TU/e

Refis
system reliability engineering

Six Sigma
&
Test Process Improvement

Nederlandse Testdag

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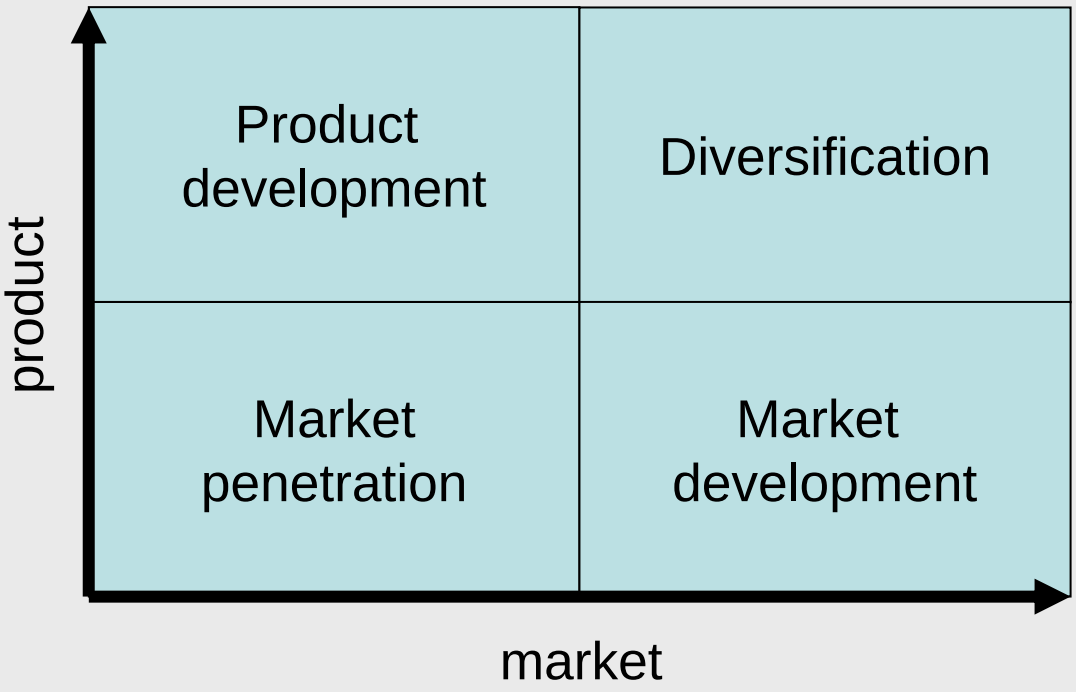
Alessandro Di Bucchianico & Ed Brandt

Content

- Process improvement
- Basics of Six Sigma
- Six Sigma and CMM, GQM, etc.

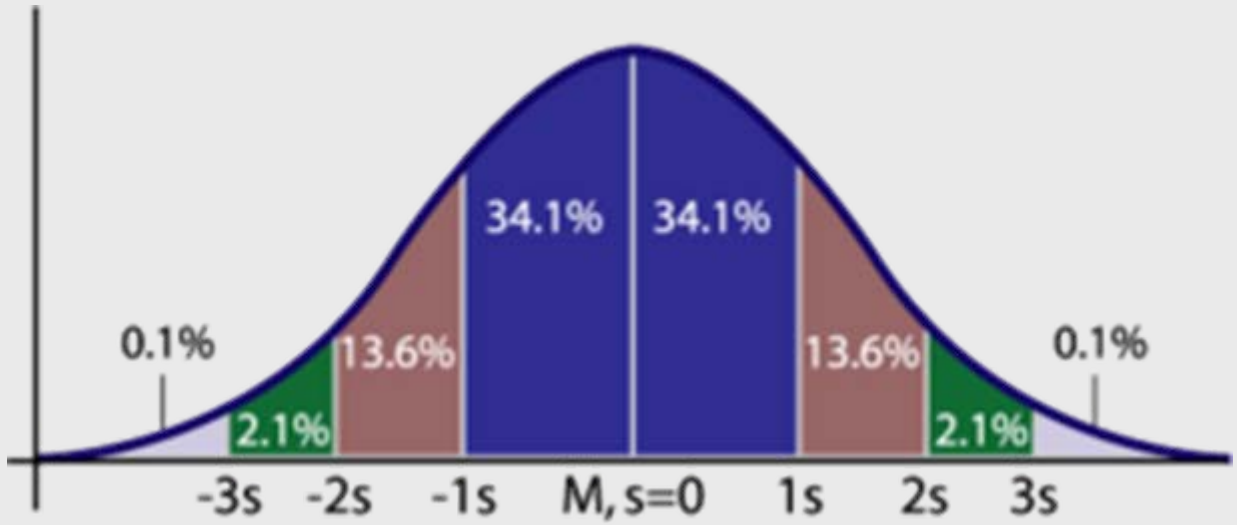
- Discussion:
  - “Six Sigma and the Improvement of Test Processes”

Process Improvement



(Product/market grid by Ansoff)

Basics Six Sigma

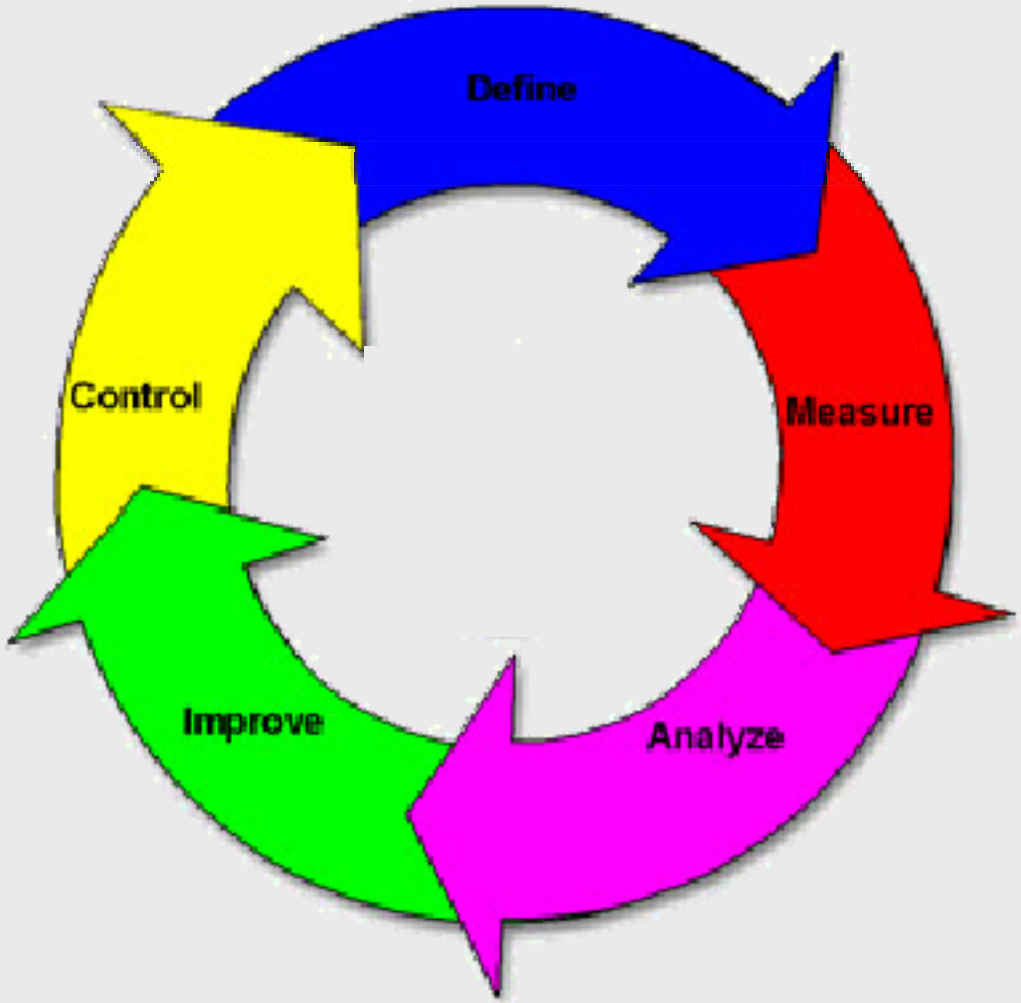


Basics Six Sigma

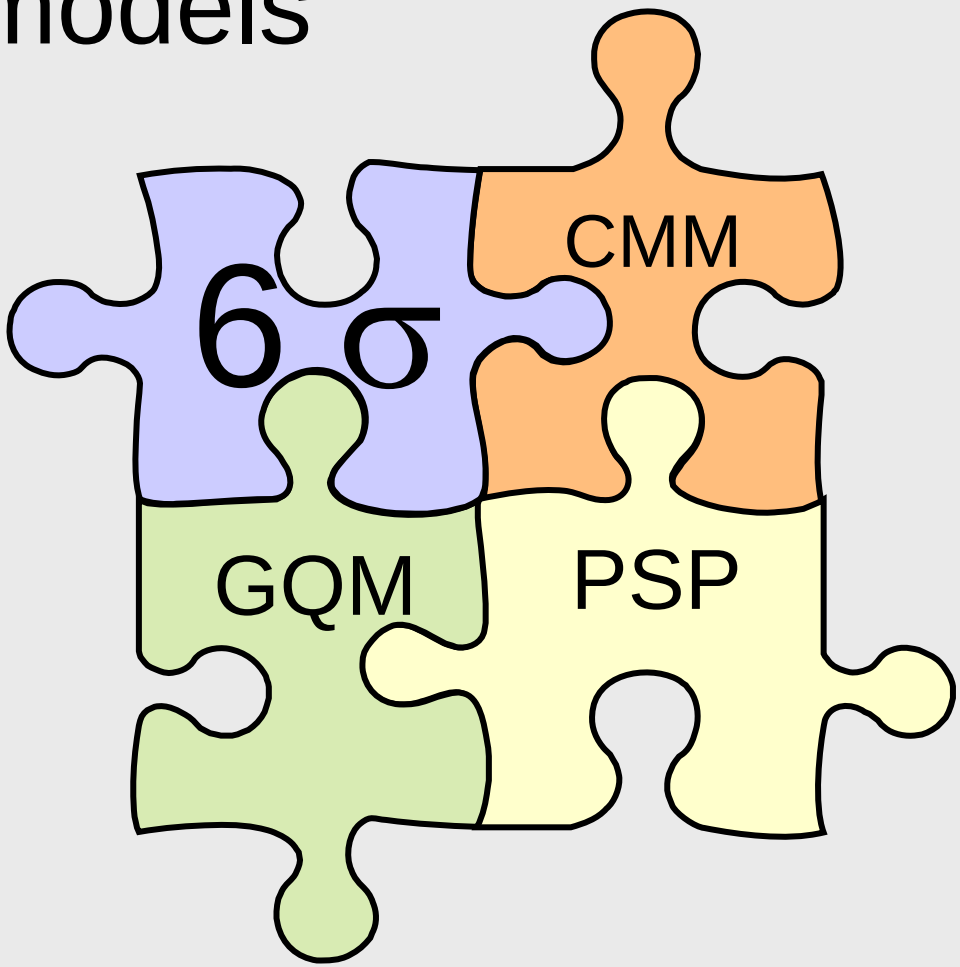
Six Sigma drive for defect reduction

- Based on the "statistical thinking" paradigm:
  1) Everything is a process
  2) All processes have inherent variability
  3) Data is used to understand the variability and drive process improvement decisions

Six Sigma model



Other models



Six Sigma and TPI®

aspect		scale 0	1	2	3	4	5	6	7	8	9	10	11	12	13
1	teststrategy		A					B				C		D	
2	applying stages		A			B									
3	moment of involvement			A				B				C		D	
4	budget and planning				A							B			
5	specification techniques		A		B										
6	static testing					A		B							
7	metrics						A			B			C		D
8	testtools					A			B			C			
9	test environment				A				B						C
10	test workspace				A										
11	commitment and motivation		A				B						C		
12	testfunction and education				A			B			C				
13	application of methodology					A						B			C
14	communication			A		B							C		
15	reporting		A			B		C					D		
16	incident management		A				B		C						
17	testware management			A			B				C				
18	test process management		A		B								C		
19	reviews and inspections							A			B				
20	white box testing					A		B		C					
			controled					efficient					optimizing		

Can TPI benefit from Six Sigma?

- What are the products of a test process?
- How should we measure defects?
- Which specification limits do we recognize?
- How do we start?

Products of a test process?

- Defects log
- ~~Adequately functioning system~~
- Test cases
- Test report
- Test metrics
- Improvement suggestions for the system
- Test plan

Entries made on the fly during the presentation based on discussion and comments from the audience.

How to measure defects?

- Defects in defects logging
- Traceability
- Test cases

Entries made on the fly during the presentation based on discussion and comments from the audience.

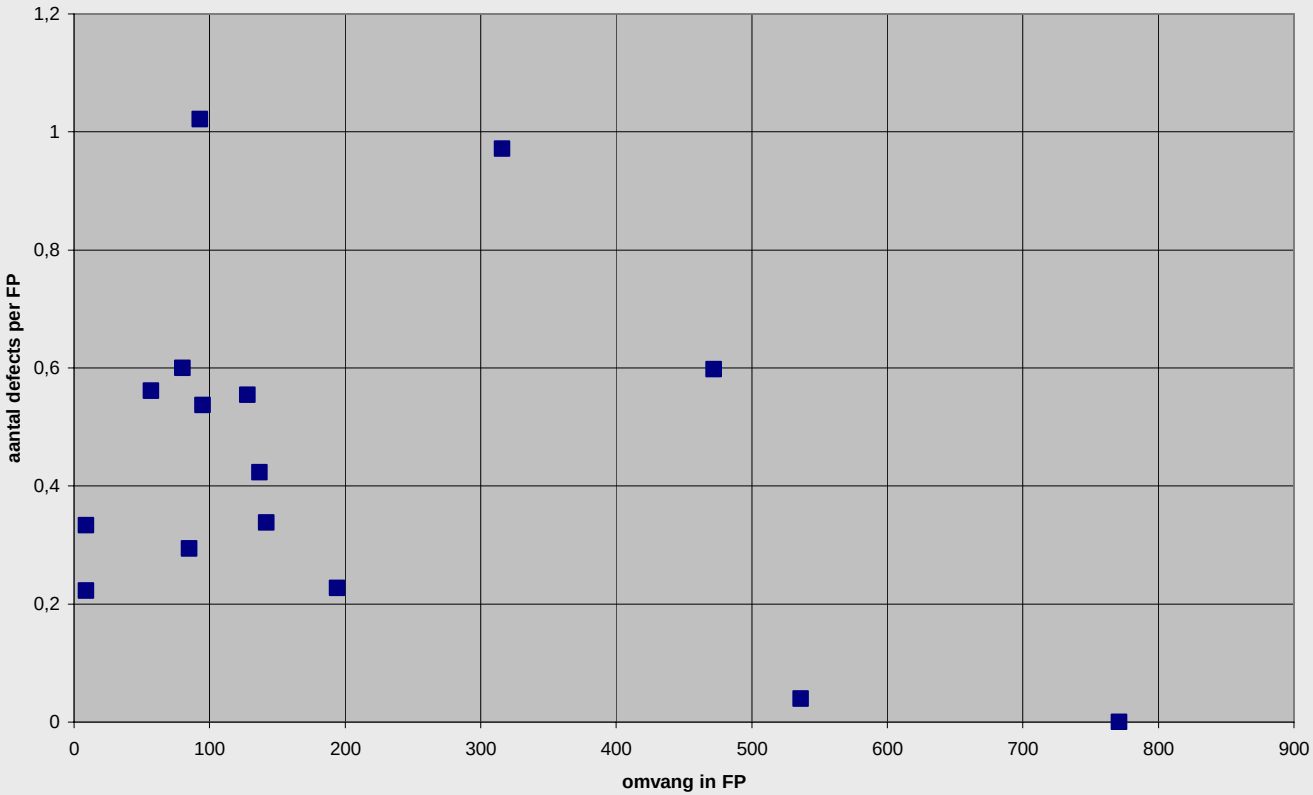
Specification limits?

- Time To Repair
- Test costs
- …

Entries made on the fly during the presentation based on discussion and comments from the audience.

Some sample metrics 1

- Number of test defects per FP



Some sample metrics 2

- Test failure intensity