

Quality Capability

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Sony Ericsson

SONY ERICSSON MOBILE COMMUNICATION

Sony Ericsson sells over 100 million handsets in 2007, more than double global market growth rate

Margins remain strong as company shifts to broader portfolio

145 million music enabled phones sold to date, of which 57 million were Walkman® phones – maintaining leadership in music

Ref: 16 January 2008 - External Announcement, Press Release for Q4 - End Of Year Financials

Global Quality Engineering at Sony Ericsson

Mission of Global Quality Engineering

- Increase Quality Capability and Mindset
- Manage and deliver a profitable improvements
- Train in Quality Engineering & Six Sigma
- Assess Quality Capability by use of Quality Pyramid*

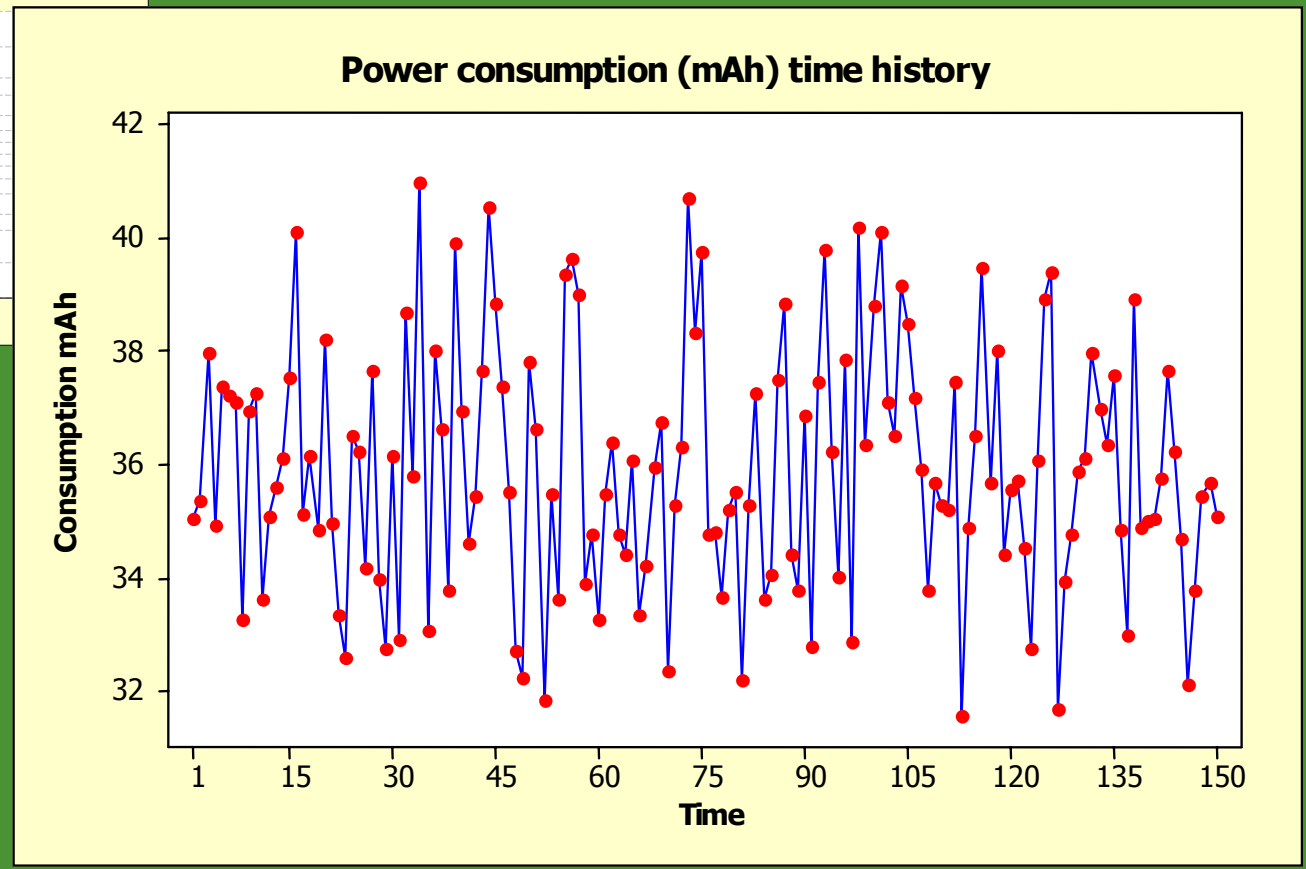
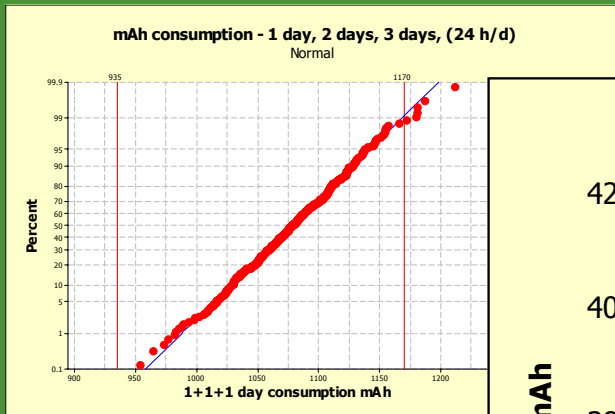
*) Presented on page 13 & 14

Front line statements:

- Quality Engineering and competence in statistics can increase company's competitive advantage and quality capability
- Current trends in corporate management call for the development of quality mindset among senior managers
- As competition among business enterprises becomes more intense, the need for Quality Engineering and statistics becomes more apparent

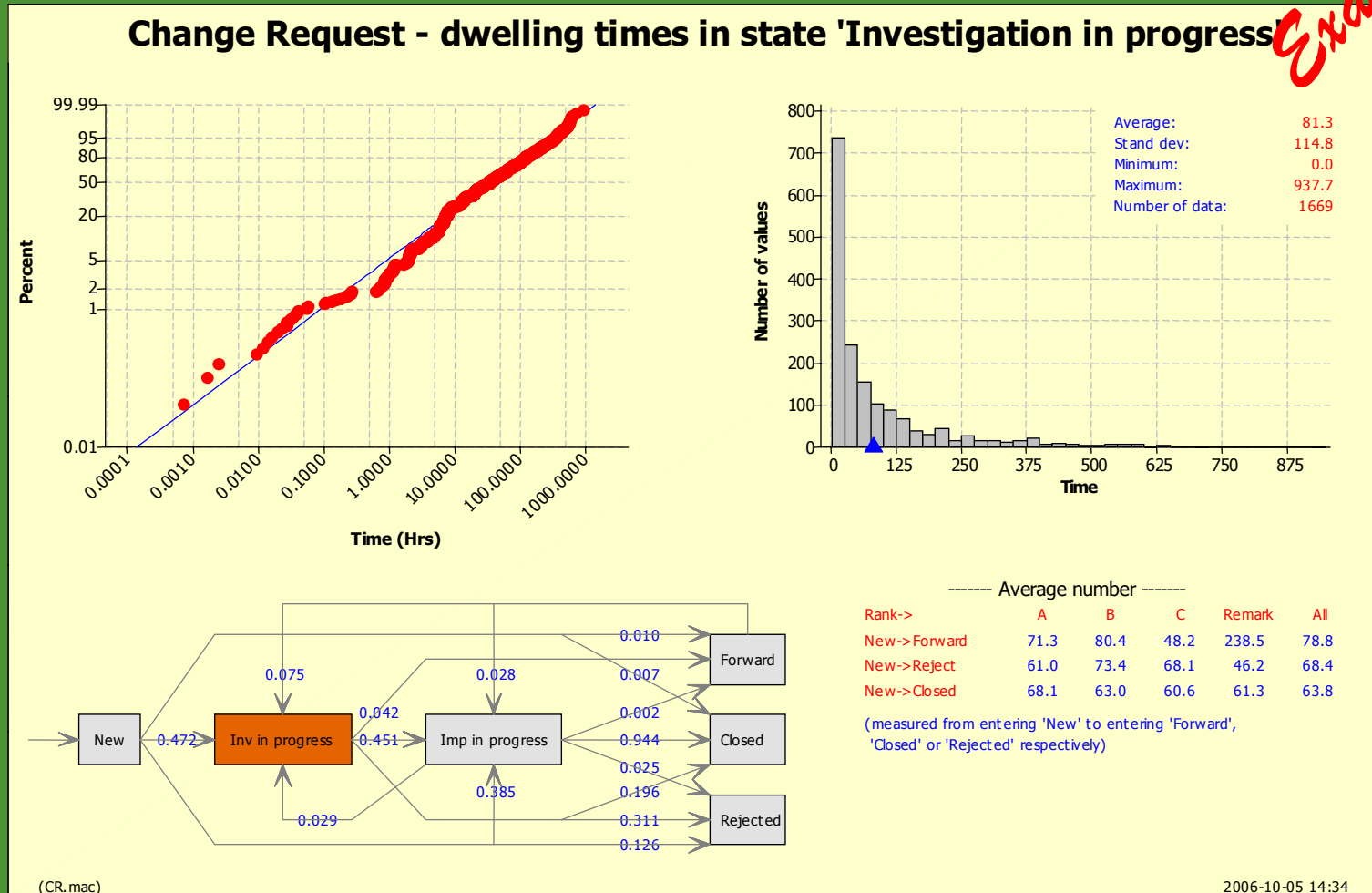
We do: Simulation of battery capacity

Example



We do: Simulation of Change Request handling

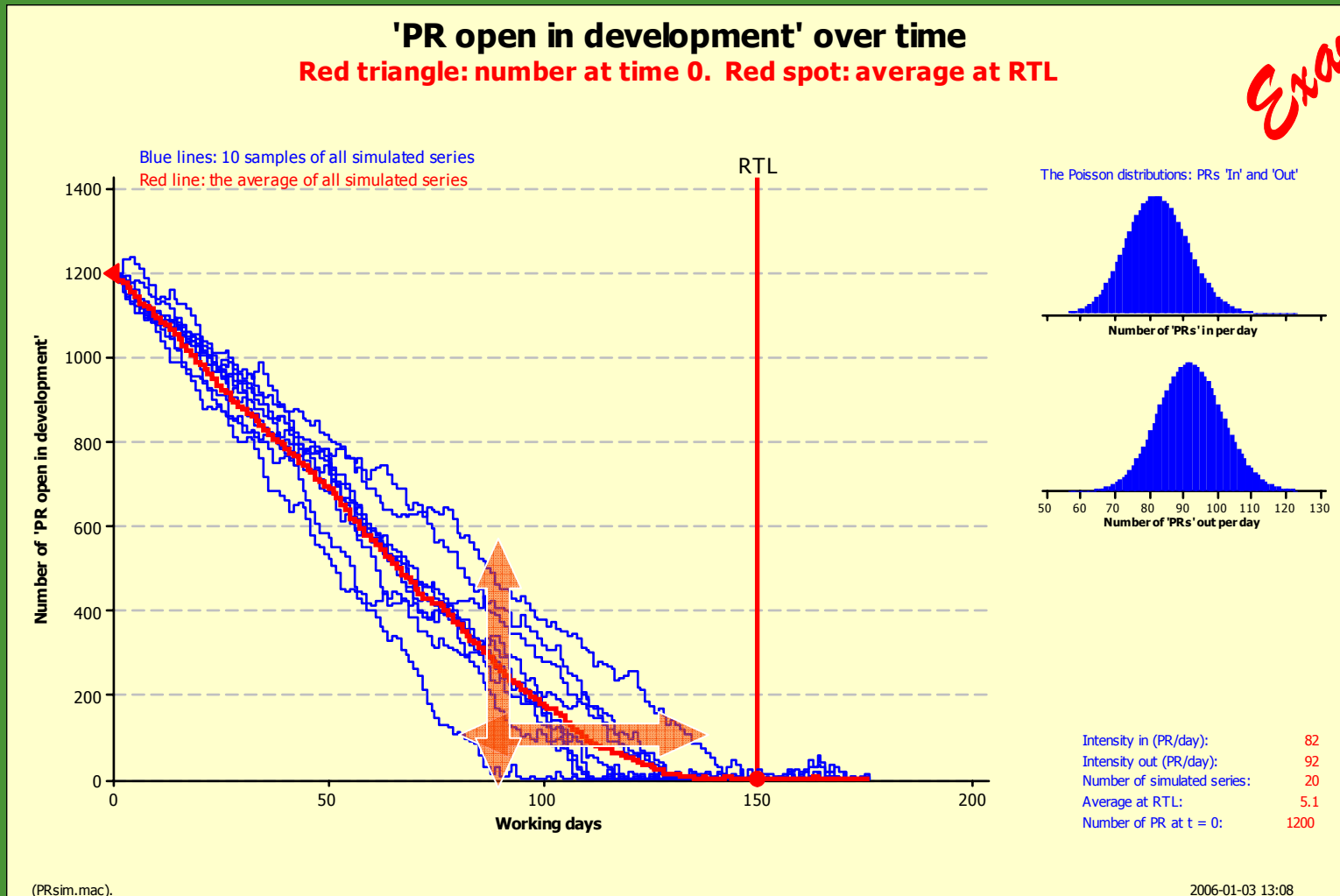
Example



We do: Simulation of Project Performance

Problem Report process simulation. Variation of back-log and delivery time to match the Ready To Launch (RTL) date.

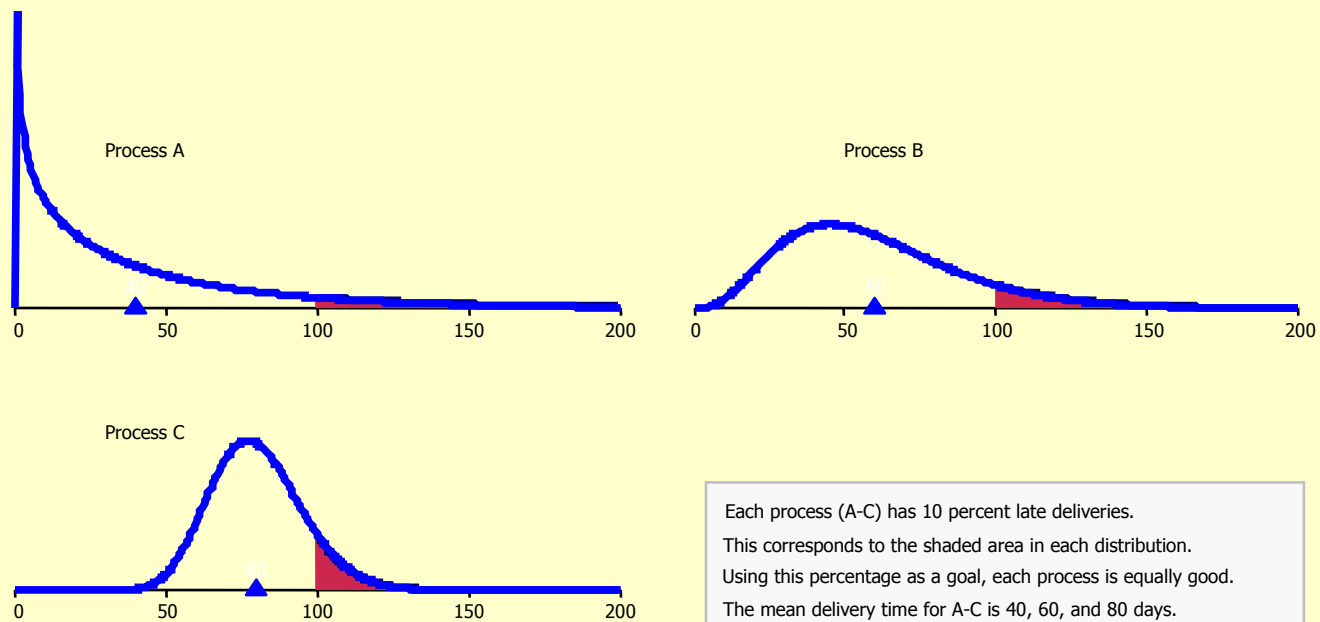
Example



We can help to compare performance

Example

Delivery performance
The X-axis shows delivery time in days
The average is marked using a blue triangle
The red, shaded area shows 10 percent deliveries too late



Quality Capability - definition

Quality Capability is a company's ability to achieve stretch goals, perform better products and services than the competitors using a distinctive, replicable and repeatable set of processes based on common strategy, methodology and tools.

Can we increase Quality Capability by:

- Repeating what we have already done?
- Increased control?
- More precise ranking of failures?
- Increased number of audits?
- More precise calculations of returns?

We can increase our Quality Capability by:

- changing our behavior – manifesting our concern about customer quality
- asking for data, facts and analyses – showing proactivity
- responding with criticism to facts and data in time – with good judgment
- demanding risk analysis – so we can mitigate risks in time
- communicating quality mindset by own behavior – at the meetings, in instructions, decisions, directives, specifications
- leading Quality process with better competence in Quality Engineering and statistics

Quality Mindset and Quality Capability

- Our Quality is the result of our behavior
- Our behavior is a result of our Quality Mindset
- Our Mindset impacts our Quality Capability

Quality mindset = wanted position in Quality Pyramid element

Quality Capability = alignment to wanted position in Quality Pyramid

Quality of specifications

(element 4 level 1)

Example

Wanted Position:

- Requirements and specifications are controlled and managed
- Specifications are derived from customer requirements and expressed in functional as well as non-functional terms
- We describe product data in our specifications by standard terms such as mean value, standard deviation, confidence interval etc.
- Accuracy is specified for all requirements where it is applicable.

UICC specifications

ME shall support "UICC terminal interface - Physical and logical characteristics" - according to ETSI TS 102 221 Release 4.

Idle current in GSM mode

- **Environment:** 9 Multiframe paging rate, 1 GSM neighbor
- **Target value** = 2.70 mA (population mean)
- **Variation:** Standard deviation < 0.10 mA
- **Accuracy:** The achieved results shall be verified to a 95% confidence level to be within ± 0.05 mA of the target values stated above

Quality capability levels – Quality maturity

**Cross Functional
Optimizations**

Total Quality Management

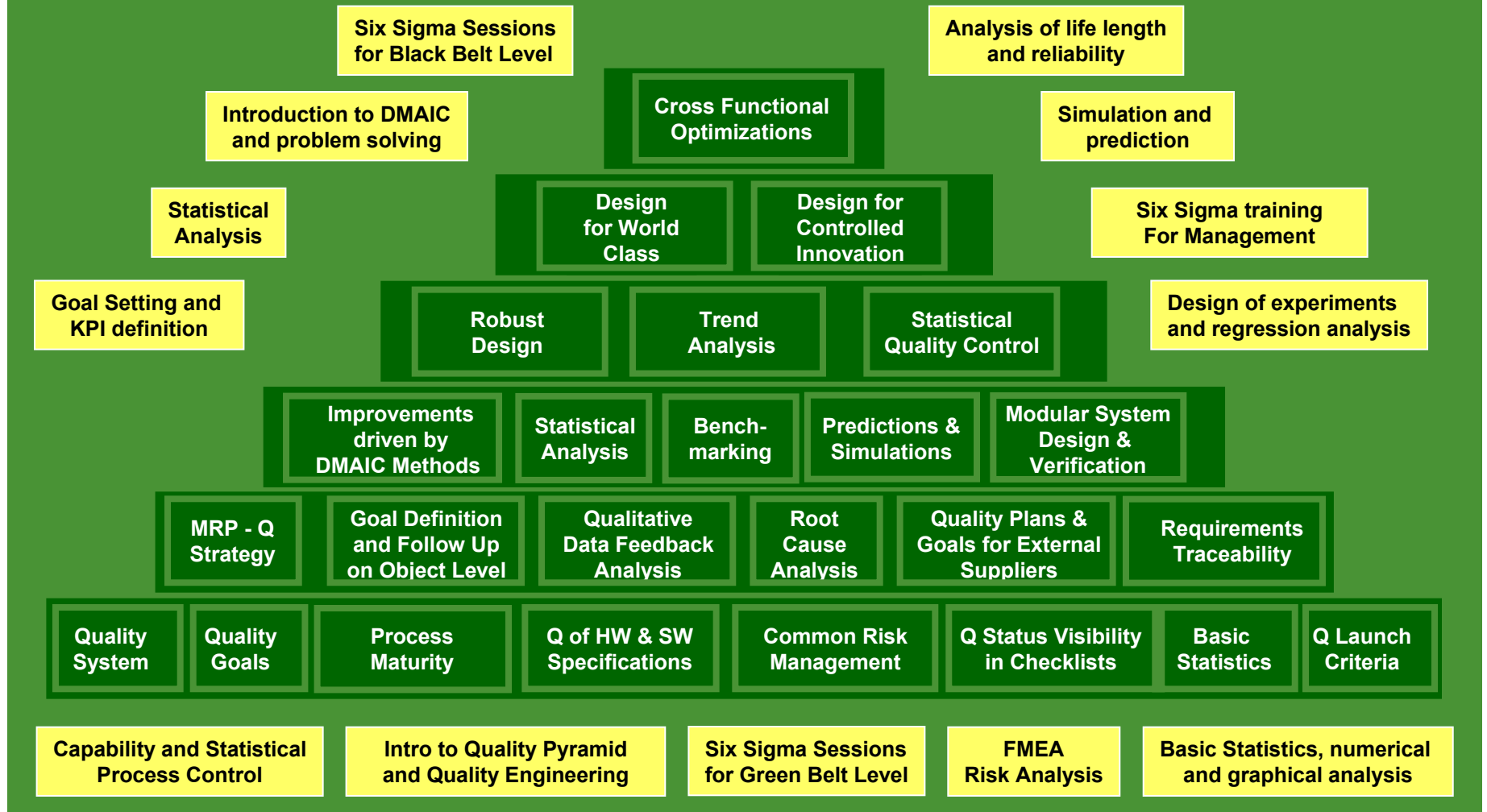
Design optimized for robustness

Quality predicted by design

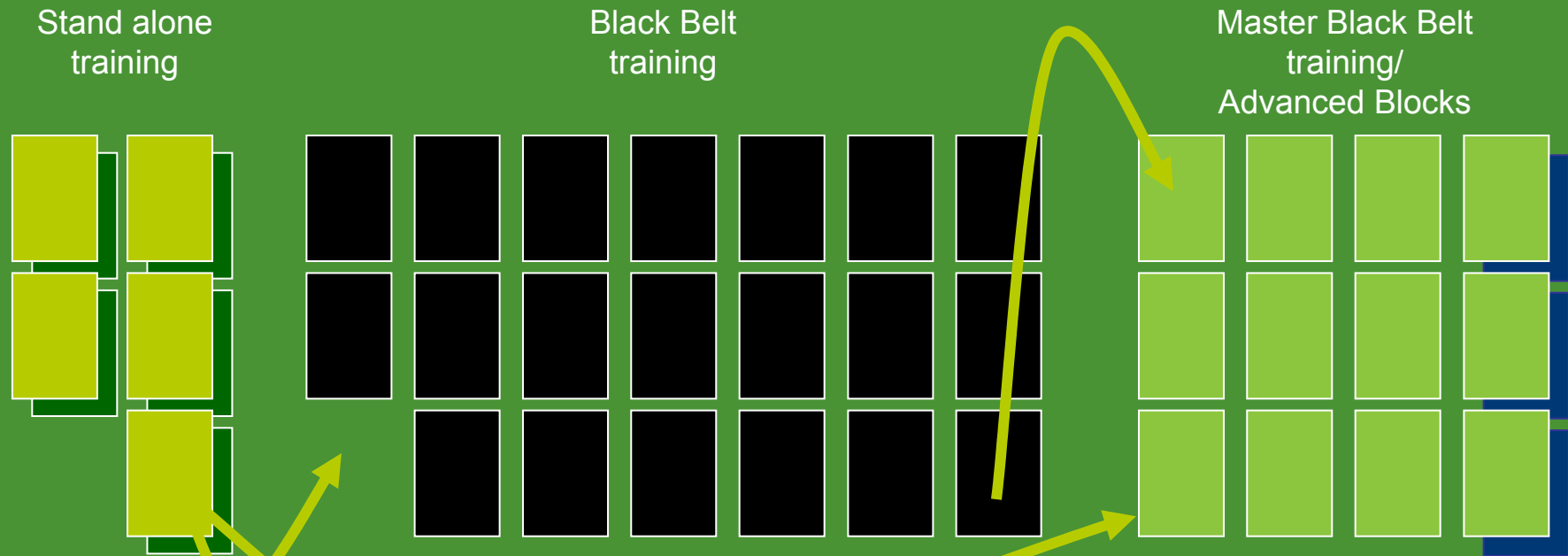
Improvements based on structure & facts

Measured facts show us the status

Quality mindset creation by training



Quality Engineering - training blocks



Training possibility

Design Engineers: Selected Green -> Start Black & selected Blue

Black Belts: Finalized Black -> Whole Blue or selected Blue

Master Black Belt: Whole Blue or/and selected Black

Expected Change of Quality Mindset

	Before change	→	After change
Focus on	Result		Process
Reference	Mean		Variance
Approach	Qualitative		Quantitative
Measurement	Defect Rate, number		Market, satisfaction

Quality Management
Focus on Result



Management Quality
Process + Result

Management Quality means:

- Improve decisions quality, (Q gates, T gates, KPI's, LQ)
- Improve communication quality, (Specifications, goals...)
- Speed up decision and communication, (KPI's efficiency)
- Improve Quality Engineering competence, (understanding the impact of variation on quality)

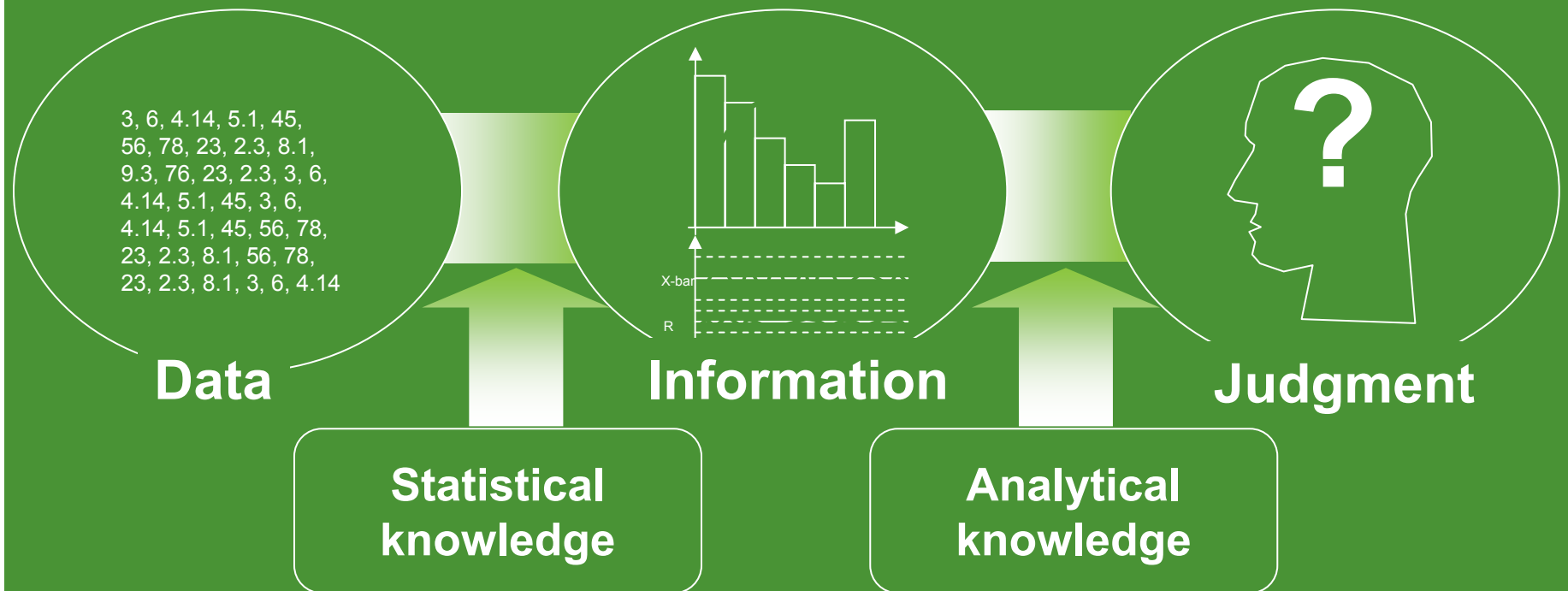
Critical thinking

Critical thinking requires:

- understanding of measurements and variance for efficient management of processes
- understanding of statistics for decision making
- knowledge of confidence for safe decisions
- familiarity with analysis methods for judgment of evidence
- knowledge of goal setting and goal evaluation for judgment of achievements

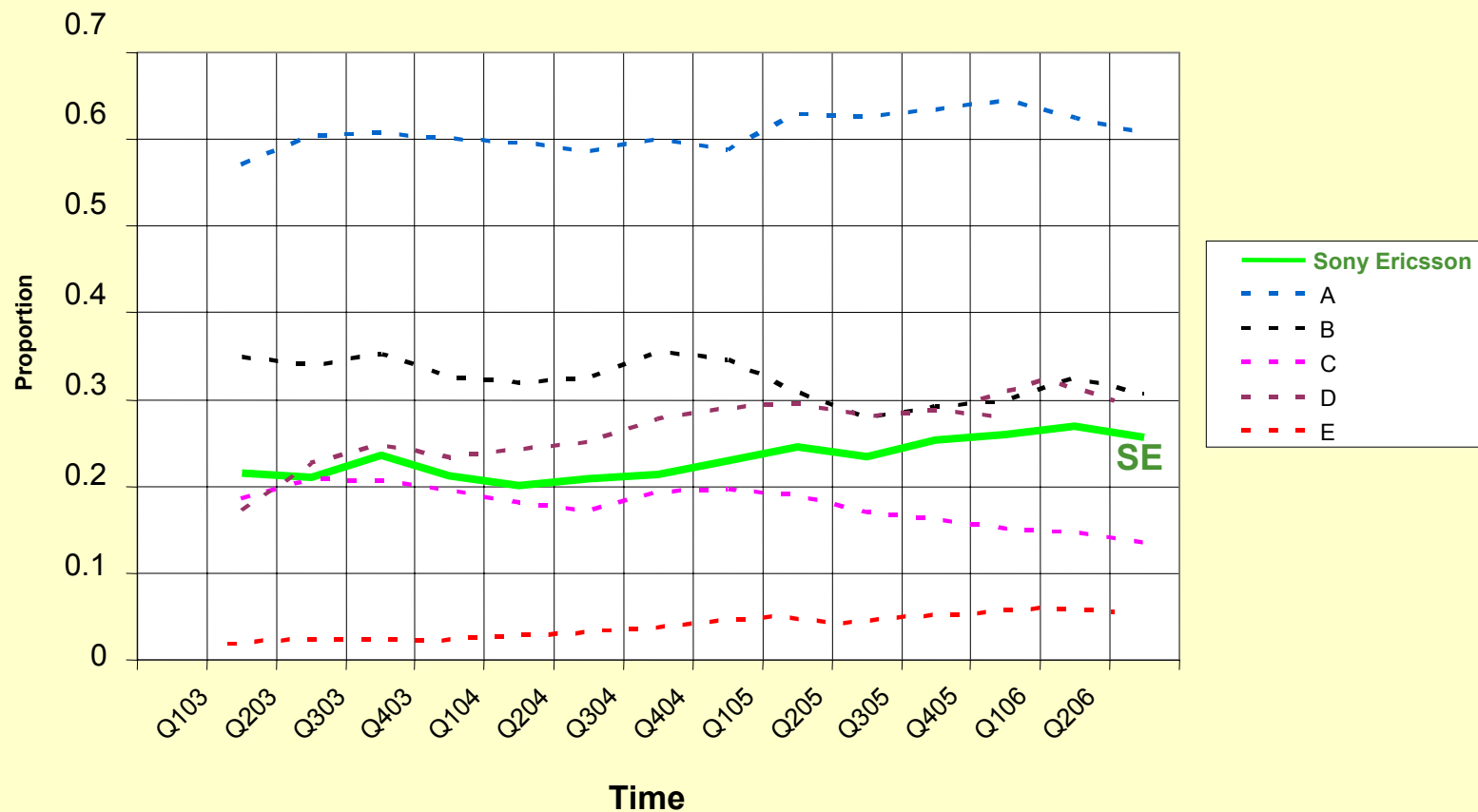
Analysis and judgment based on facts and data

- Translate facts and data into information - communication
- Make decisions more accurate and objective

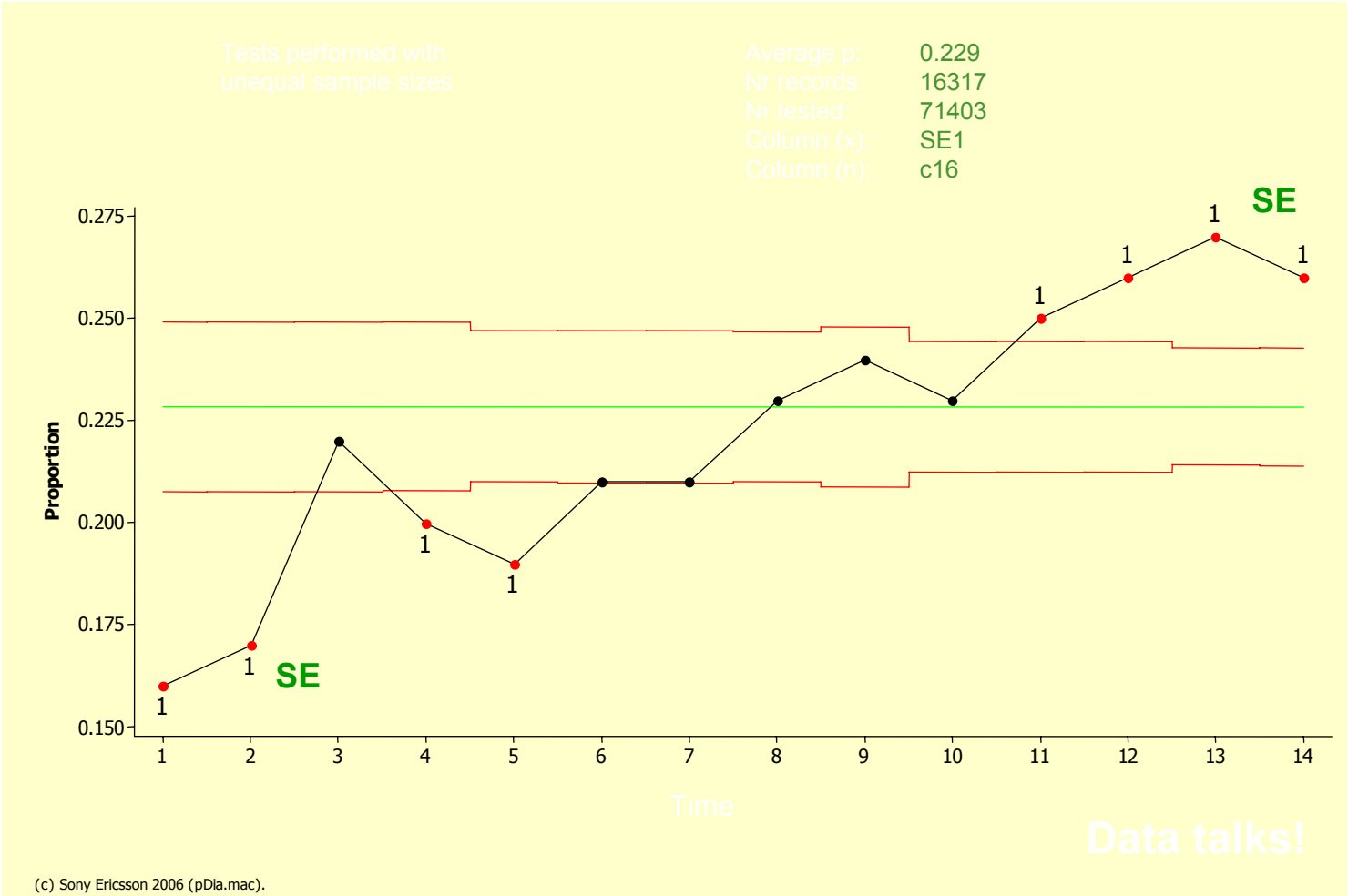


Consumers perception of product quality

Consumers perceiving a brand that has high quality products



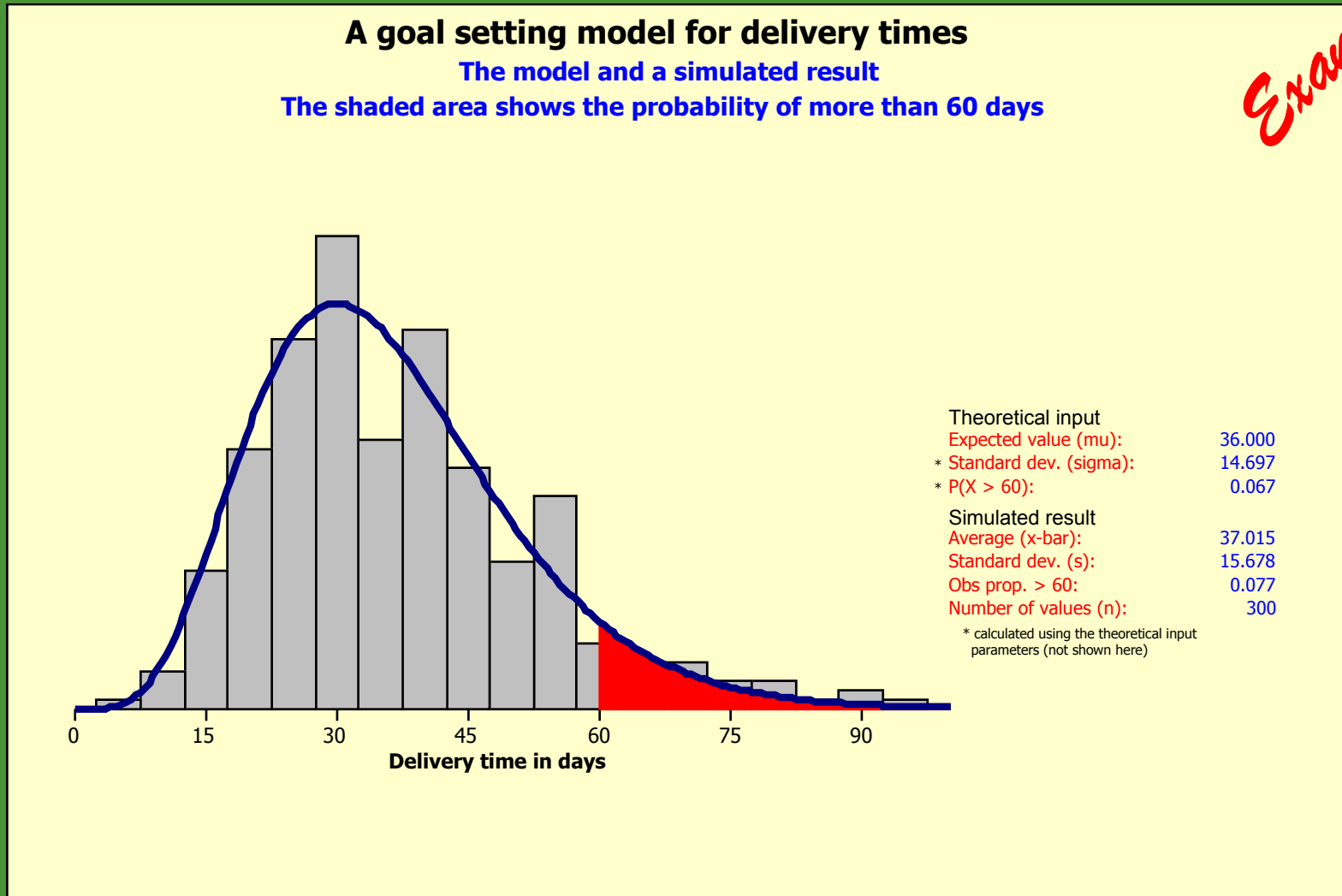
SPC - Consumers perception of product quality



Quality goals: Goal setting for delivery time

(element 2 level 1)

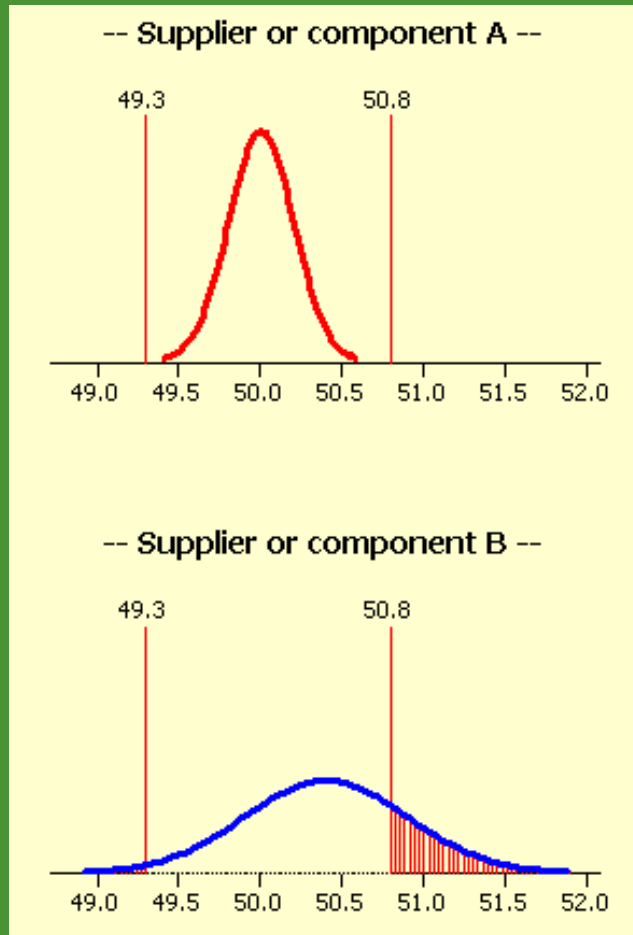
Example



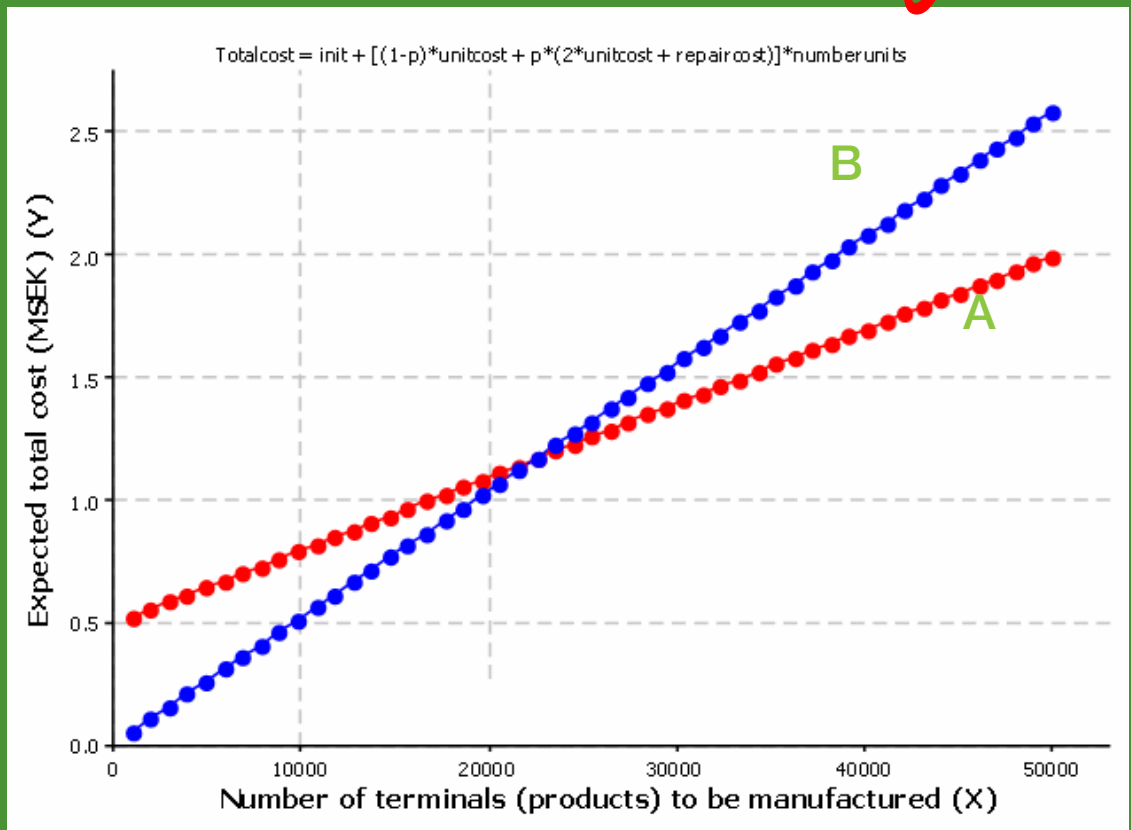
Cost simulation, Supplier A and B

Example

Capability



Cost



- Business case: Savings $\geq 4.500.000$:- €

Final statements:

- Competence in Quality Engineering and statistics is very useful and can increase company's competitive edge and quality capability
- Current trends in management call for fast development of quality mindset among senior managers
- As competition among business enterprises becomes more intense, the use of statistical thinking is more strategic

Thank you!

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