Unal KONT

UAB „Artilux NMF“ direktorius

Kokybė ir 6 sigmos

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VERSLO EFEKTYVUMO ALCHEMIJA

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Quality and Six Sigma Methodology

Quality and Six Sigma Methodology

Secret Algorithm - Value

Quality and Six Sigma Methodology

5W + H

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Who-What-Why-Where-When-How big

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Quality and Six Sigma Methodology

Definitions of Quality

"a **degree** of excellence"

"the **standard** of something as measured against other things of a similar kind"

"a distinctive **attribute** or **characteristic** possessed by someone or something."

Quality and Six Sigma Methodology

Someone-Beneficiary?

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Suppliers

Inbound Logistics

Body in White (BIW)

Paint Shop

Trim & Final

Next process

The Next Station

The Next Zone

Standard Inspection Point (SIP)

End of line

Off Track Area

Painted Body Quality (PBQ)

Wheel alignment / Rolling Road (WAHA)

Water test

Road Test

Customer Acceptance Line (CAL)

PCPA, CAA & Durability Cycle

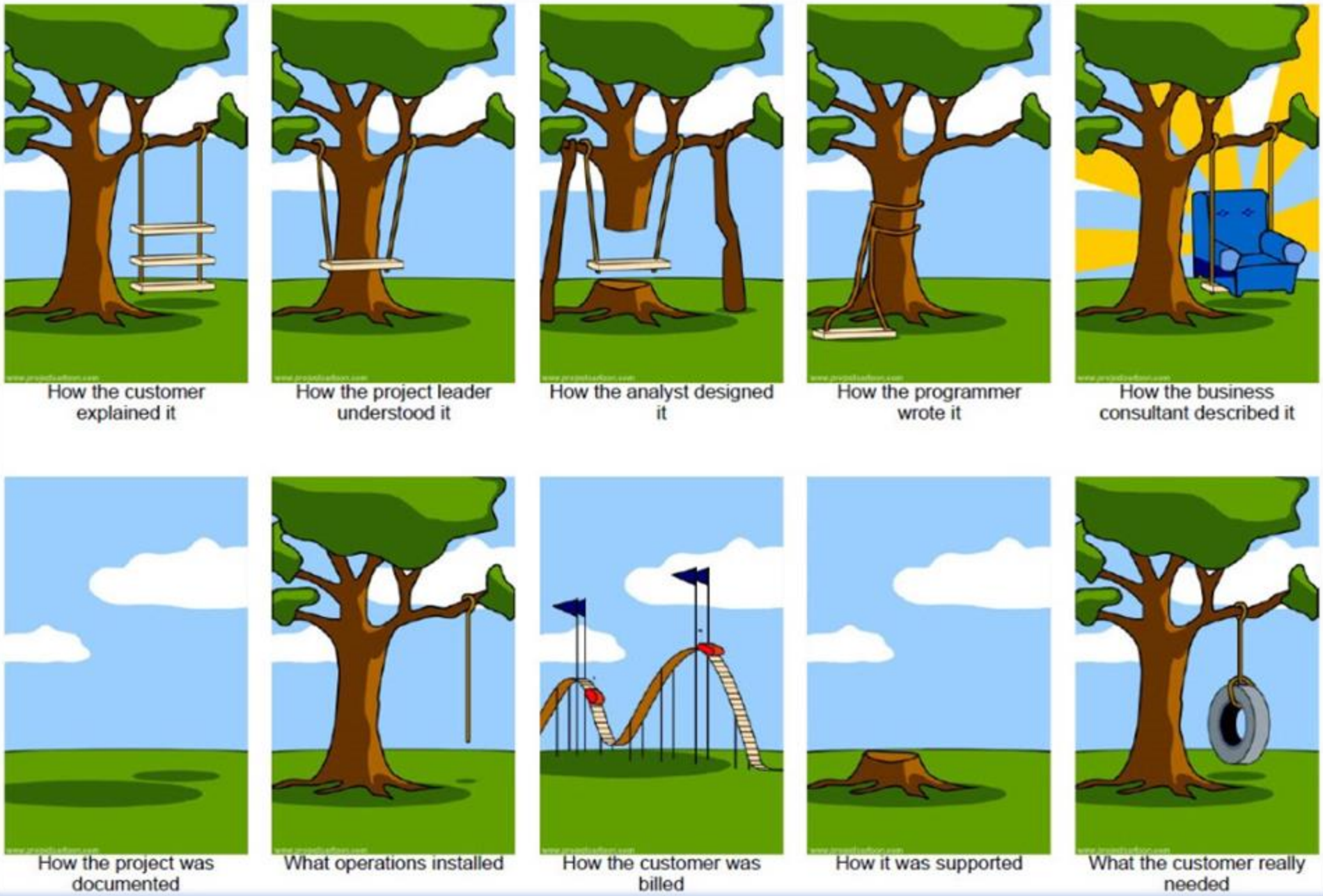
Outbound Logistics

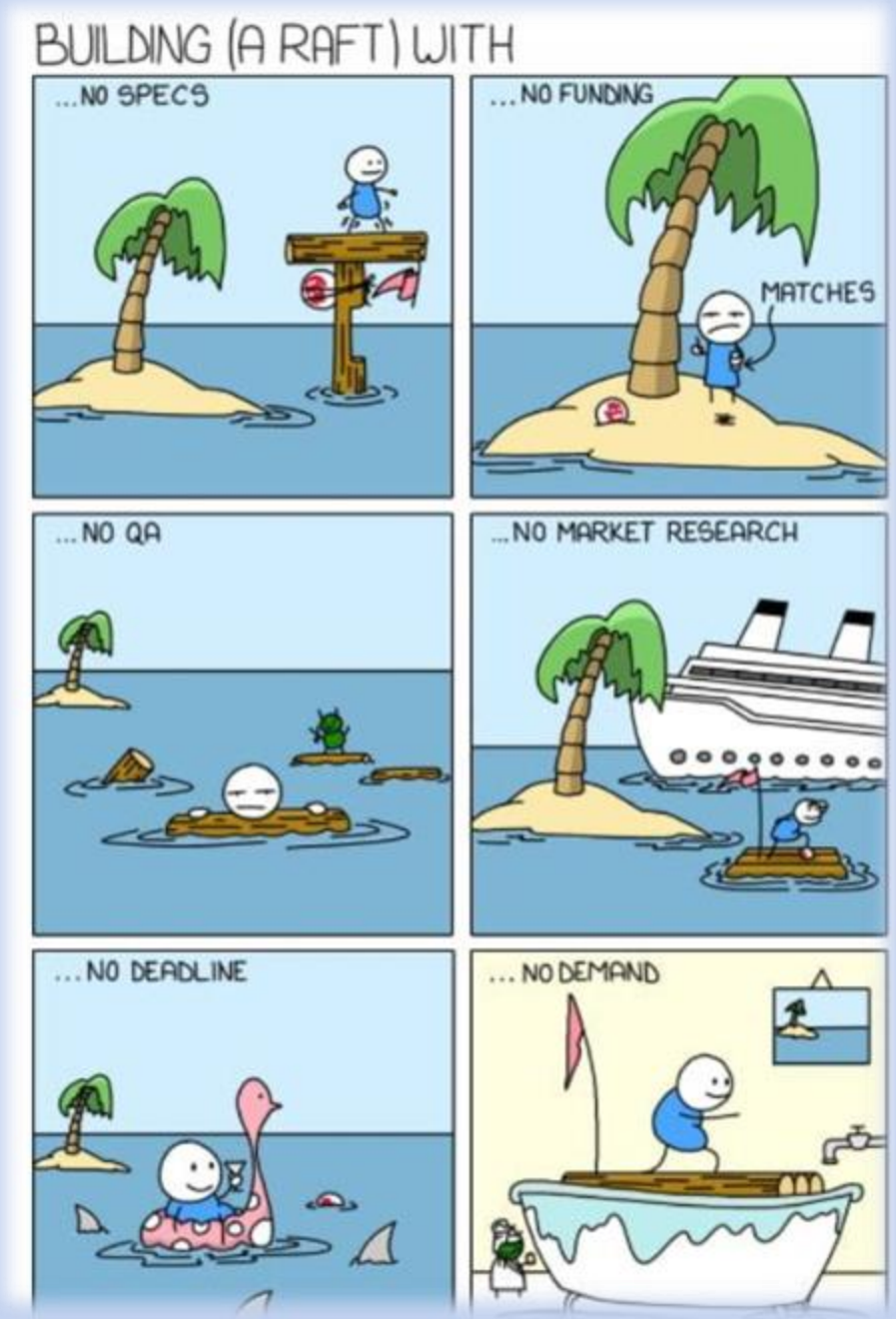
Transport

Pre-Delivery Inspection (PDI)

The Dealership

The Retail Customer


How the customer explained it
How the project leader understood it
How the analyst designed it
How the programmer wrote it
How the business consultant described it
How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed


BUILDING (A RAFT) WITH
...NO SPECS
...NO FUNDING
MATCHES
...NO QA
...NO MARKET RESEARCH
...NO DEADLINE
...NO DEMAND

Quality and Six Sigma Methodology

Something-What are we looking for?

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Evidence of quality ✓

VS

Lack of evidence of poor quality ✗

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The Importance of “Normalised” Data to Analysis

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Distinctive and Reliable

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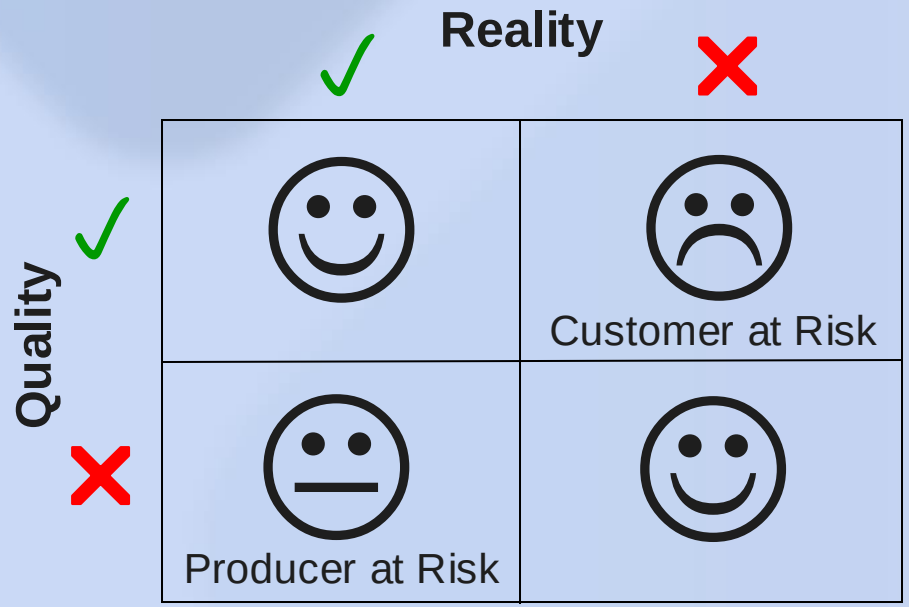
Something-What are we looking for?

Evidence suggests that we tend to be quite trusting of any information / "ilo" we receive… What are the risks of making the wrong decision on Quality?



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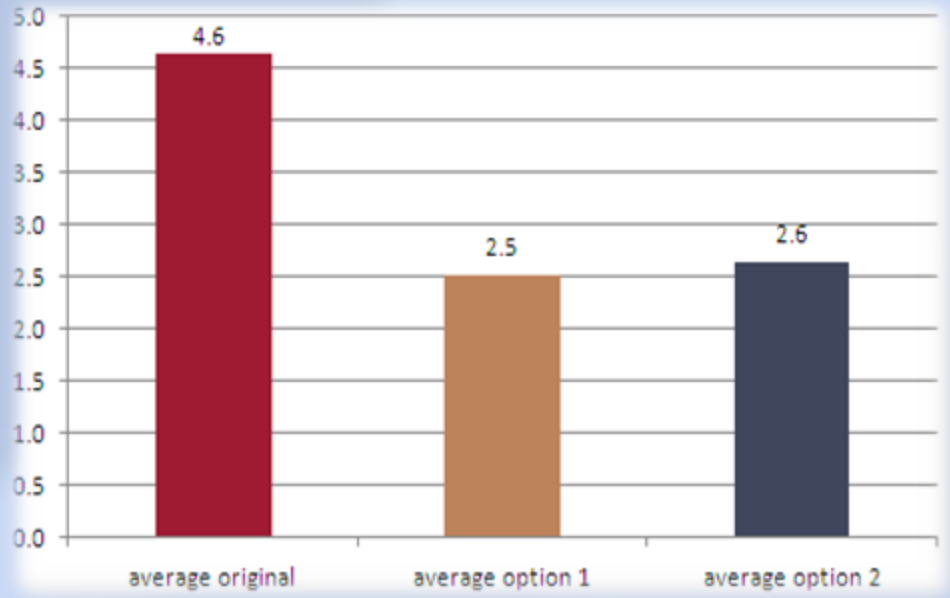
Something-What are we looking for?



Can you be distinct and reliably demonstrate an improvement?

- You have measured a set of 30 parts on the height of the lamp to the body.
- The customer acceptance criteria is a height measurement of 2.5 mm ± 1 mm.
- The graph shows the average of the 30 measurements for the original condition and two improvement options.
- Which option would you choose?

CHALLENGE

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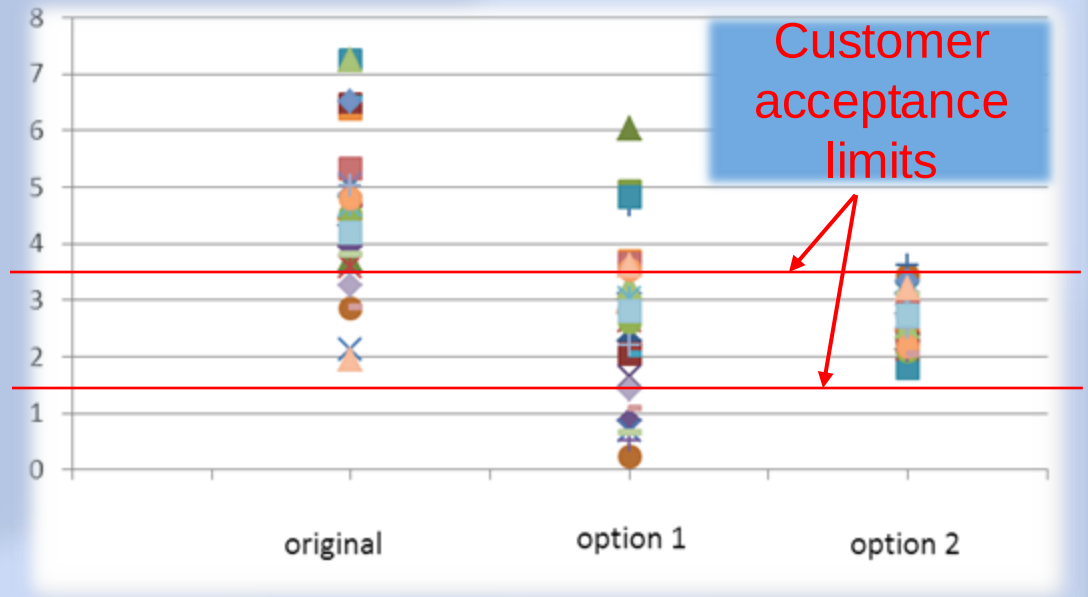
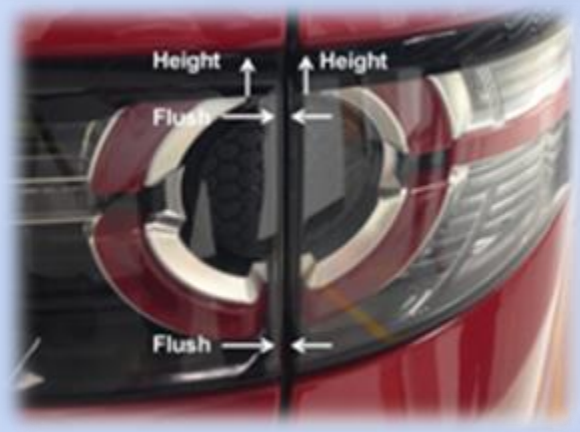
Something-What are we looking for?



- Using the same data from the 30-part measurements; you now constructed a scatter plot showing each individual result.
- Does this change your opinion compared to looking at averages?
- Which option would you choose now?



Beware of averages

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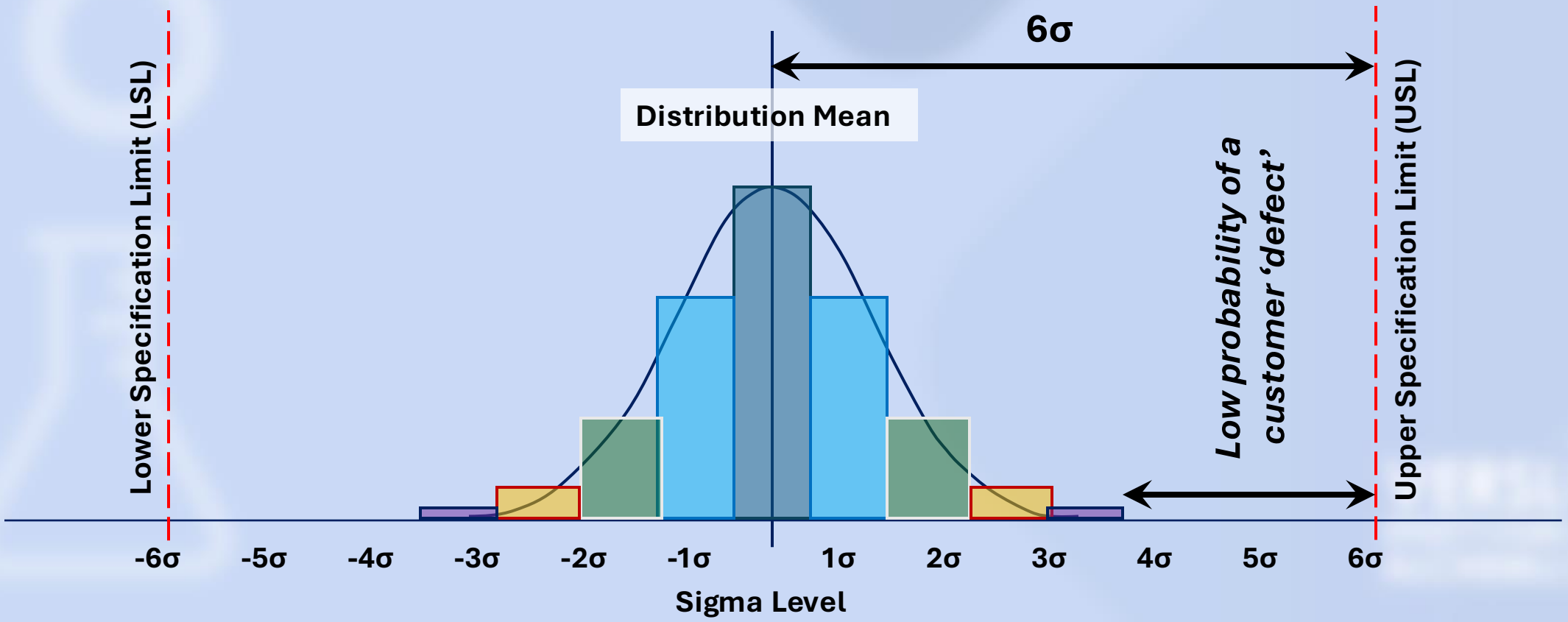
Six Sigma Methodology

- **Sigma (σ)** is a measure which describes **the spread about the mean for a given data set** (when conforming to a 'normal' distribution)
- It can similarly describe '**capability**' to deliver a customer requirement



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Background of Six Sigma

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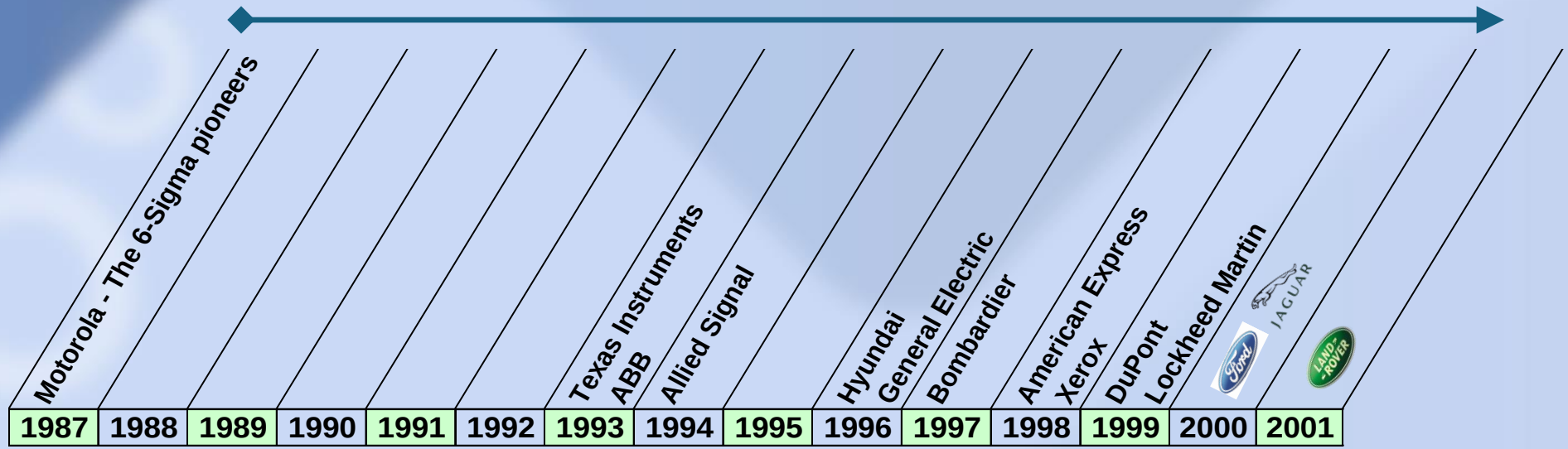

Some other companies claiming to have successful 6-Sigma implementation:-

N.B. The above are referenced in external publications 2002 - 2009.

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Six Sigma Methodology – Goals and Characteristics

What's Different??

- Understanding of customer needs & wants
- Methodology & tools
  - Data driven
  - Statistically validated
- 6-Sigma community (MBBs, BBs, GBs, Project Champions etc.)
- Project Focused, team delivery
- Leadership commitment & involvement
- Focus on sustained performance & replication
- "Complements" and reinforces other improvement methods

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IS 99% GOOD ENOUGH?

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Six Sigma as Goal

3.8s 99% Good	Product or Service	6s 99.99966% Good
20,000	Articles of mail lost per hour	Seven
15 minutes per day	Unsafe drinking water	One minute per seven months
5,000	Incorrect surgical procedures per week	1.7
Two per day	Short or long landings at major airports	One every five years
200,000	Wrong drug prescriptions per year	68

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Six Sigma as Goal

σ	Defects per million opportunities	
2	308,537	
3	66,807	Typical Process Performance
4	6,210	
5	233	Exceptional Process Performance
6	3.4	

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Six Sigma as Goal

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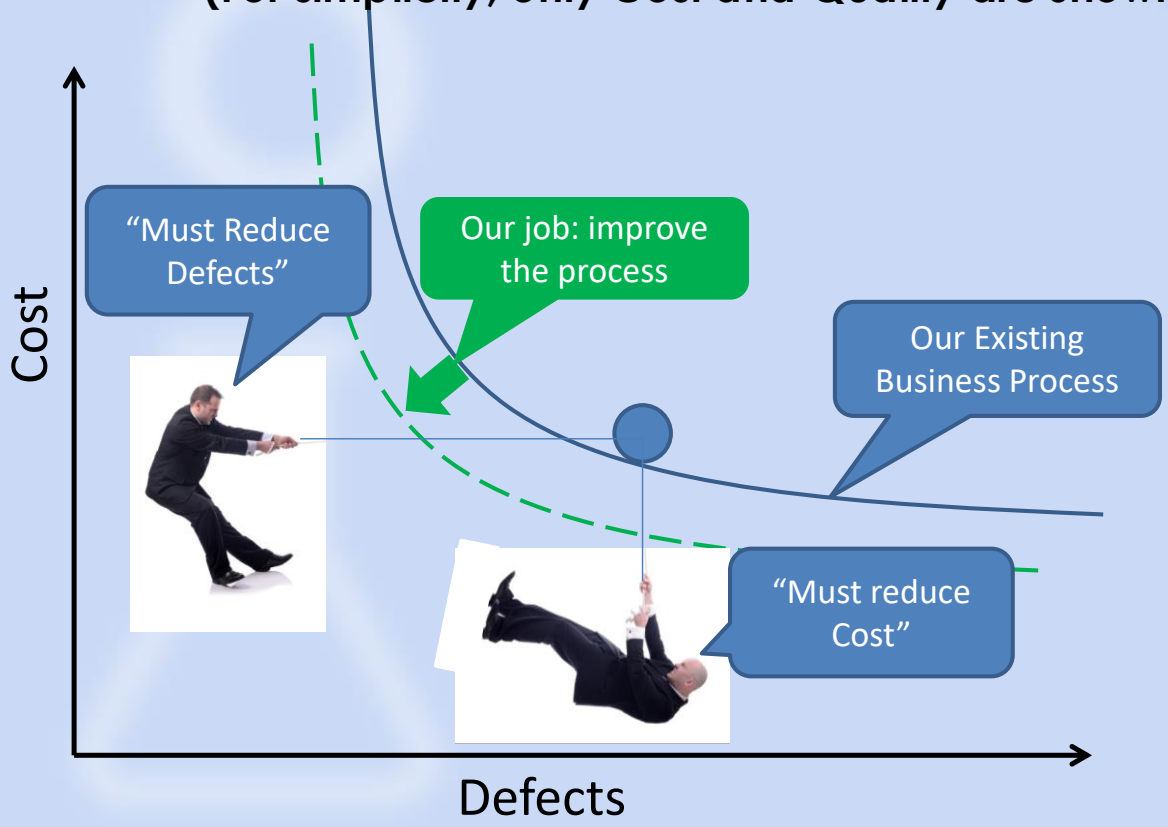
Tensions: Cost, Quality and Speed
(For simplicity, only Cost and Quality are shown)



The Six Sigma Goal:

- **Stop** defects at the **earliest possible** point by attacking variation in the product or process.
- **The target** is to link **defect reduction** to improvements in **Customer Satisfaction** - which leads to positive financial benefits.
- 6-Sigma is about Customer Satisfaction and Money!

Improvement Projects Impact Quality, Cost and Speed

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Infrastructure – Roles within Deployment

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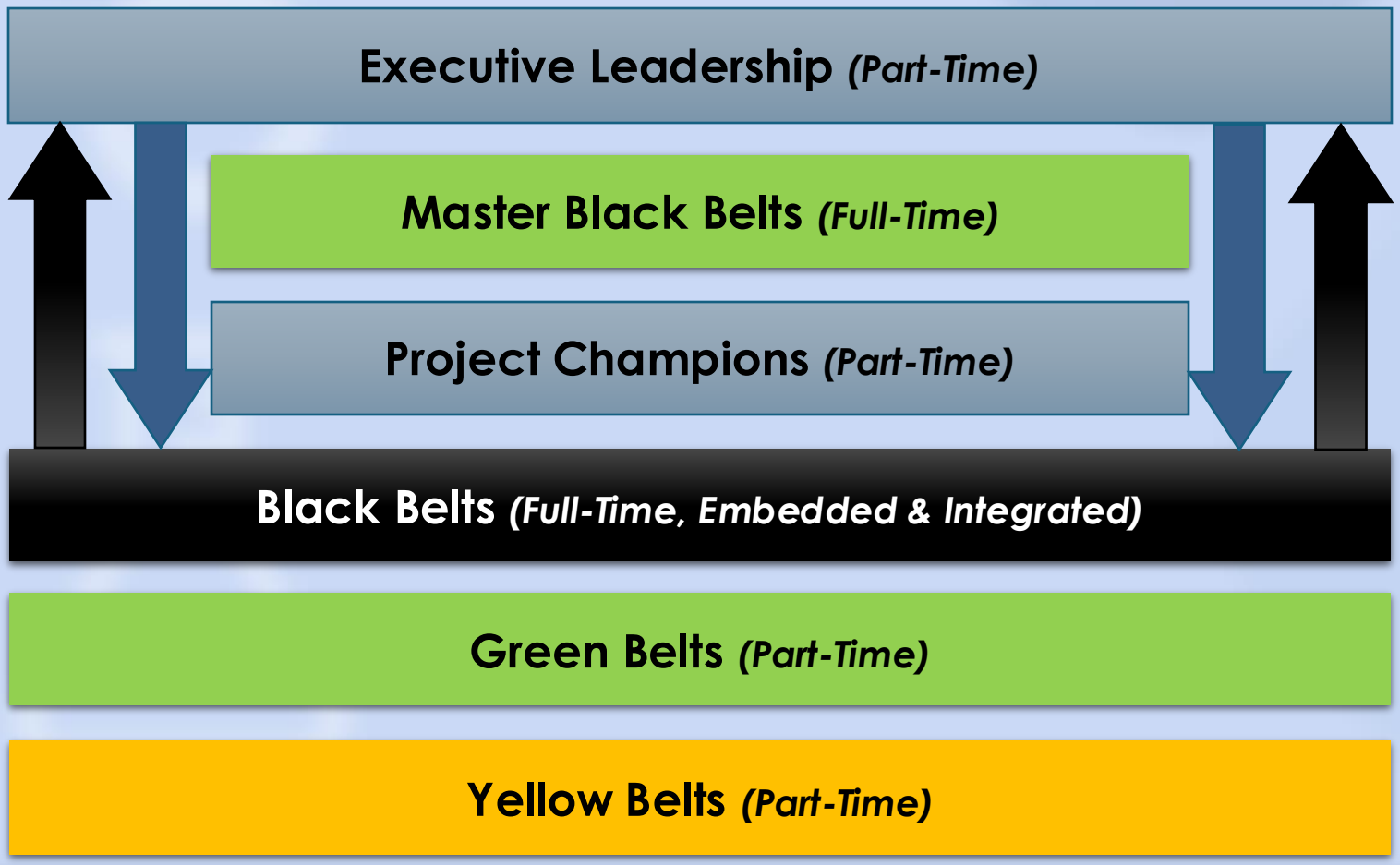

ISO 13053-1:2011 "Quantitative methods in process improvement - Six Sigma" describes typical Six Sigma infrastructure for an organisation, and the expected roles within this.

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How is knowledge gained & improvements made?

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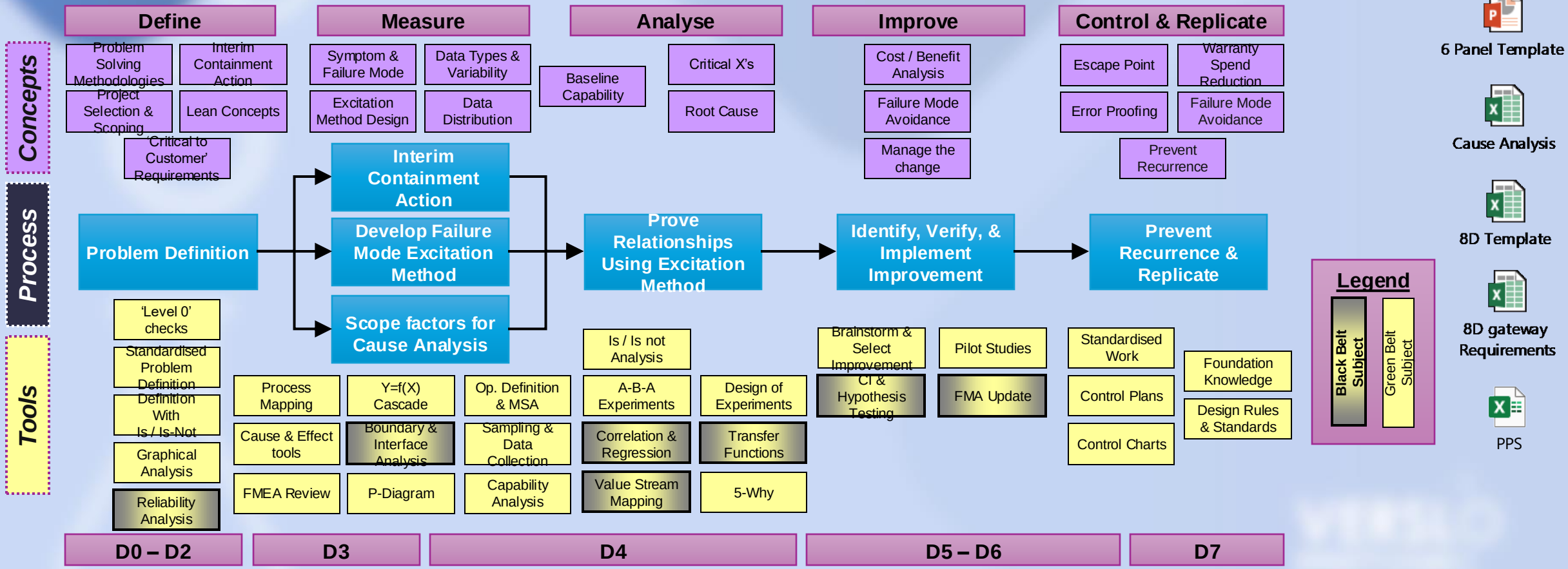

Level Zero Check List

6 Panel Template

Cause Analysis

8D Template

8D gateway Requirements

PPS

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How is knowledge gained & improvements made?

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Learning Outcomes

- Demonstrate an **awareness** and the use of a structured process for engineering **problem solving**, within a DMAIC / 8D framework.
- **Understand** the **business context** for robust, **evidence driven** problem solving.
- Understand which information sources the business uses to **identify issues**, and the need for problem solving response.
- **Demonstrate** the ability to use **foundation** problem solving methods and tools in **practical** engineering real world usage.
- Identify the urgency of issues and be able to provide the appropriate **level of response** (Level Zero, ERA, ICA).
- Manage the **communication** using the appropriate reporting tools (8D, SPD, 6 Panel, AIM).

Outline Syllabus

- **Business** context, and common approaches for issue **identification** & **prioritisation**
- **Best practice**; the 'Voice of the Customer' and their requirements
- **Problem solving** process steps and alignment to Six Sigma DMAIC; & 8D.
- Initial response to issues (**Level Zero**)
- **Tools** for process **analysis** and scoping of potential contributors to root cause. (ERAs & ICAs)
- **Development** & use of basic measurement systems to characterise current state & understand variability .
- **Data / evidence driven** approaches to identify and verify root cause and confirm understanding of cause & effect relationships.
- Choosing the **optimal cost/benefit solution**.
- **Control** measures to ensure improvements are sustained
- **Tactical** issue **management** & **communication**.

And more…..

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Business Opportunity

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- Why is the ***worth*** doing as far as **ROI**?
  - What's the **full business impact**?
  - What gap is there between current **performance** & **entitlement**?
- Why is it important to do it ***now?***
- What are the consequences of ***not*** doing it?
- How does it fit with business initiatives and targets?
- Who within the business engaged?

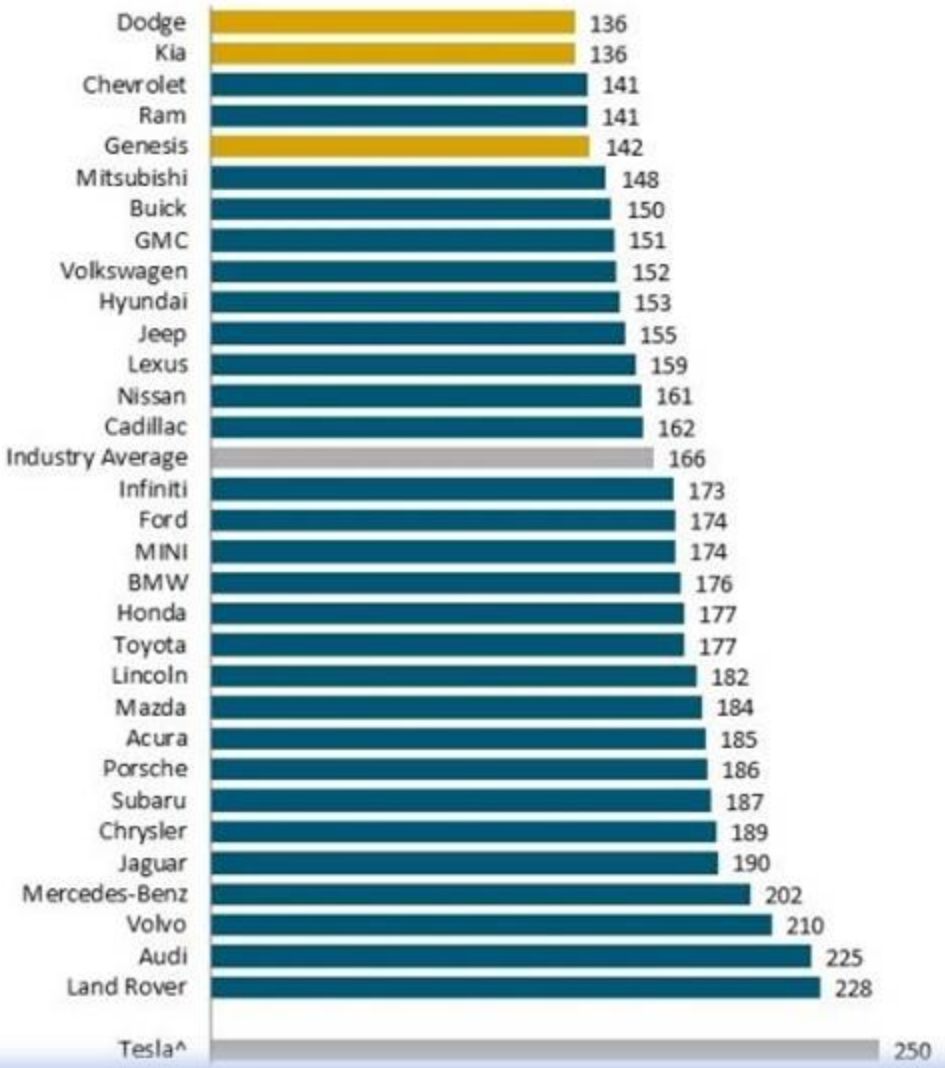
All needs to be considered !!

WIN - WIN

J.D. Power
2020 U.S. Initial Quality Study℠

Brand Ranking

Problems per 100 Vehicles (PP100)



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THANK YOU