

Design in Quality Design Out Waste

SPIN London, 22 Nov 2010, 17:30 to 20:00
<http://spinlondon.co.uk/events/22-nov-2010/>

by Tom Gilb

Copyright: © Gilb 2010,
Slides made with : Kai@Gilb.com @kaigilb
Tom@Gilb.com @imtomgilb
www.gilb.com

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

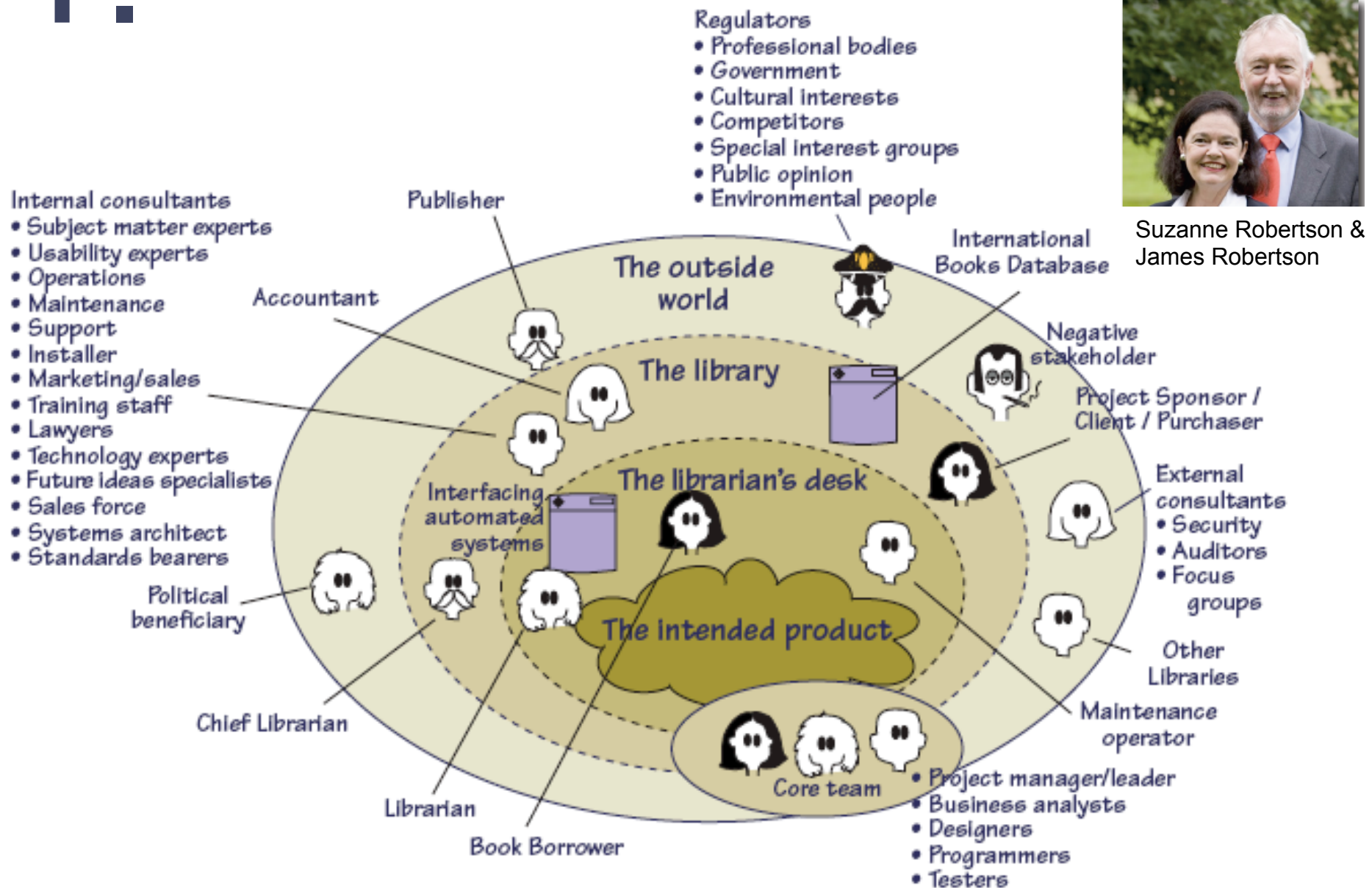


7

Competitive Lean QA methods



1. Stakeholders Decide Qualities



2.



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)

Setting Quality Goals

Usability.Learn

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

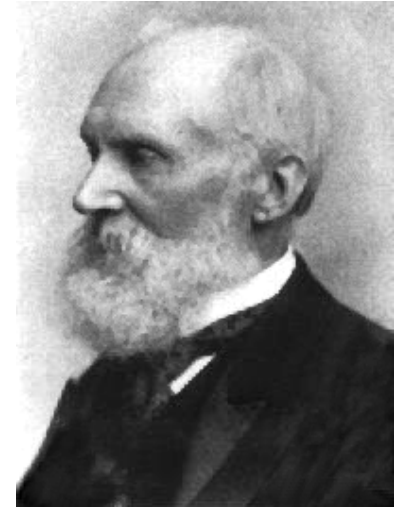
Status [today] 3 hours

Goal [next year] 10 min.

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;

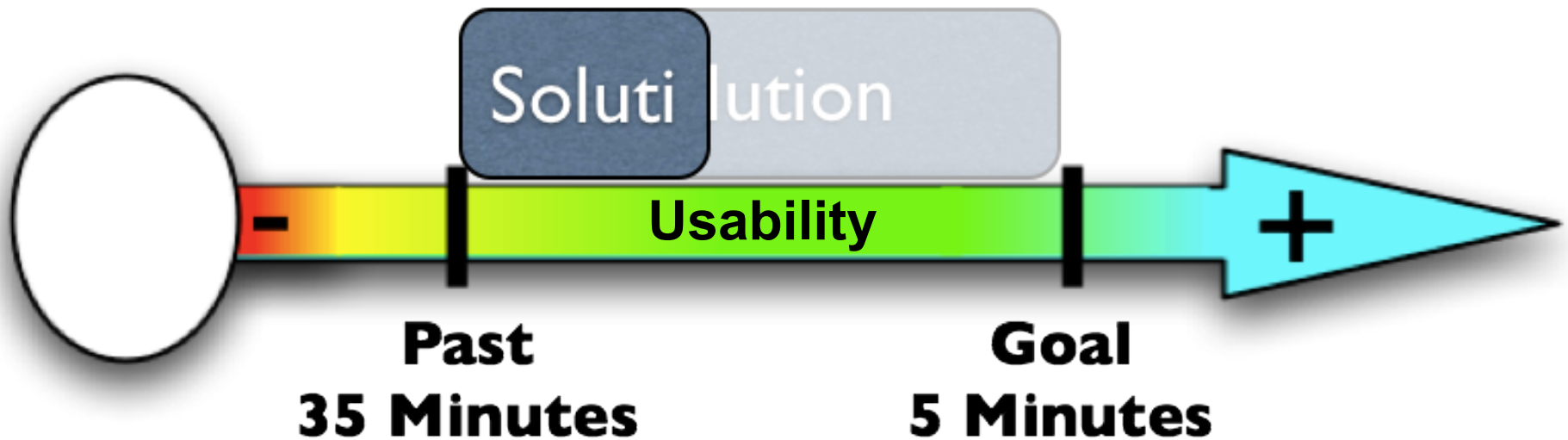


but when you **cannot measure** it,
when you **cannot express it in numbers**,
your knowledge is of a meagre and unsatisfactory
kind;

- Lord Kelvin, 1893

3. Assuring that Designs give Qualities

- 10 min. = 33% of total



Designing to meet Quality within Costs

Design Ideas

Qualities

€ \$

Product Quality Requirements				Estimated Impact		Estimated Impact		Estimated Impact		Estimated Impact	
Past	Status	Tolerable	Goal	Splash.Speaker		Splash.Keypad		Battery.Lock		Screen.Scratch	
				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		5,552

4. Measure Quality Levels in Specifications with Inspection



Defect Density Estimation

Total, Majors, Design

41, 24, 1

33, 15, 5

44, **30**, 10

24, 3, 5



180

60

120

- Total for group (page 82)

- Rough Est. $30 \times 2 = 60$ Majors

- assume 60 ± 10 are unique.

- If checking is 33.33% effective,

- total in page = $3 \times 60 = \text{about } 180 \pm 30$ Of

which 2/3 (or 120) were not yet found.

- If we fix all we found (60),

- then the estimated remainder of Majors

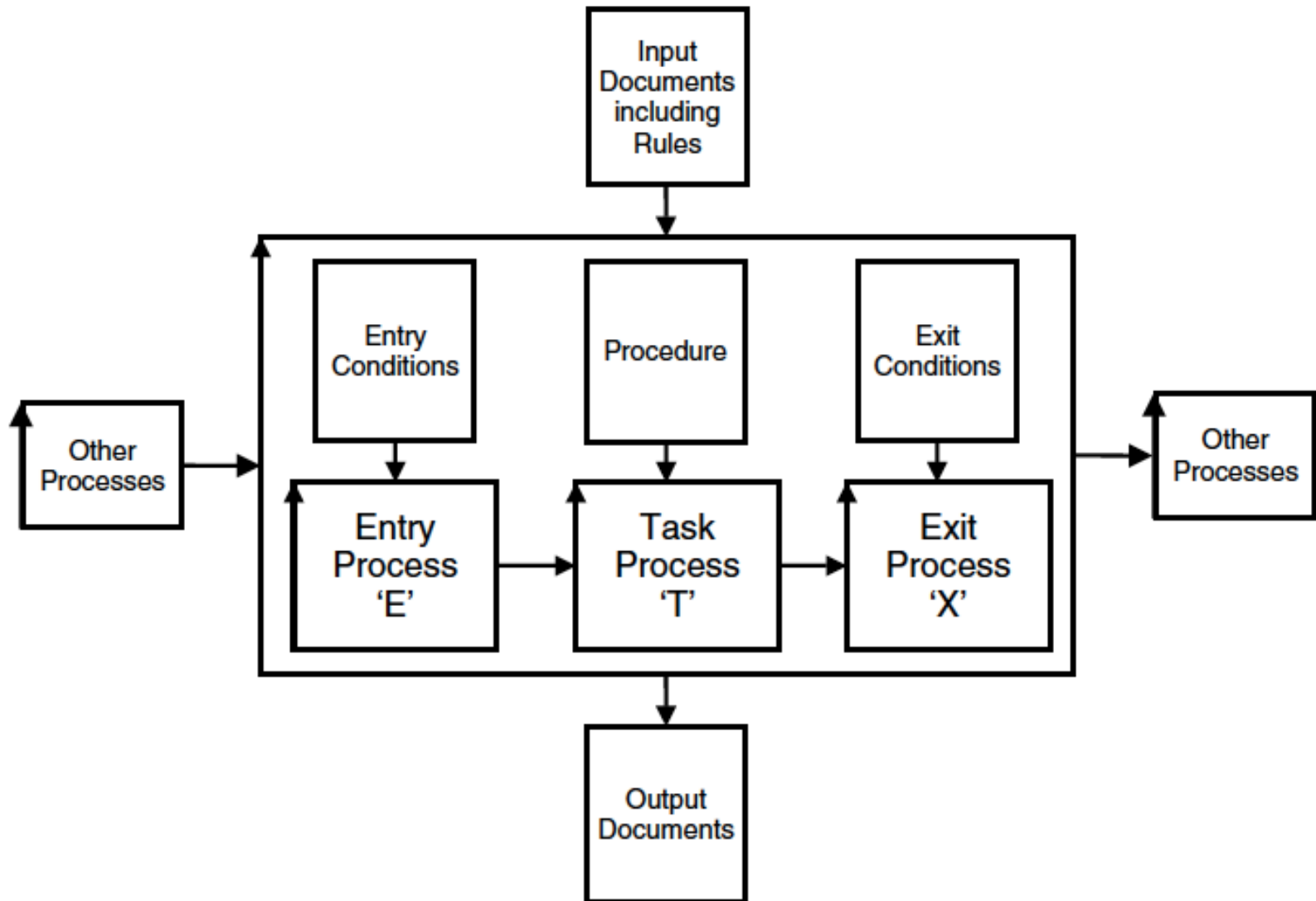
would be 120 (not found)

- +10 “not fixed correctly”

- = 130 Majors remaining.

5a.

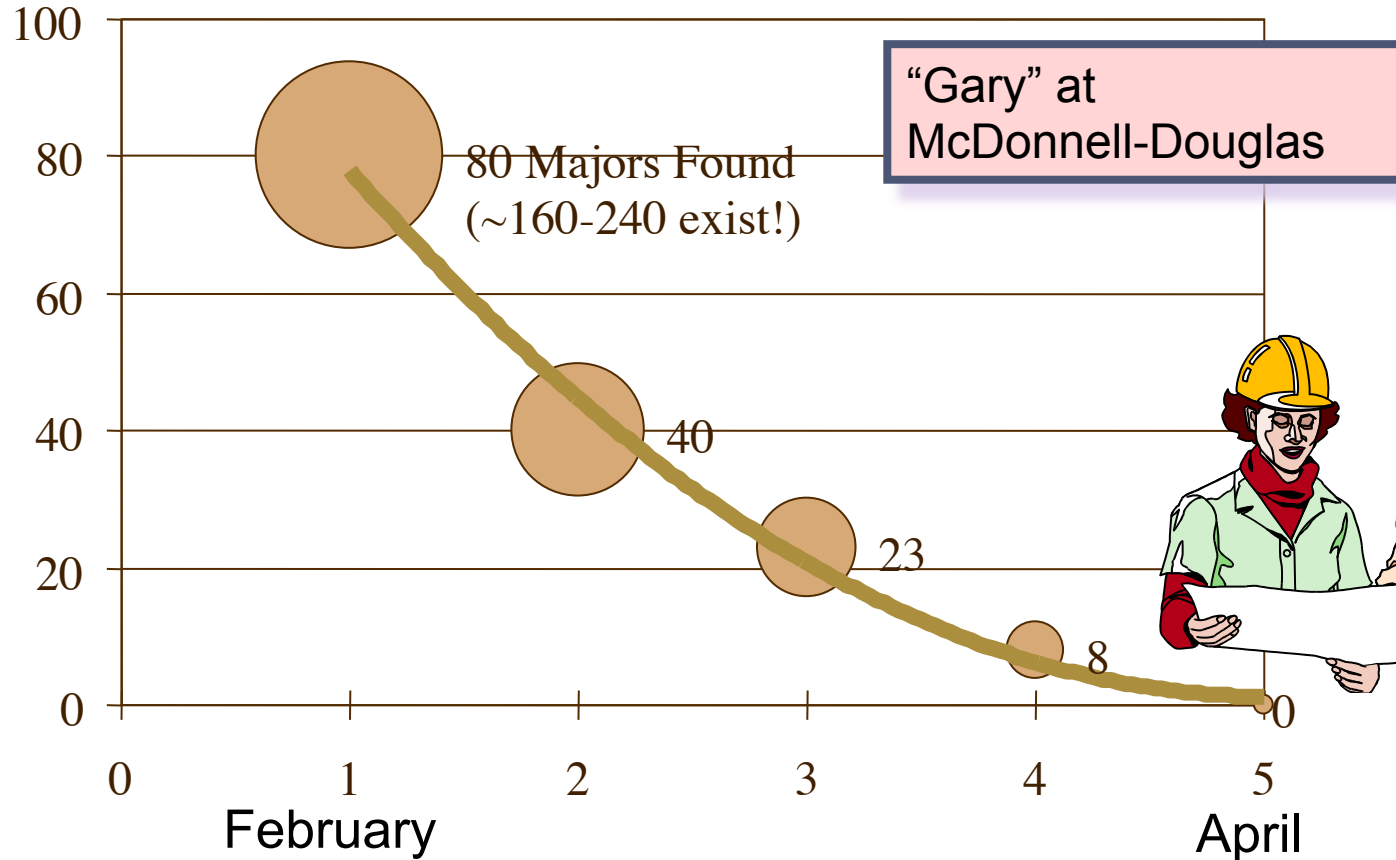
Numeric Quality Gateways



5a.

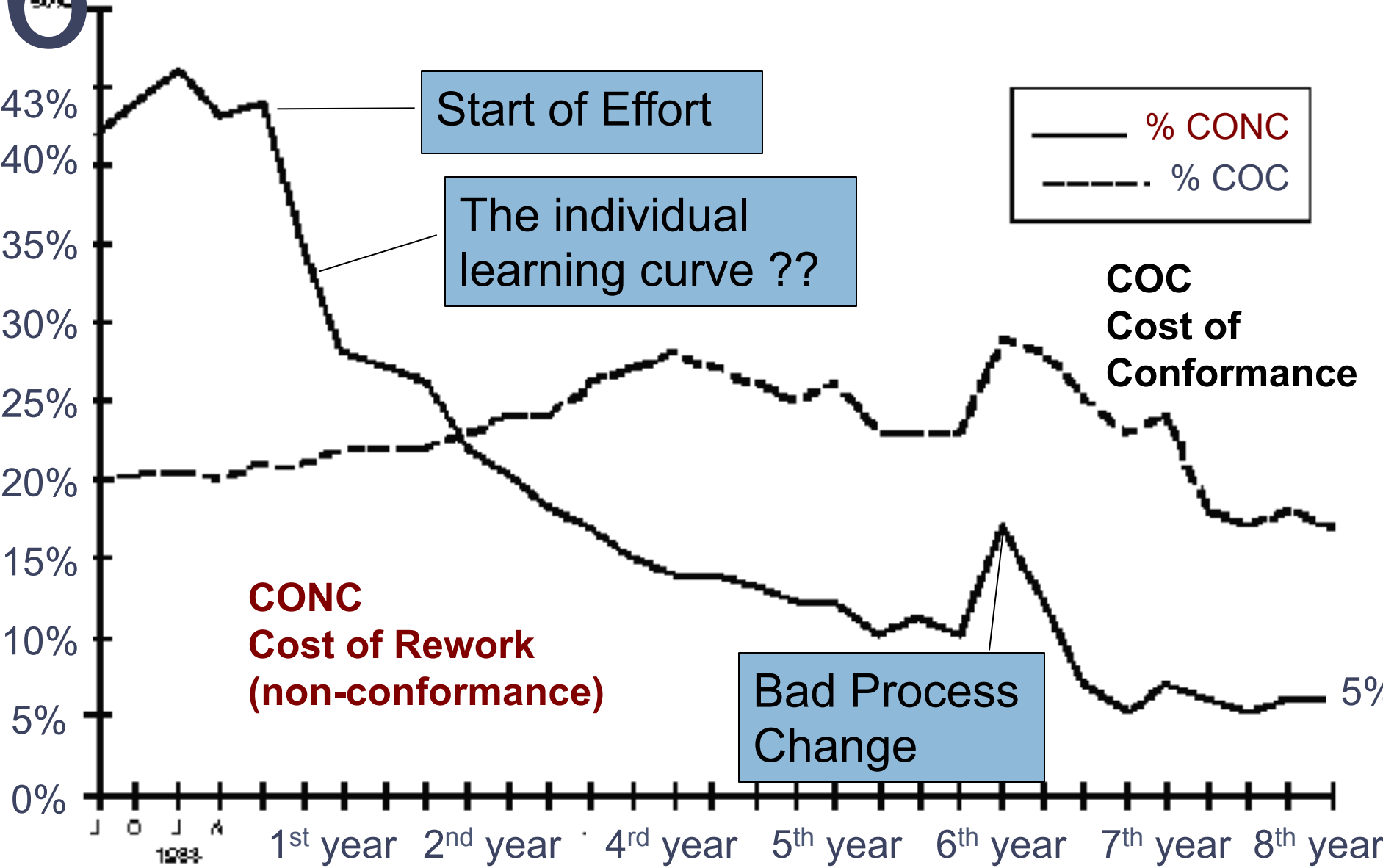
Numeric Quality Gateways Improve Quality of work

Defects/Page

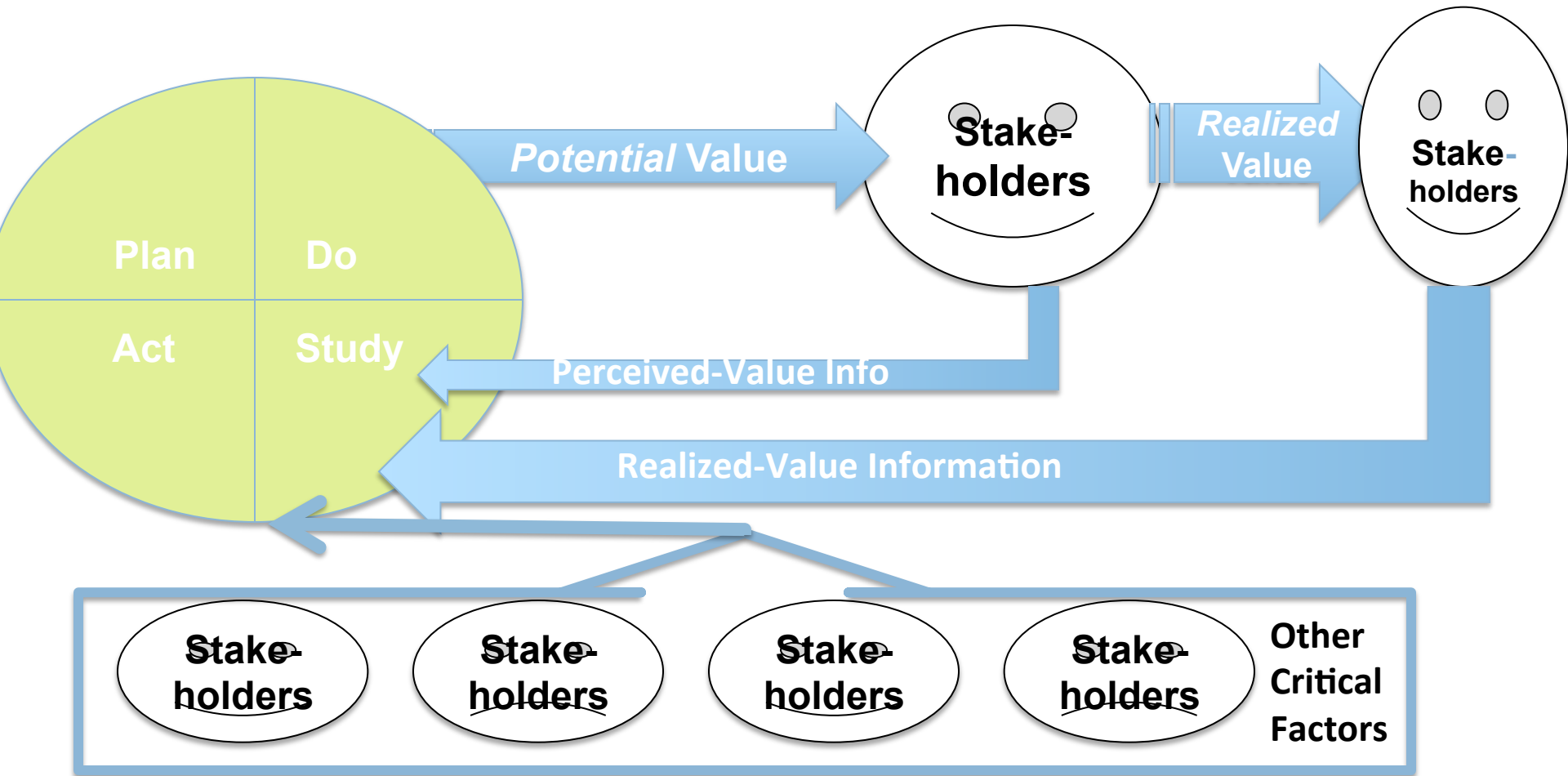


Inspections of Gary's Designs

6 DPP Improves Quality by 10x: Raytheon



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.

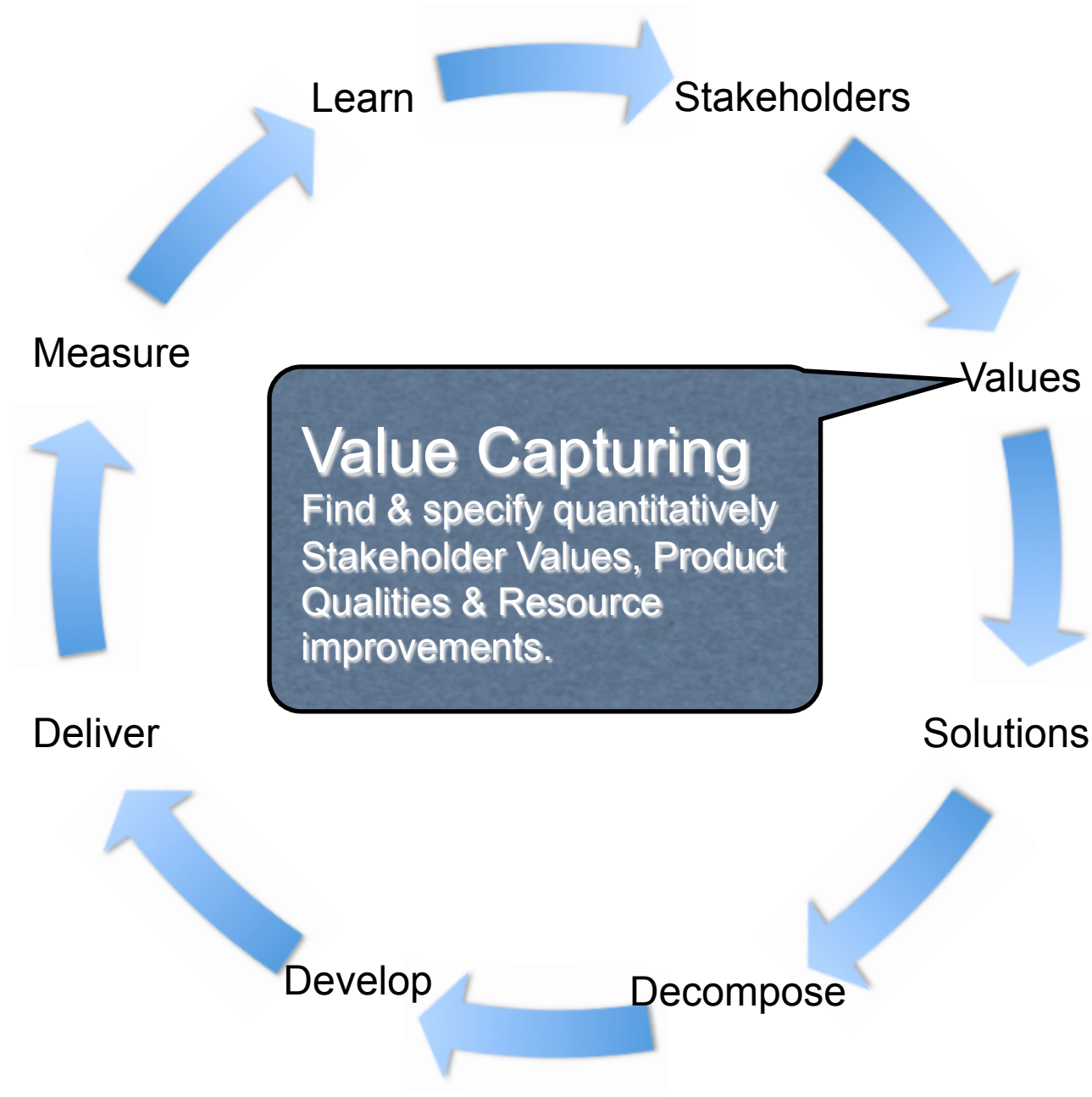
7_b



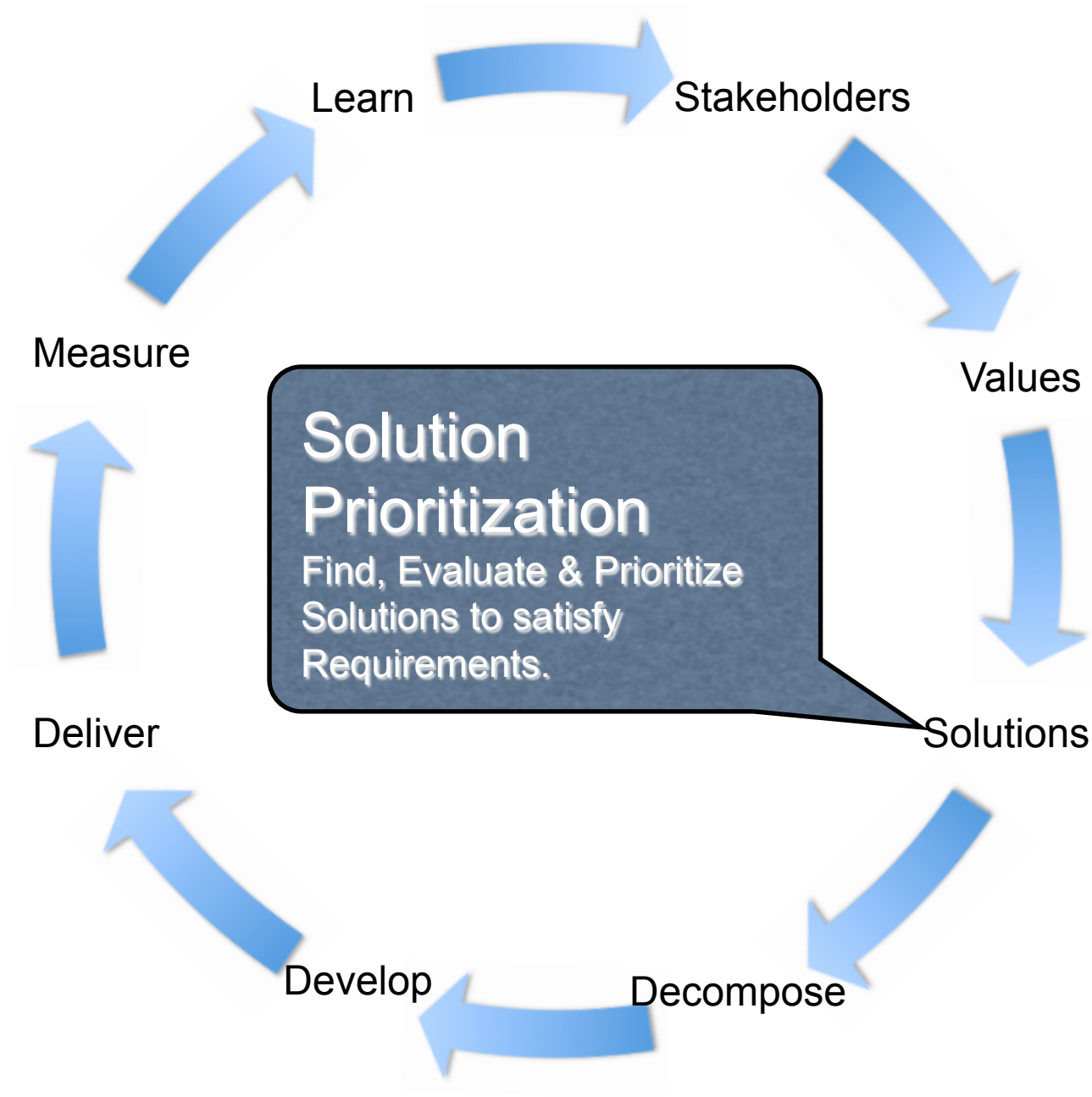
7_b



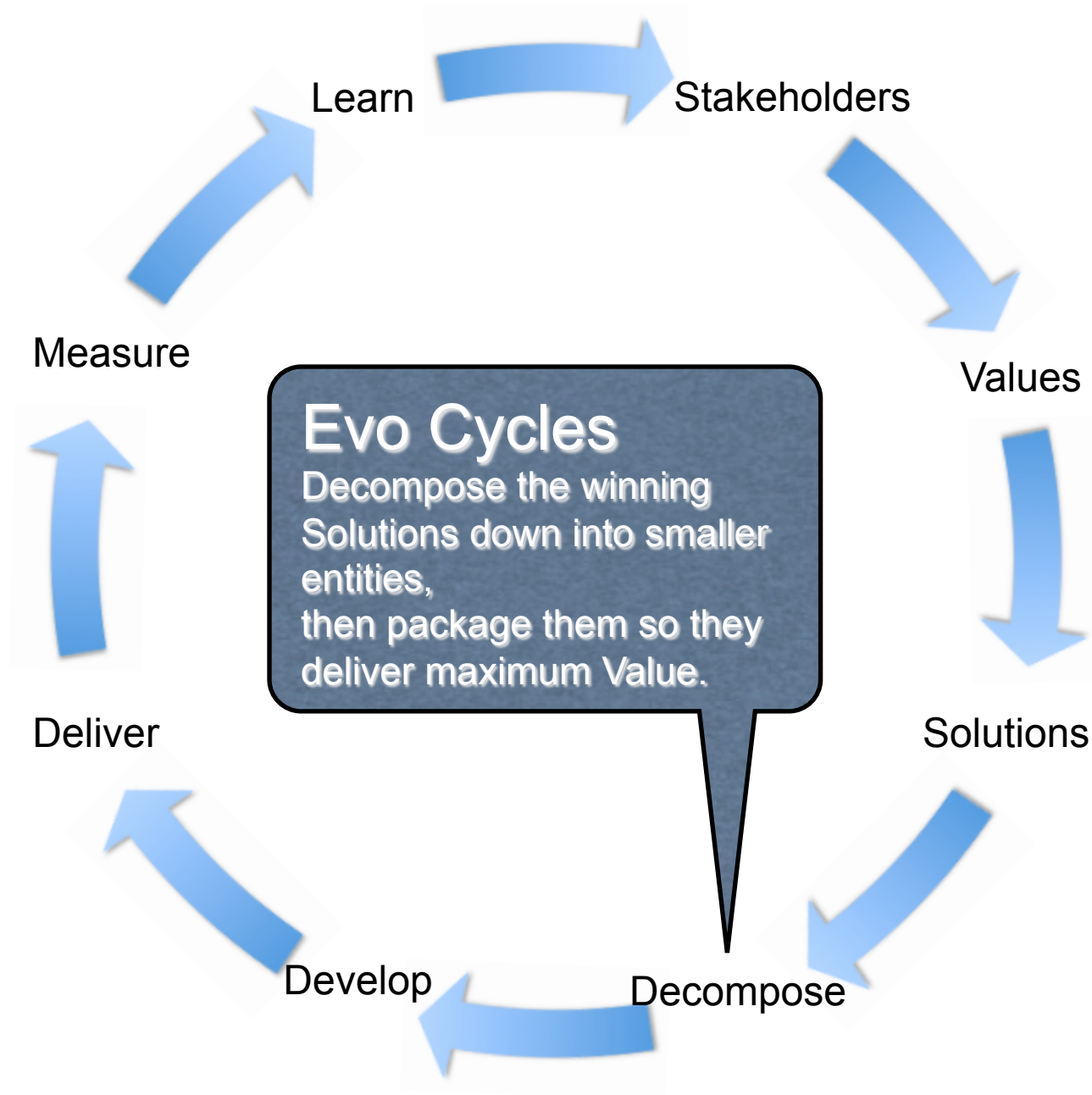
7_b



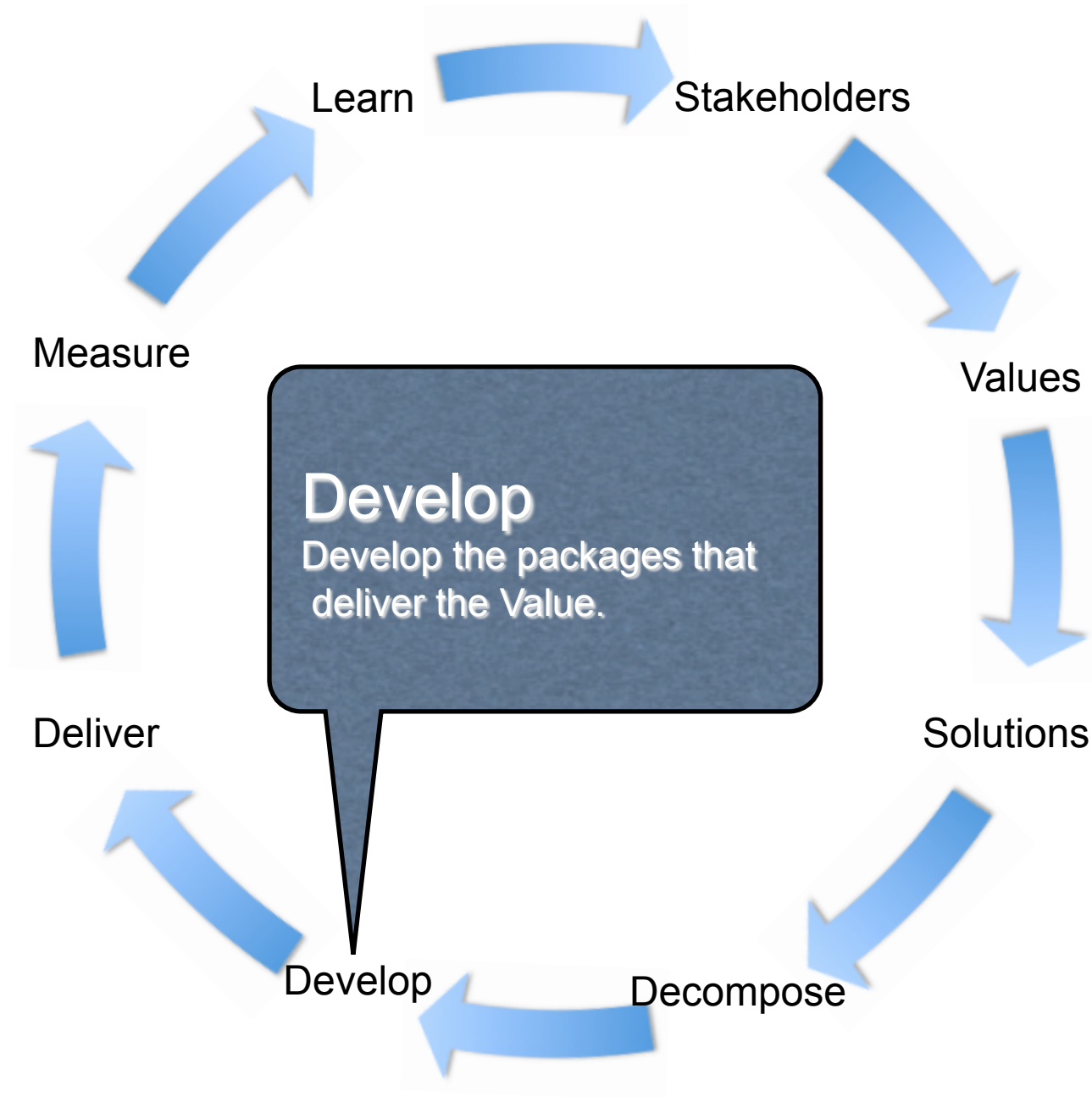
7_b



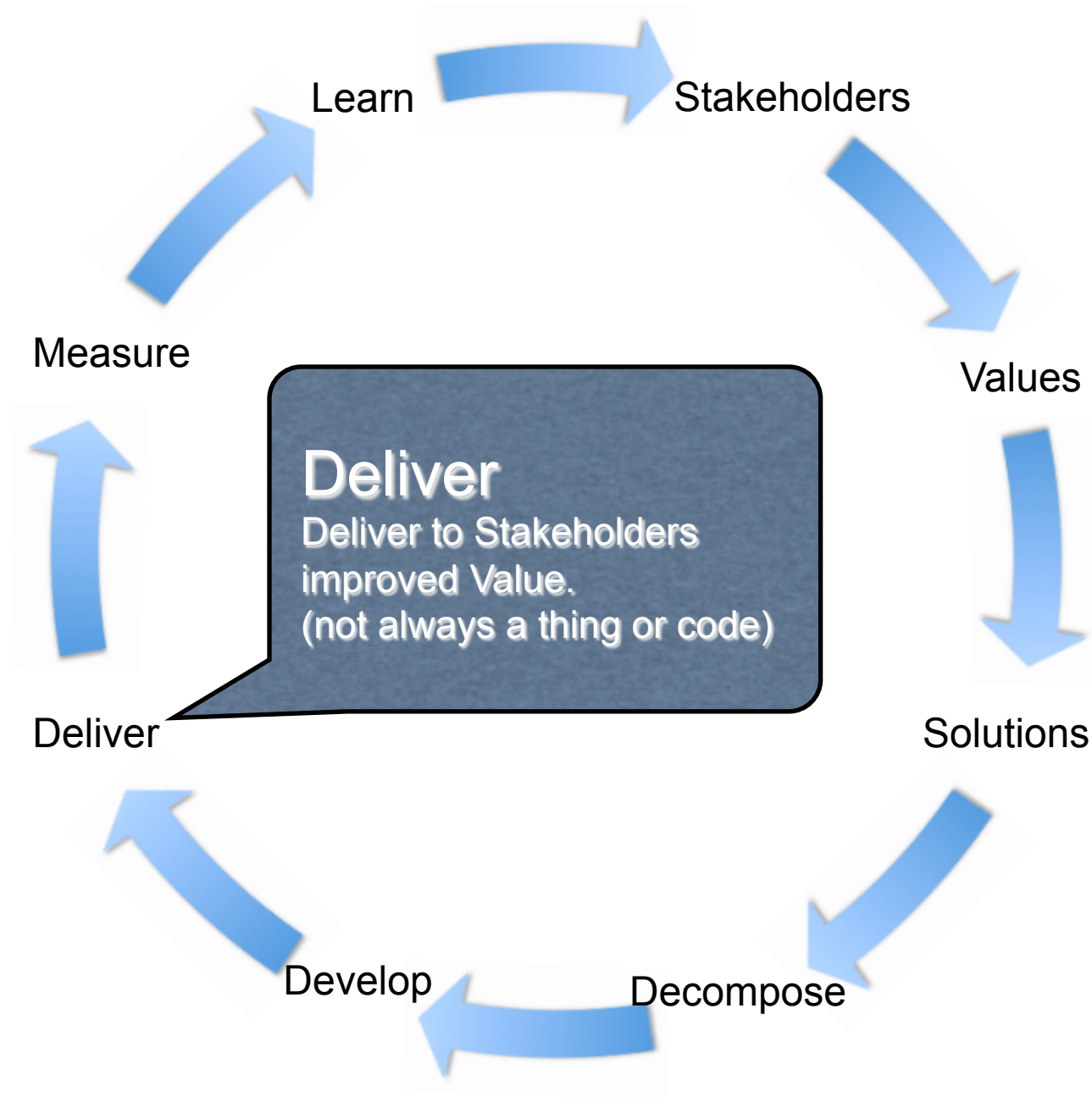
7_b



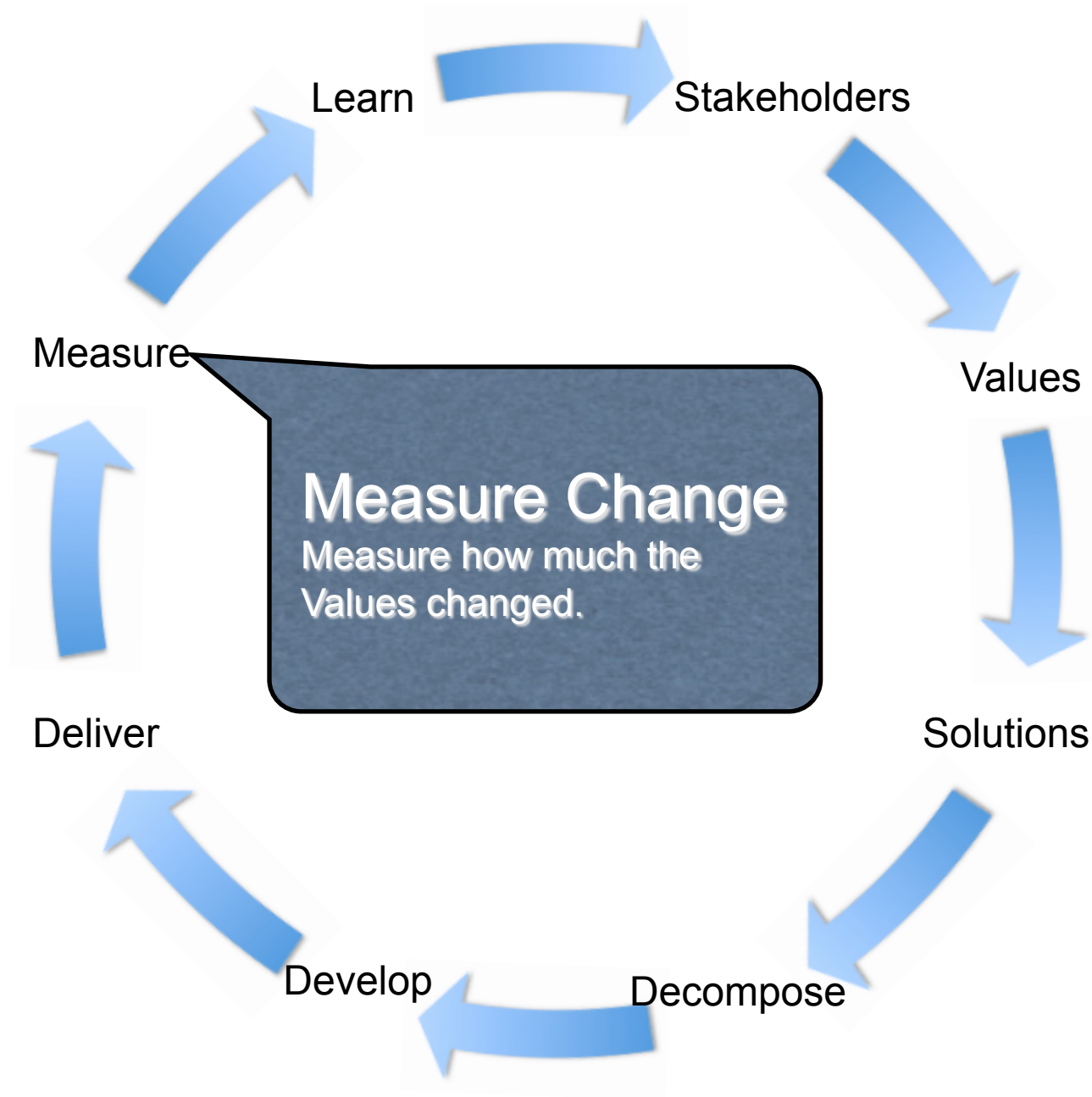
7_b



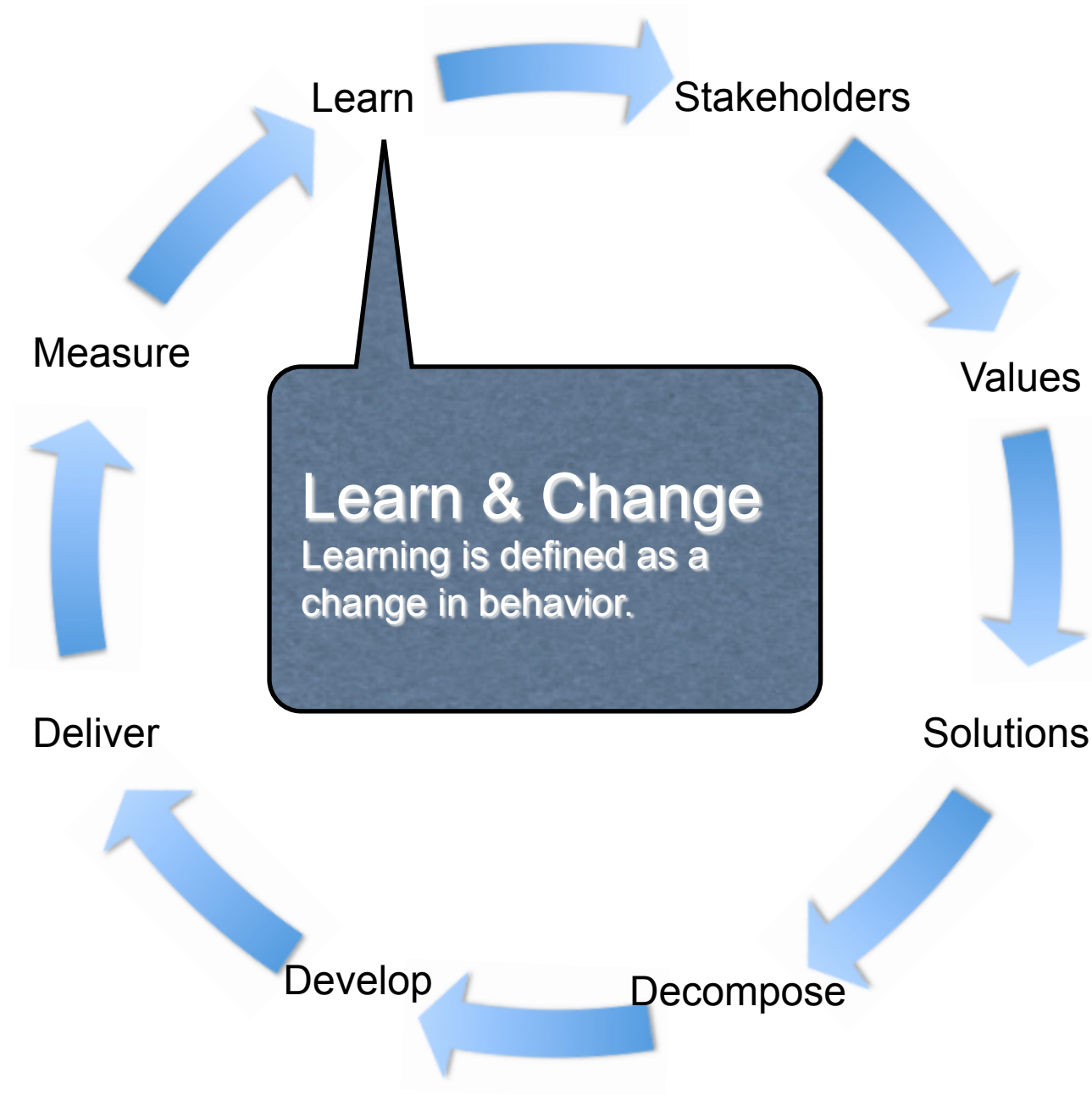
7_b



7_b



7_b



7_b



End

7

**Competitive Lean
QA methods
to Learn**



EXTRA SLIDES

- IN THE UNLIKELEY EVENT I HAVE MORE TIME
- AND AS BACKGROUND FOR PEOPLE READING SLIDE HANDOUTS

What you can do immediately

- ① Identify the 5 most critical qualities of your system.
- ② Quantify the 5 qualities.
- ③ For each quality,
 - ① set a Current level
 - ② and a Goal level

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



TOM GILB & KAI GILB



Thanks!

Questions: now, briefly

After lecture, all during the conference.

Kai@Gilb.com

Tom@Gilb.com

Mobile: +47 920 66 705

www.Gilb.com

Copy of these slides will be in Downloads/Slides:

http://gilb.com/tiki-list_file_gallery.php?galleryId=14

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”

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

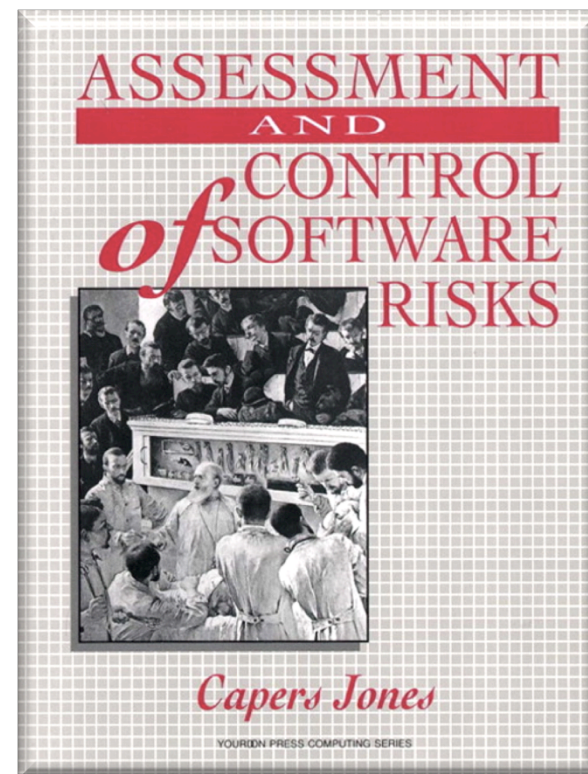
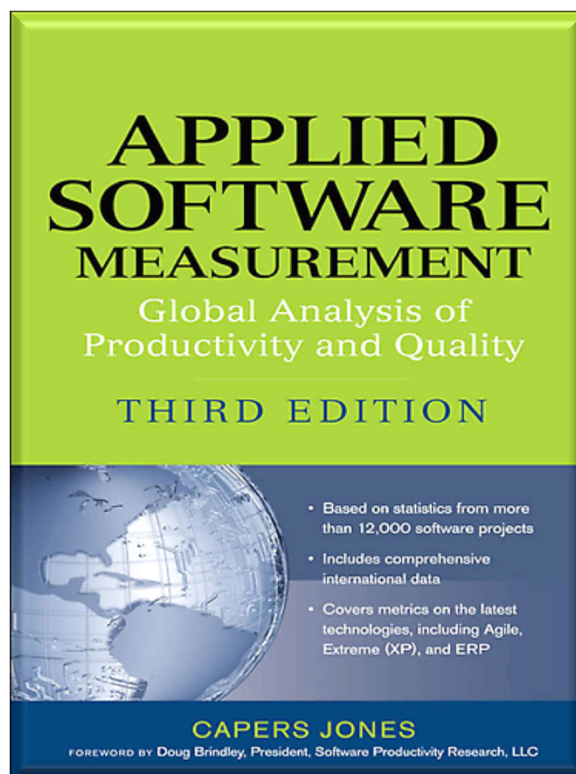
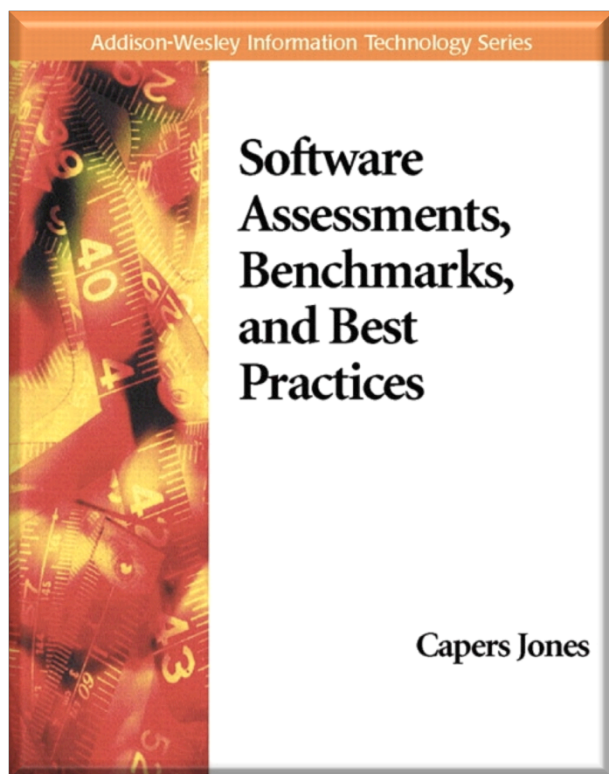
Begin:
Quality Assurance
is far more than 'test'
and it can be far more cost-
effective

a story



Capers Jones

Inspection Effectiveness



Regression test ?

15% to 30%

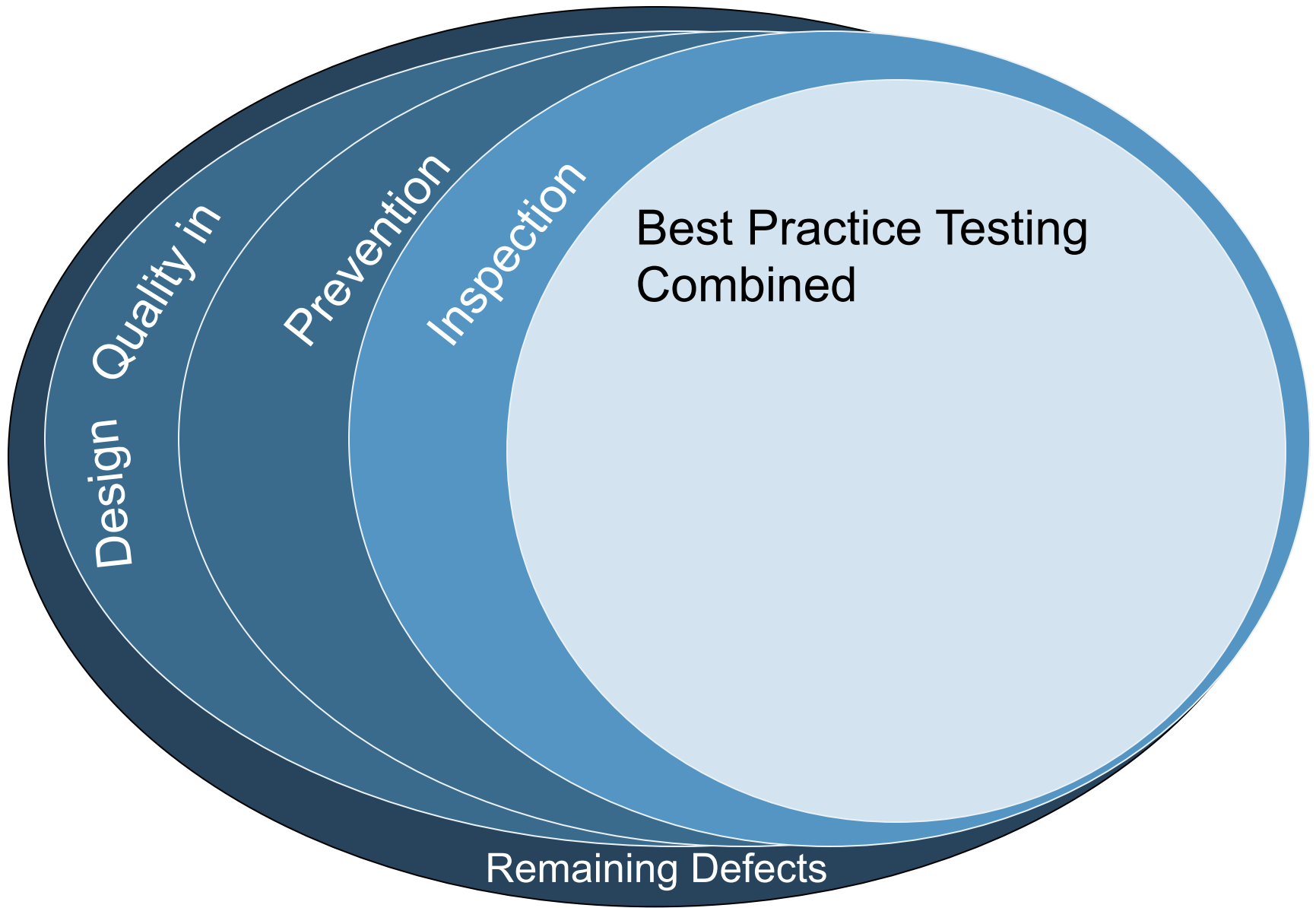
Integration test ?

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%

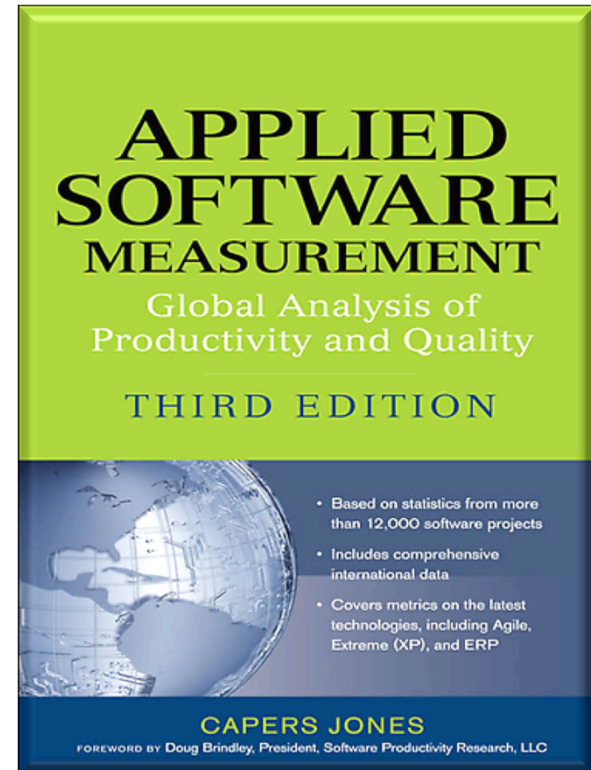
Inspections?

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

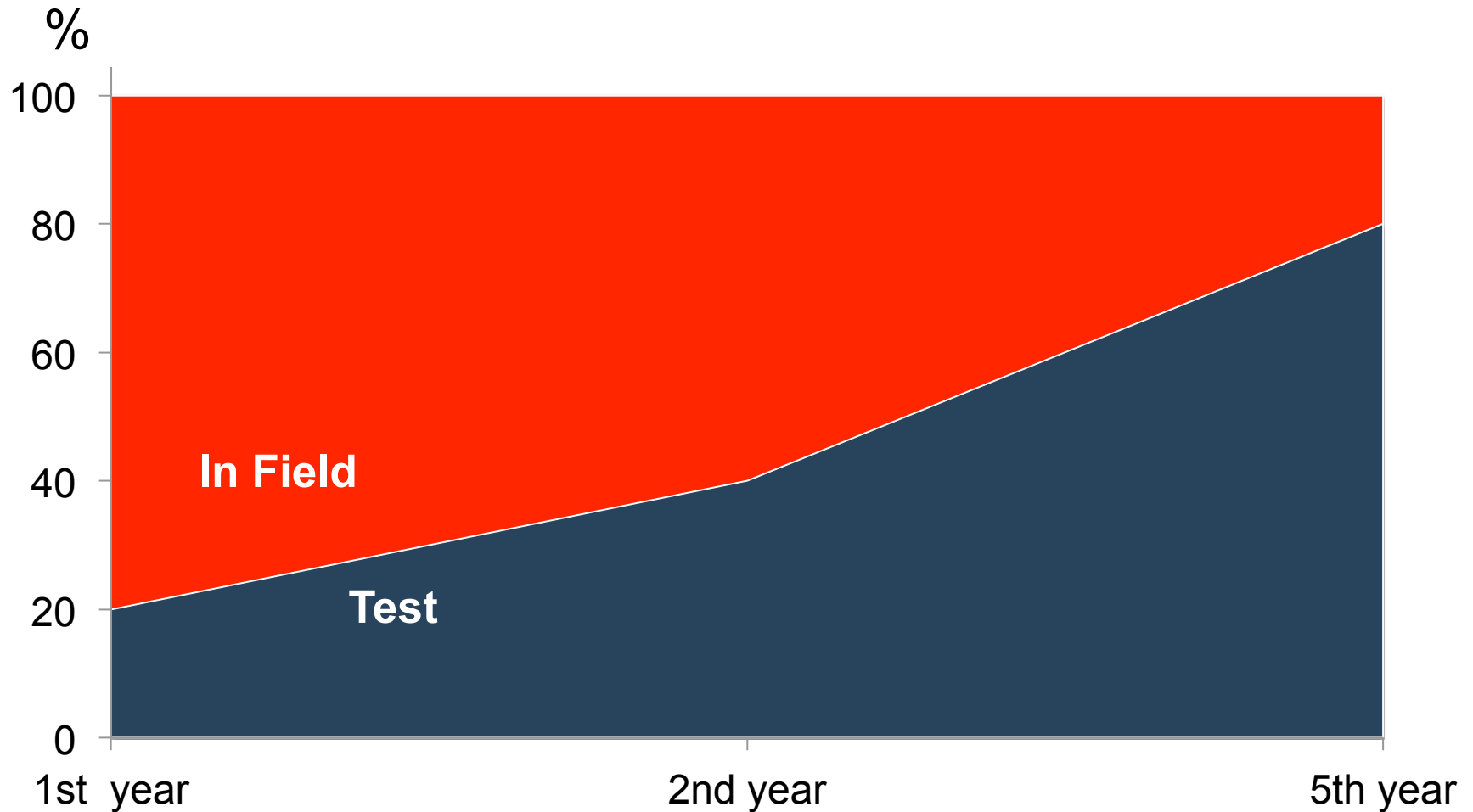


Little hope of 'zero defects'

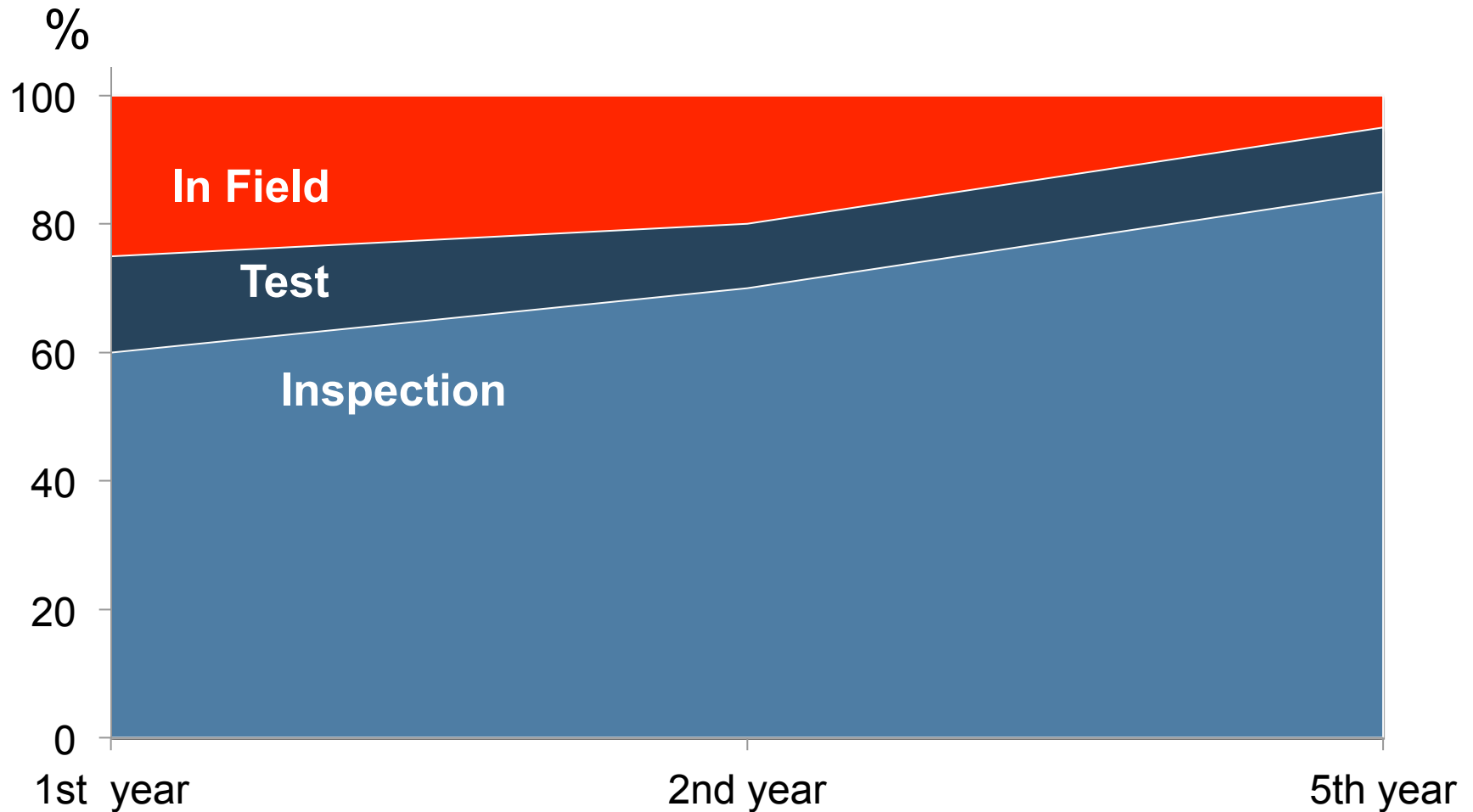
**“Between
8 and 10
defect removal
stages required
to achieve
removal
effectiveness of
95%”**



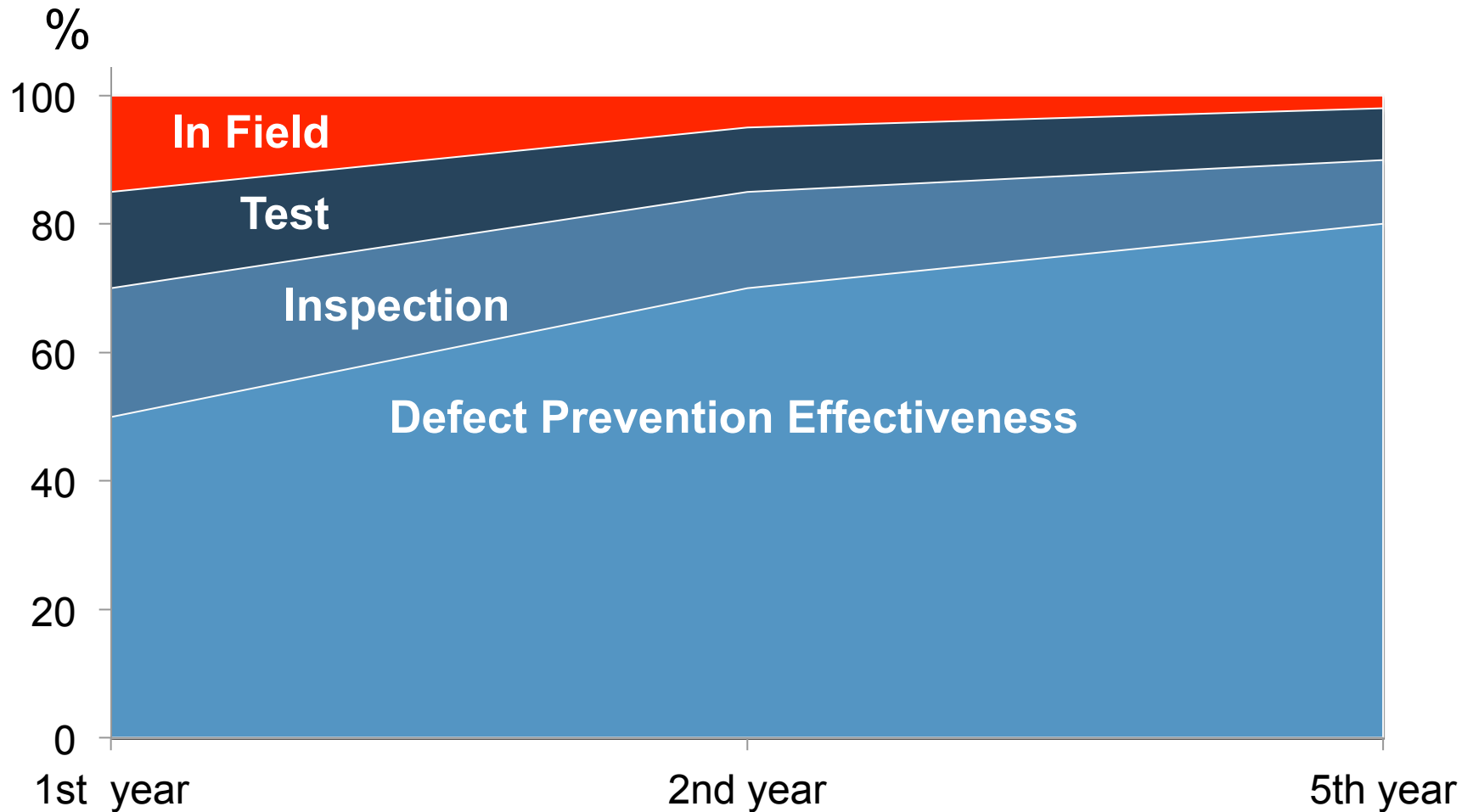
Testing Capability (C. Jones)



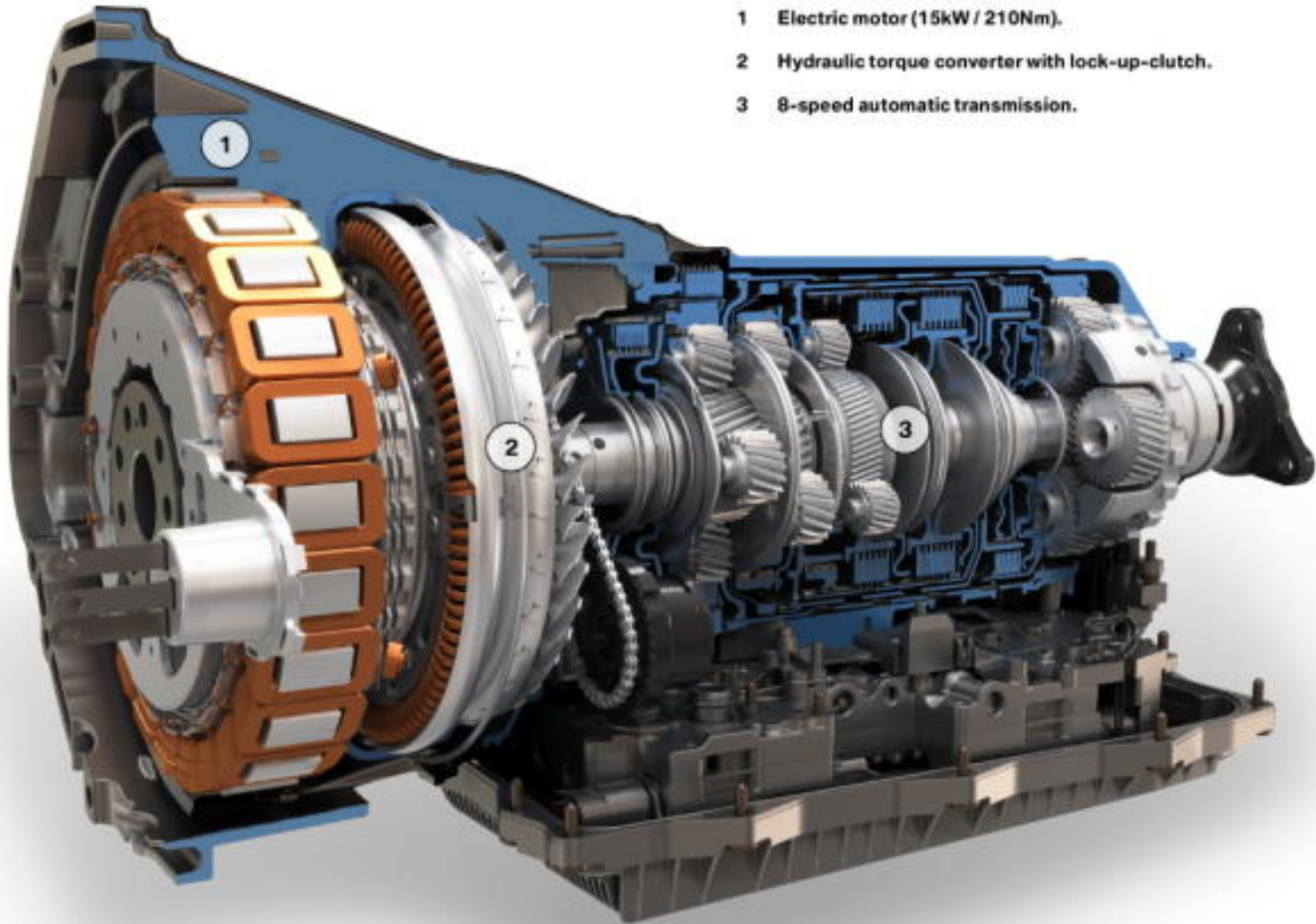
Defect Detection Capability (C. Jones)



IBM Defect Avoidance Experience



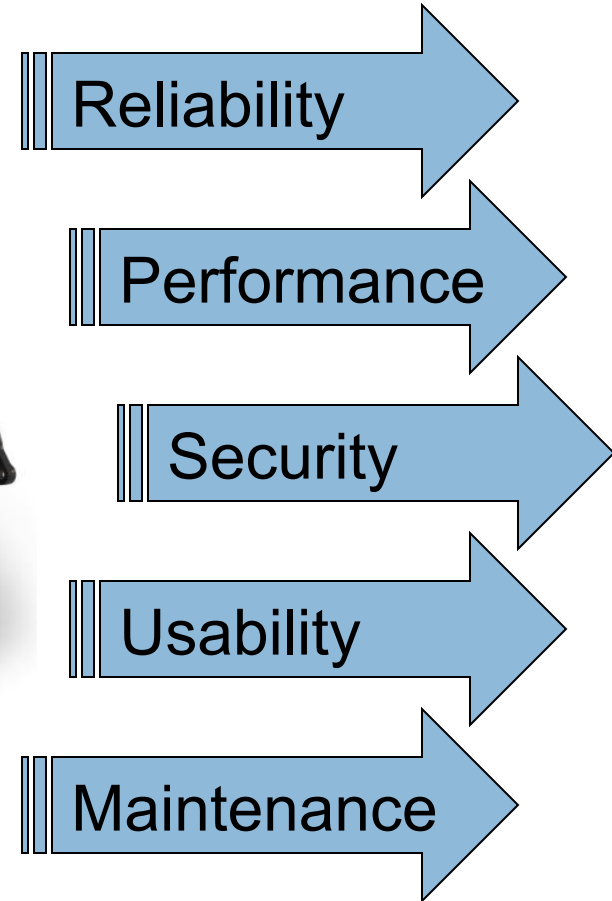
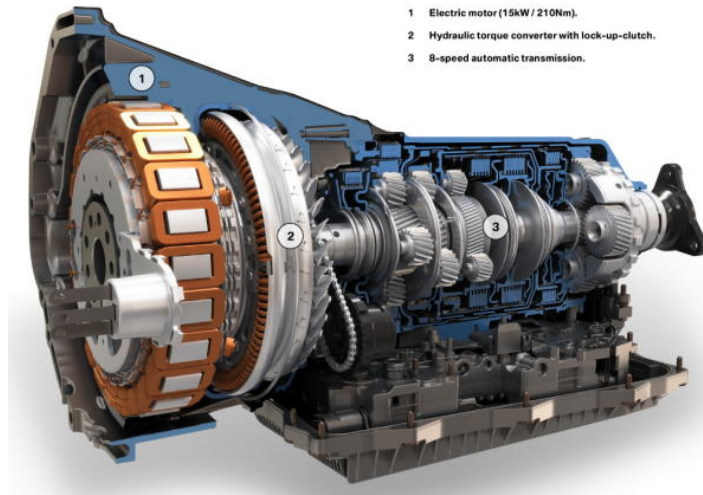
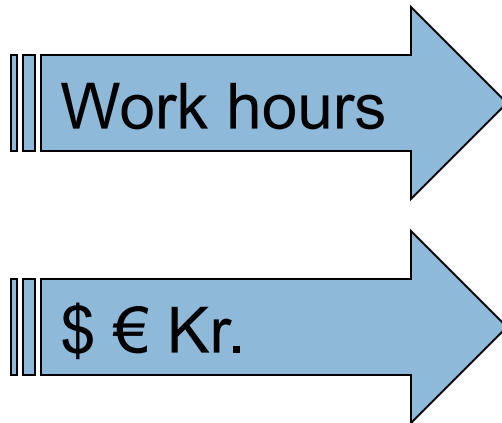
Design Quality In



You don't get quality by testing it in



but by 'Engineering' Quality In



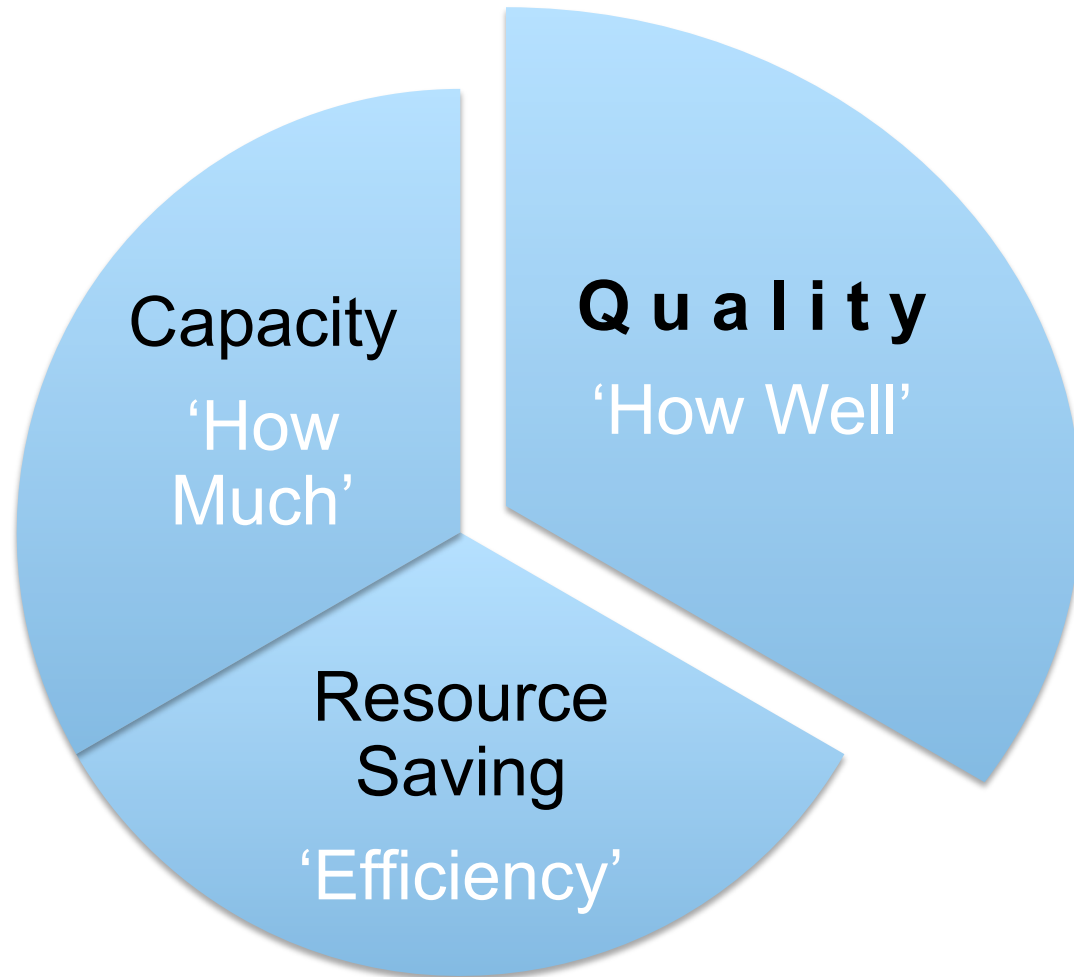
End:
Quality Assurance
is far more than 'test'
and, QA can be far more cost-effective

Start: Quality is far more than 'bugs'



a story

System Performance



End: Quality is far more than 'bugs'

