



**POLITECNICO**  
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# Operational Excellence

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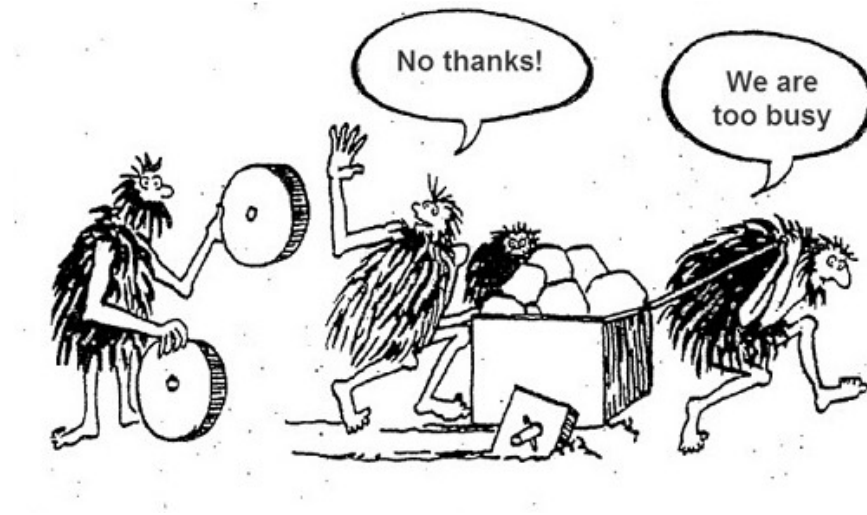


# Operational Excellence

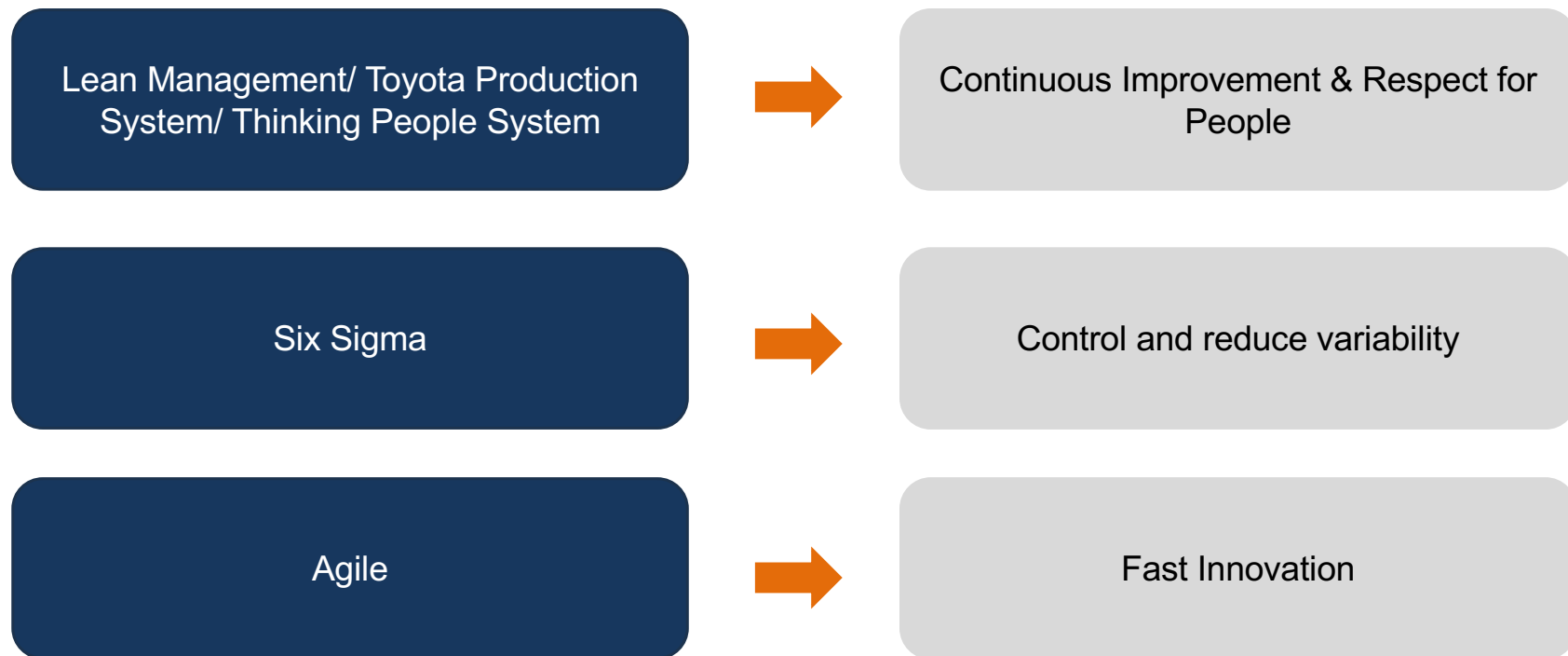
Doing well Vs Improving: Differences in feelings, and in purpose

To Optimize is **BAD** whilst To Improve is **GOOD**

Time paradox



# Operational Excellence



All three are rooted in the Lean Management Paradigm: the most important organisational revolution of the last 100 years

# TOYOTA is different

Volkswagen- Beetle



21 million unit in 65 years of production (1938-2003)



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# TOYOTA is different

Volkswagen- Beetle



21 million unit in 65 years of production (1938-2003)

Toyota - Corolla



21 million unit in first 30 years (1966-1997)

50 millions 1966 - 2021

Today a Corolla is sold every 30 sec



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# Reduce Costs

- reduce amount of material used
- reduce cost of material used
- reduce processing time
- reduce cost of processing time (e.g., through automation / robots)





## New Vision

Realization of any product/service has value activities and not value activities (wastes)



The percentage of not value activities is not negligible (what percentage?)



Tackle nonvalue



# Lean Management: Understanding the philosophy

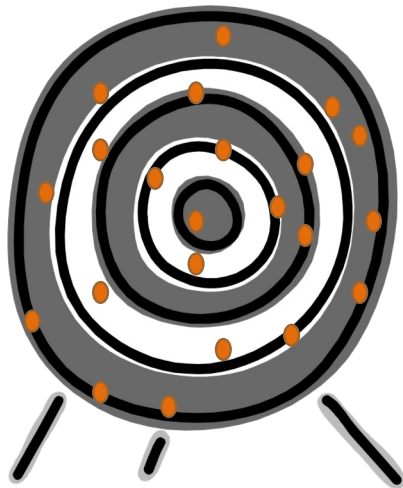




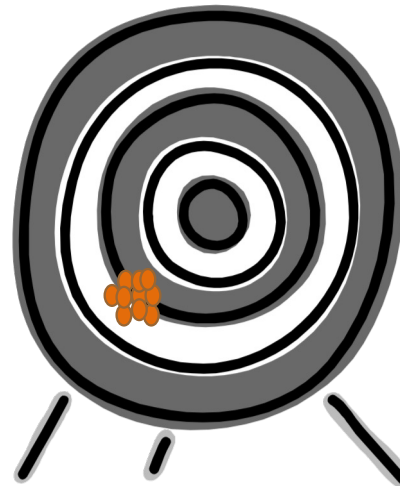
# Six-Sigma

Who would you prefer to be?

**Shooter A**

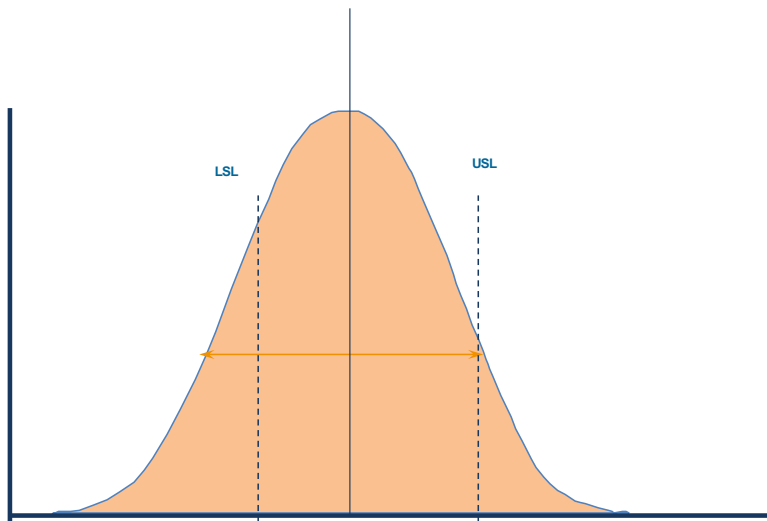


**Shooter B**

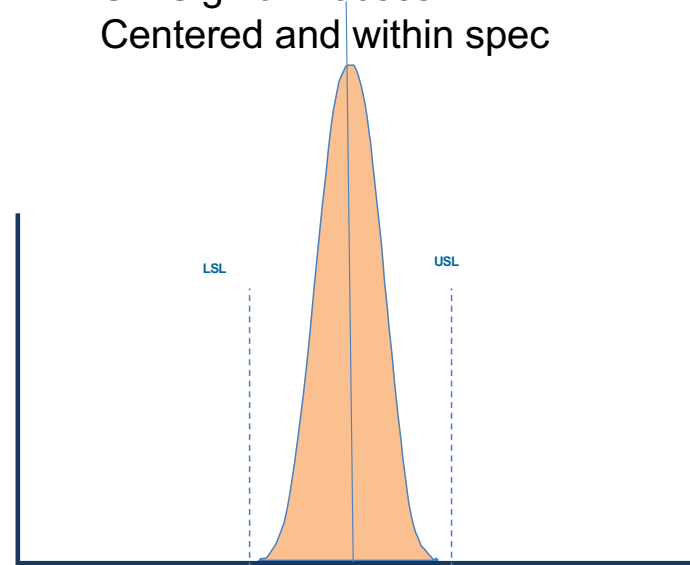


# Six-Sigma

Original Process



Six Sigma Process  
Centered and within spec

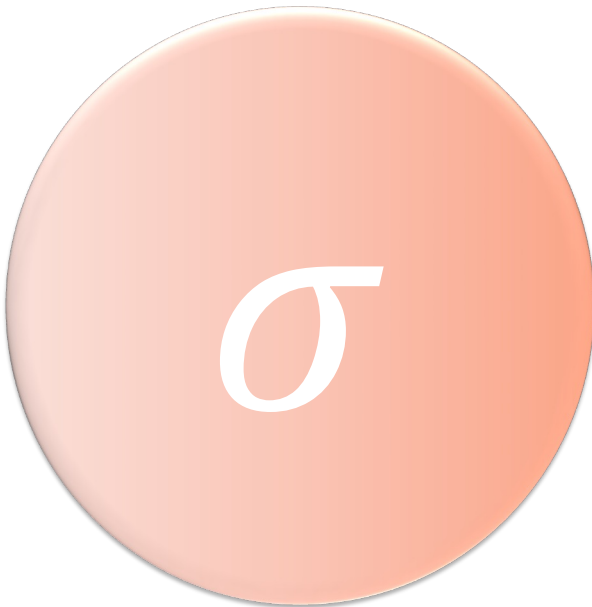


Upper/Lower specification limits



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# Sigma

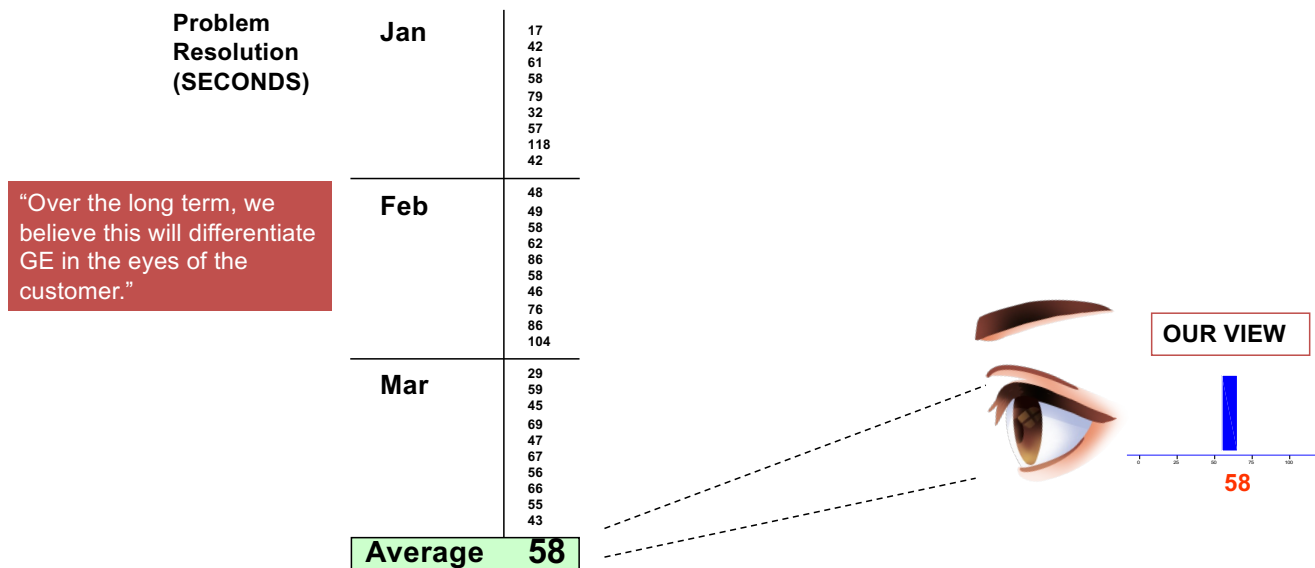


**Sigma** is the Greek letter that is a statistical unit of measurement used to define the standard deviation of a population. It measures the variability or spread of the data.

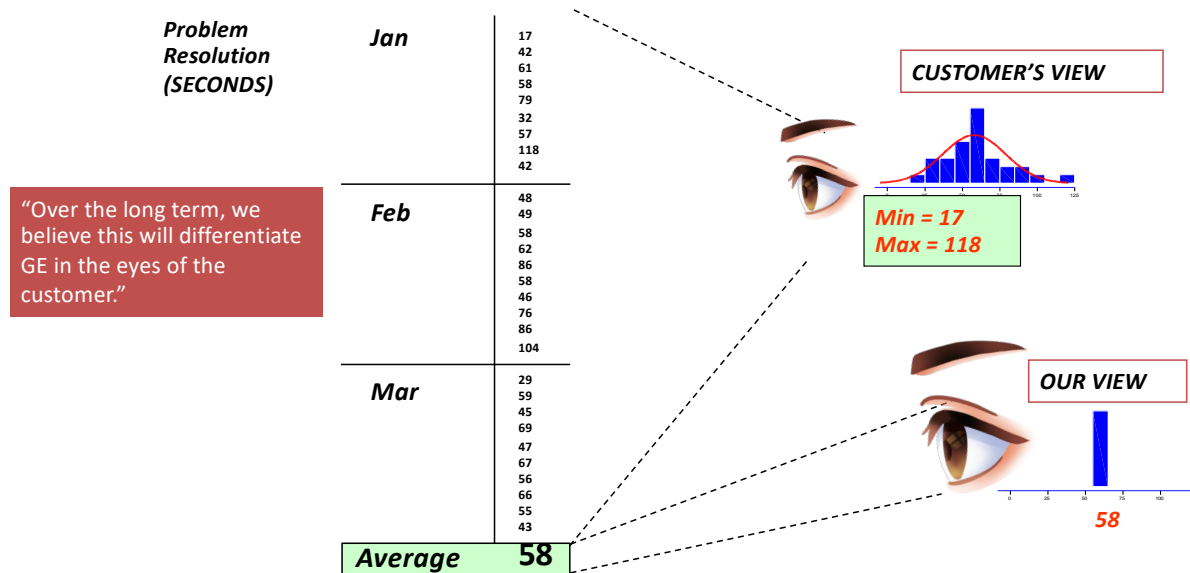
**Six Sigma** is also a measure of variability. It is a name given to indicate how much of the data falls within the customers' requirements. **The higher the process sigma, the more of the process outputs, products and services, meet customers' requirements – or the fewer the defects.**



# What is the time we took to solve the problems the customer faced

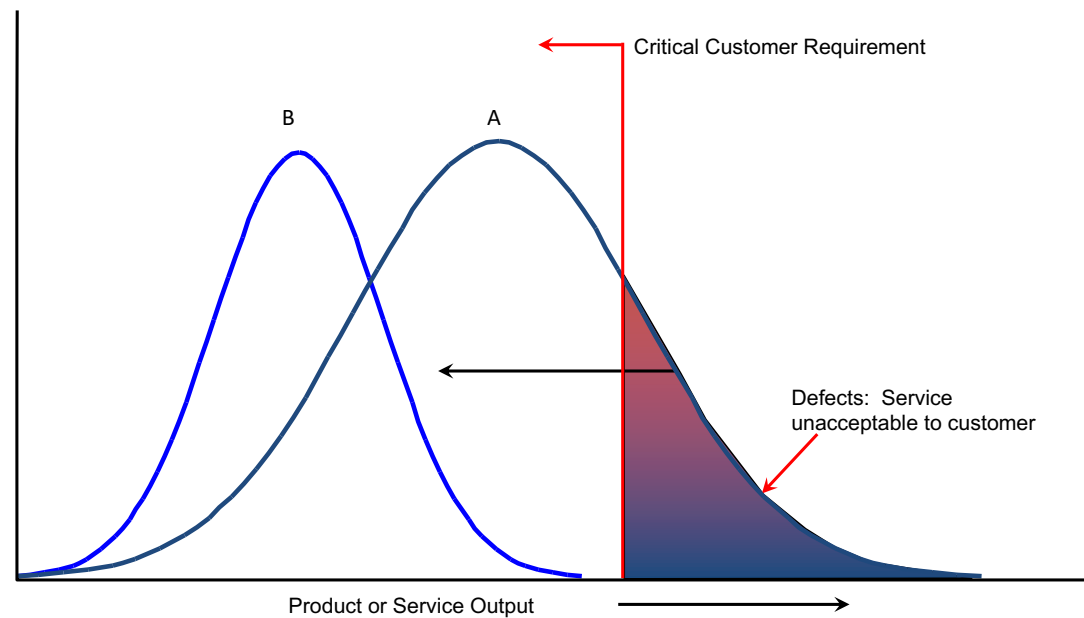


# Customers perceive the variation Not just the average

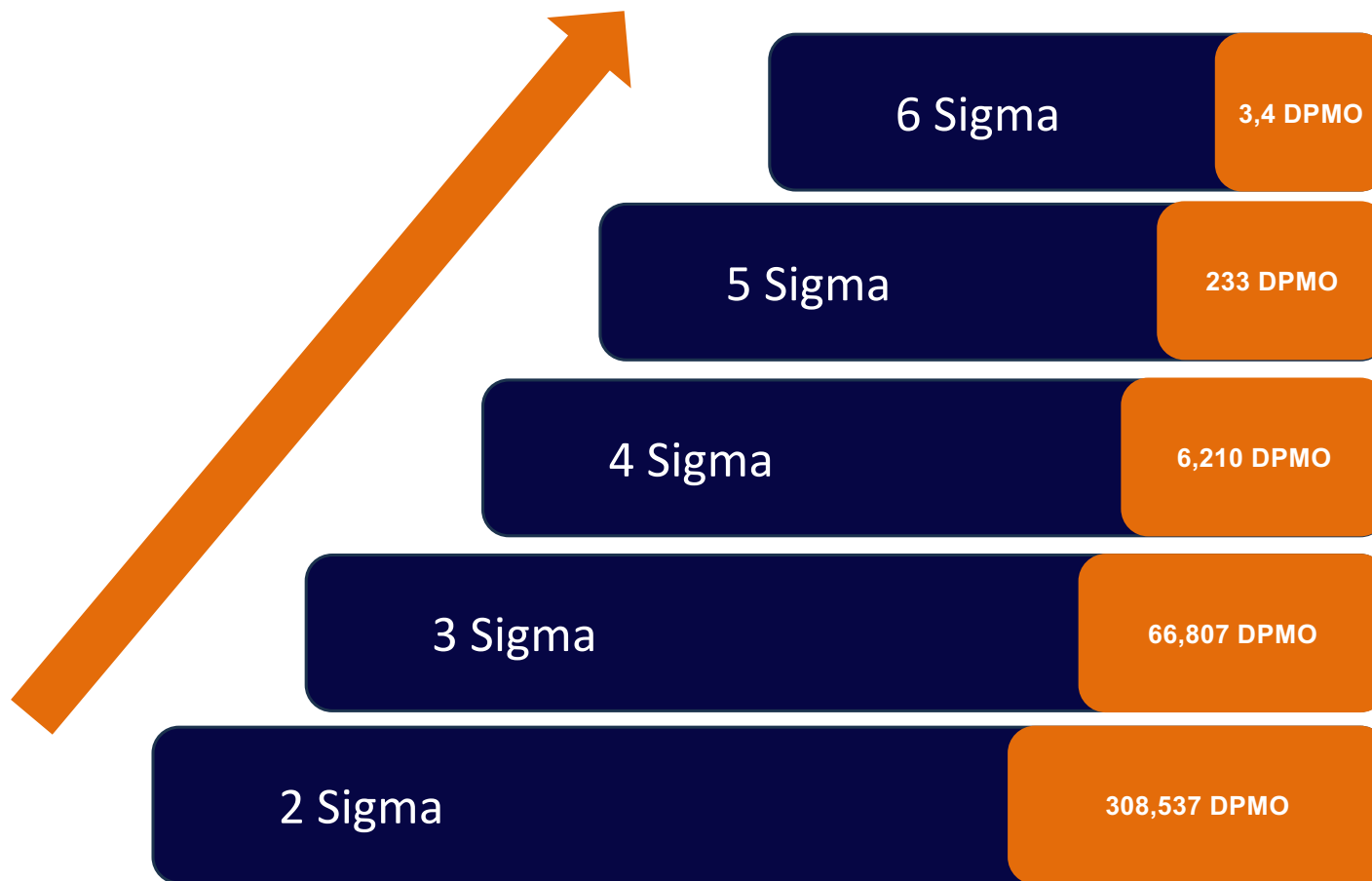


# Six Sigma reduces variation in business processes

An objective of Six Sigma is to reduce variation and move product or service outputs permanently inside customer requirements. (Curve A to B)

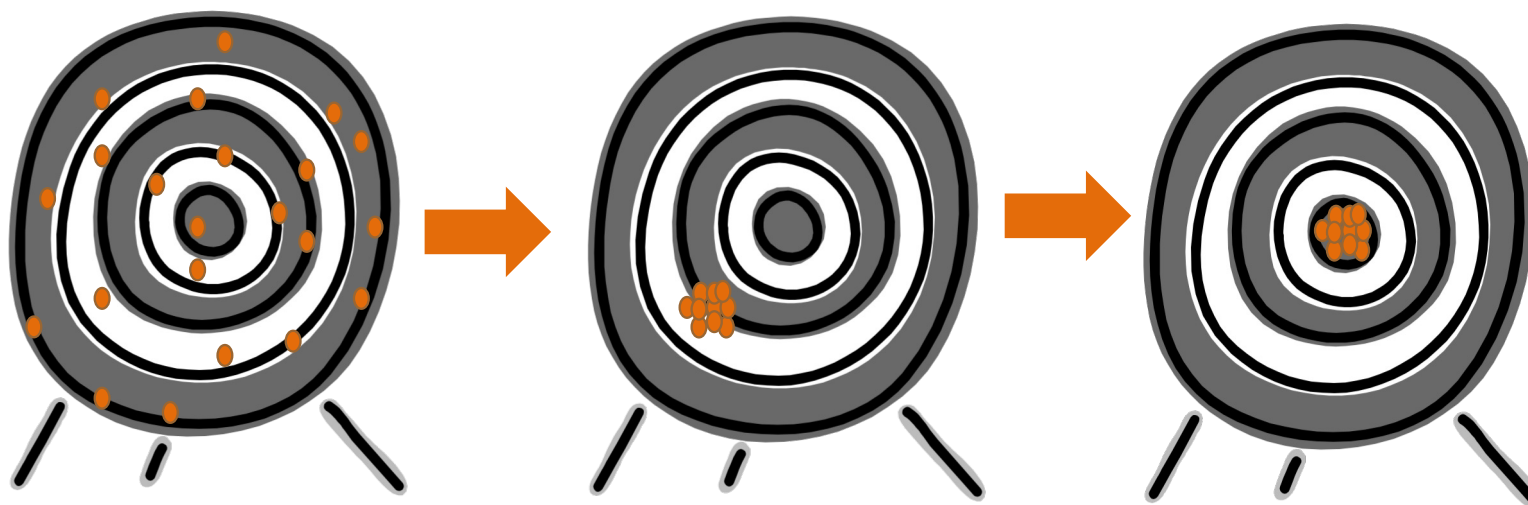


## Six Sigma level and defects per million opportunities





# Six-Sigma



# Agile Management

Agile management is a development from Agile Manufacturing

**Agile manufacturing** is a term applied to an organization that has created the processes, tools, and training to enable it to respond quickly to customer needs and market changes while still controlling costs and quality. It's mostly related to lean manufacturing

Most related Agile to being fast and flexible in many directions. Being able to adapt quickly.

But the stronger impact of Agile has been on Product Development Processes, and Innovation

## 4 Values of Agile SW Development (Agile SW Dev Manifesto)

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan



# Agile SW Development: 12 principles

- 1.Customer satisfaction by early and continuous delivery of valuable software.
- 2.Welcome changing requirements, even in late development.
- 3.Deliver working software frequently (weeks rather than months).
- 4.Close, daily cooperation between business people and developers.
- 5.Projects are built around motivated individuals, who should be trusted.
- 6.Face-to-face conversation is the best form of communication (co-location).
- 7.Working software is the primary measure of progress.
- 8.Sustainable development, able to maintain a constant pace.
- 9.Continuous attention to technical excellence and good design.
- 10.Simplicity—the art of maximizing the amount of work not done—is essential.
- 11.Best architectures, requirements, and designs emerge from self-organizing teams.
- 12.Regularly, the team reflects on how to become more effective, and adjusts accordingly.



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# Thank you!

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