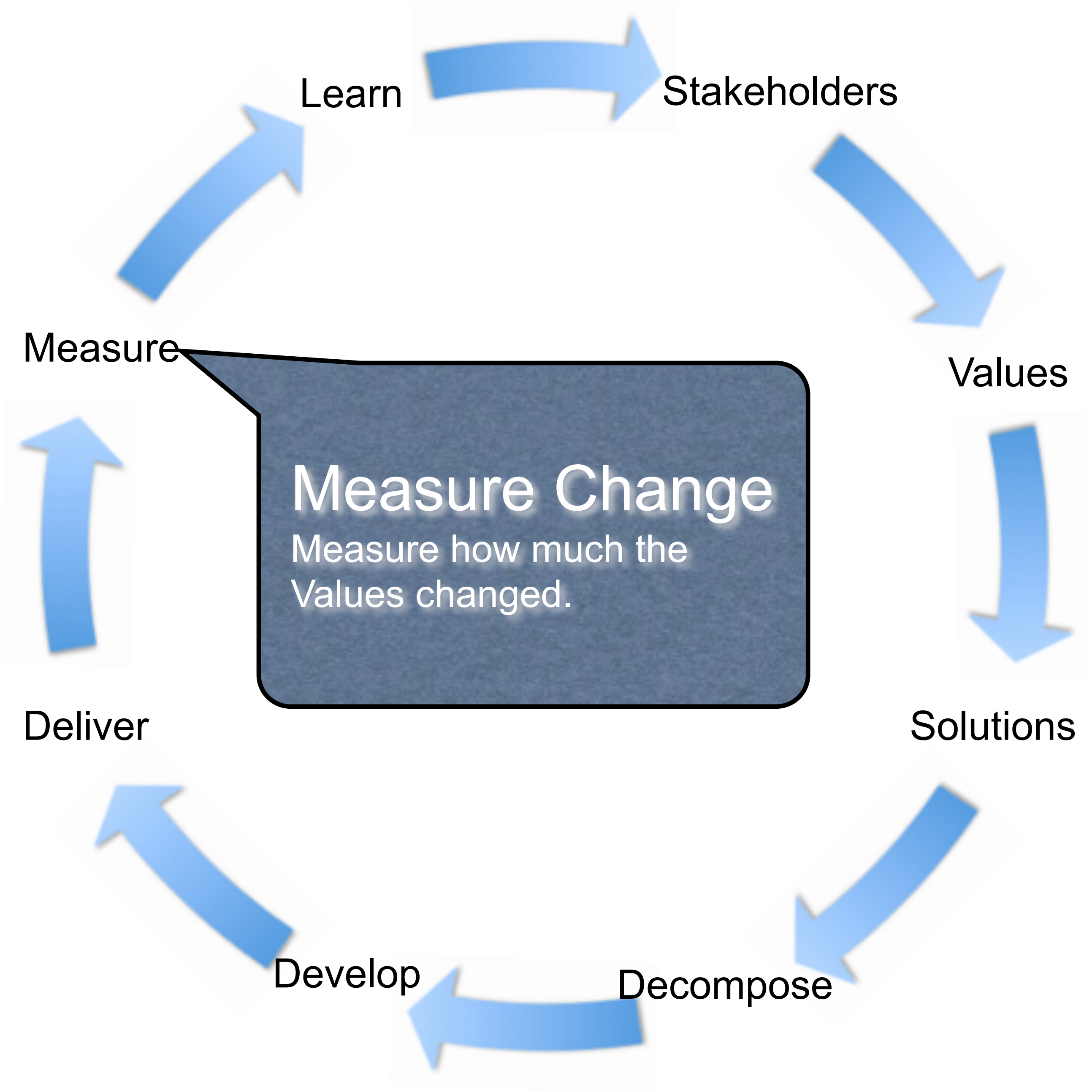
Deliver

Measure

Deliver

Deliver to Stakeholders improved Value.
(not always a thing or code)

7b



Learn

Stakeholders

Values

Solutions

Decompose

Develop

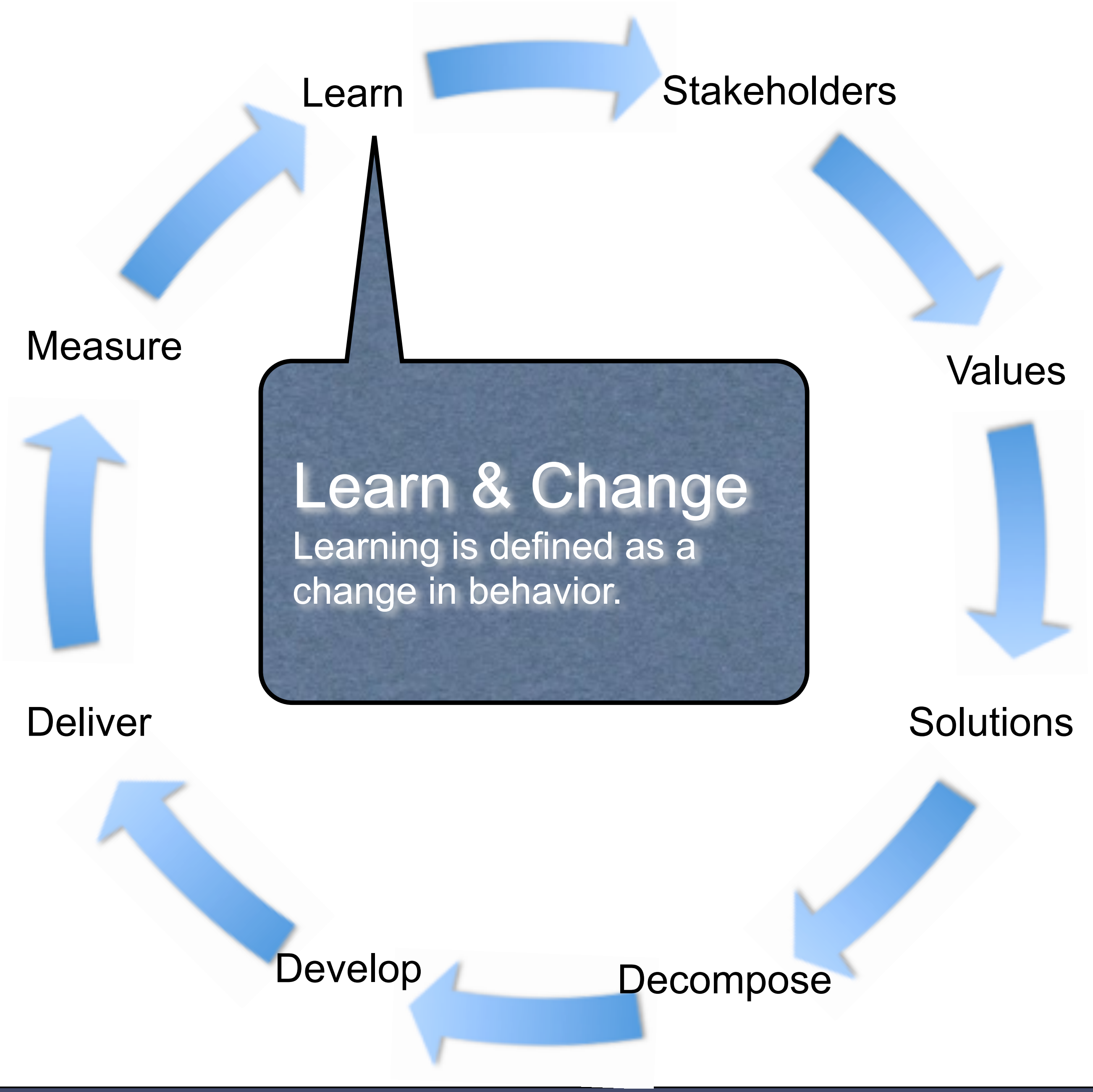
Deliver

Measure

Measure Change

Measure how much the Values changed.

7b

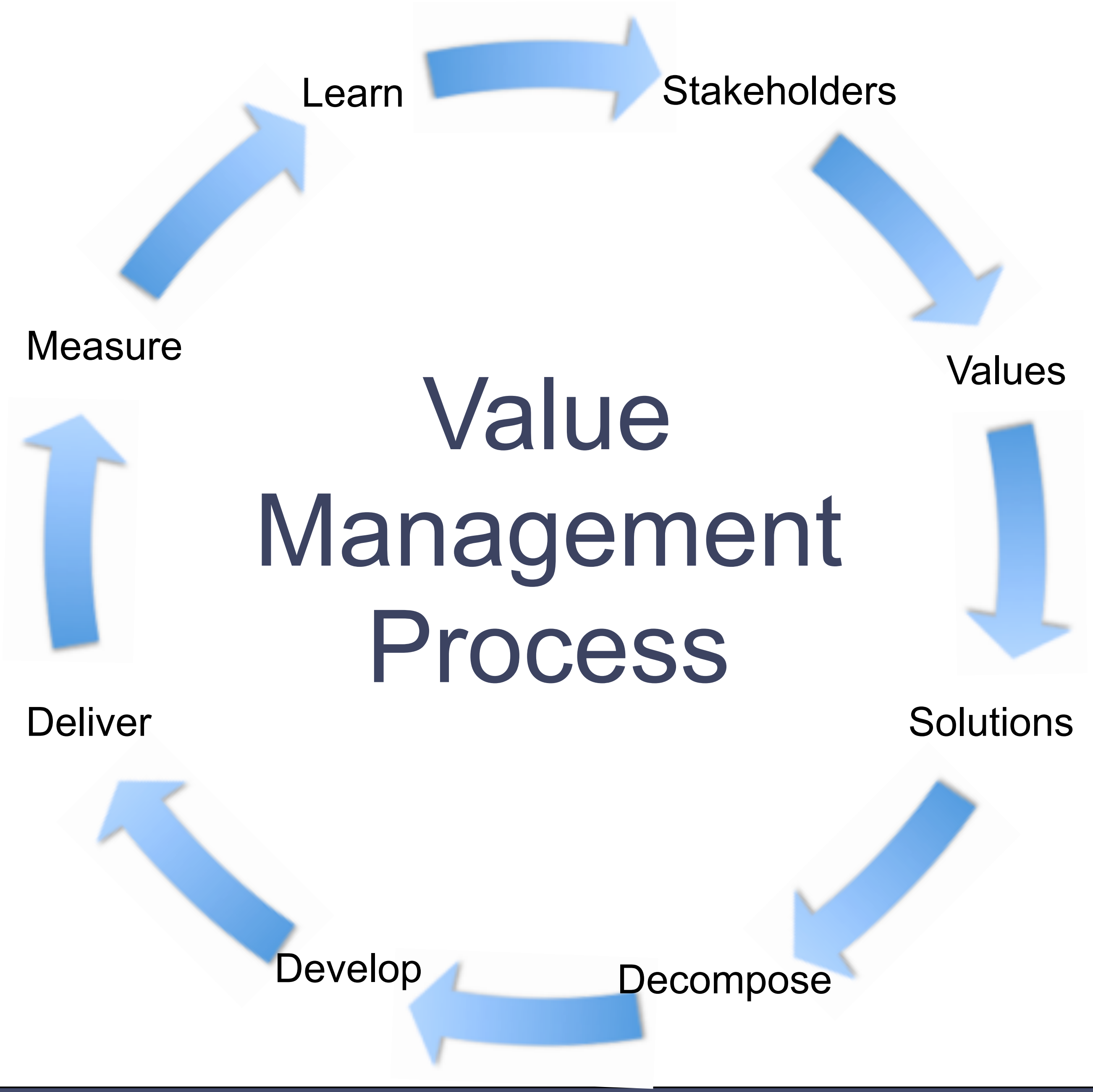


Learn & Change

Learning is defined as a change in behavior.

7b

Value Management Process



Learn

Stakeholders

Values

Solutions

Decompose

Develop

Deliver

Measure

End

7

Competitive Lean QA methods to Learn

What can Testers do, in particular Test/QC managers do?

Do it NOW, current project

1. Decide on a reasonable set of **standards** for *Requirements* and *tests* ('Rules')
2. Do at least SAMPLING (3 pages of many) of all submitted requirements, **measuring** (Paper 13* **) Defect** (Rule Violation) **level**
3. Decide on an Entry Level ('Quality Gate') to Test, of *requirements*, of *no worse than* 10 Major defects per page
4. Identify the top 5 critical qualities of your QA or Test Process, and plan to manage them (MYTH PAPER 5*)
   1. For example Productivity, Rework, Output Quality, Prevention Levels, Cost/Defect

* MYTH & other numbered PAPERS ARE IN TINY.CC/WCSQGilb Folder. Most are also at gilb.com downloads, papers

Longer term actions

1. SQC: Agree with Requirements suppliers, on a Service level Agreement (SLA), regarding
   1. Rules of Specification
   2. Their Exit level of major defects (< 1.0 majors/page
2. DPP (Level 5 TMMi): start a process of Defect Prevention on both Requirements and Test Planning
   1. With measures of Spec Defects reduction (from 100+ to 10 to 1) and
   2. Rework Reduction by 10x (like Raytheon) over a few years
3. Initiate a long term process to reach your quantified QA/Test process Objectives
   1. A Planning week followed by weekly result delivery is a good start (MYTH PAPER 7 *)

Main Take-away Points

Quality Assurance is far more than ‘test’,

and it can be far more cost-effective

‘Quality’ is far more than ‘bugs’

You probably have a lot to learn,

if you want real competitive quality

Thanks!

Thanks!
Free digital copy of
‘Competitive Engineering’
Email me, Subject “CE”

Discussion After lecture, all during the conference, at the Dinner, by email.

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