



INTERNATIONAL  
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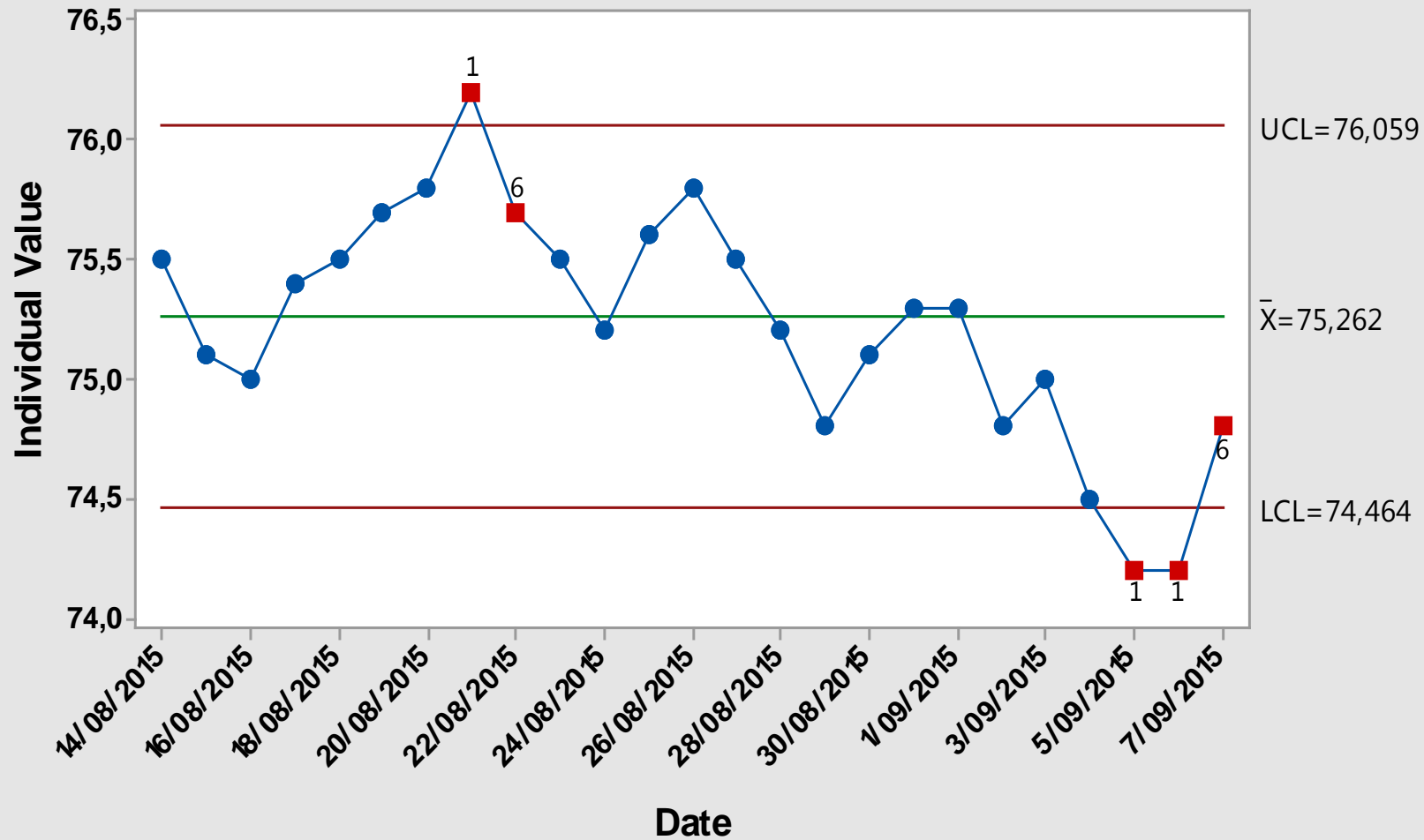


# Statistical Process Control: Should We Keep On Fighting A Lost Battle?

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*“Quality for Future  
of the World”*

## I Chart of Weight



Project: gewicht willy.MPJ; Worksheet: Gewicht 2015; 7/09/2015 14:56:08; QSC

# Evolution

- Technological evolutions
- Logistic evolutions
- Customer requirements changes
- Overall economic changes

# Technological evolutions – stupid automation

- Automatic production lines containing Poka-Yoke systems with 100 % inspection leading to zero defects.
- Intervention is driven directly by Overall Equipment Efficiency (OEE) results, linked to management objectives.
- So where is the need for an additional control system like SPC?



# Technological evolutions – smart automation

- Jamais Cascio – WCQI 2013 – Indianapolis

“We will make smart robots, making stupid robots, making parts”

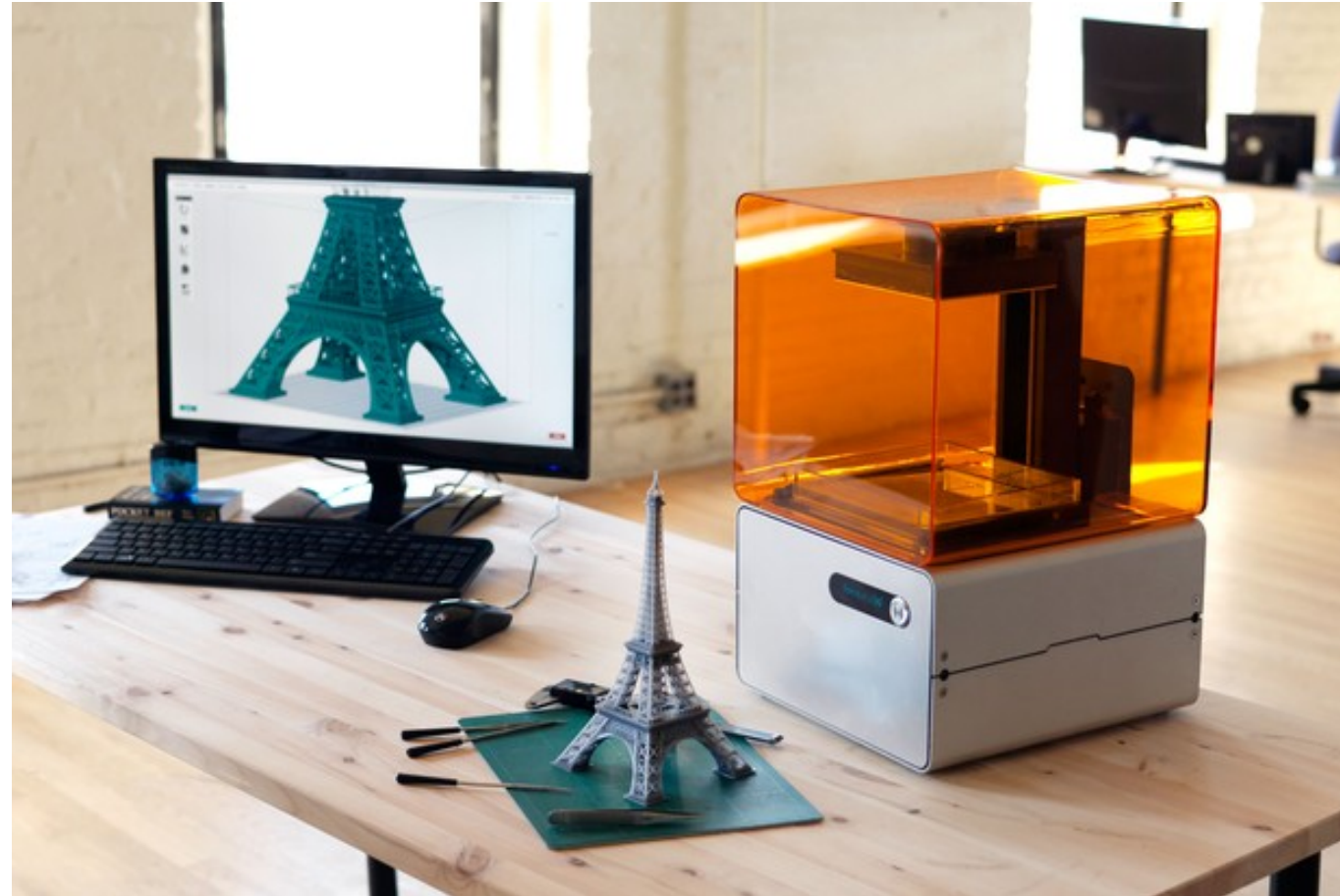


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# Technological evolutions - digitization



# Digitization links technological with logistic

- Just-In-Time has already reduced batch sizes leading to problems in applying SPC
  - Short – run SPC: what's the value of 2 plotted points between changeover?
- 3D printing reduces the batch size to 1
- The product is the file - the production area your office



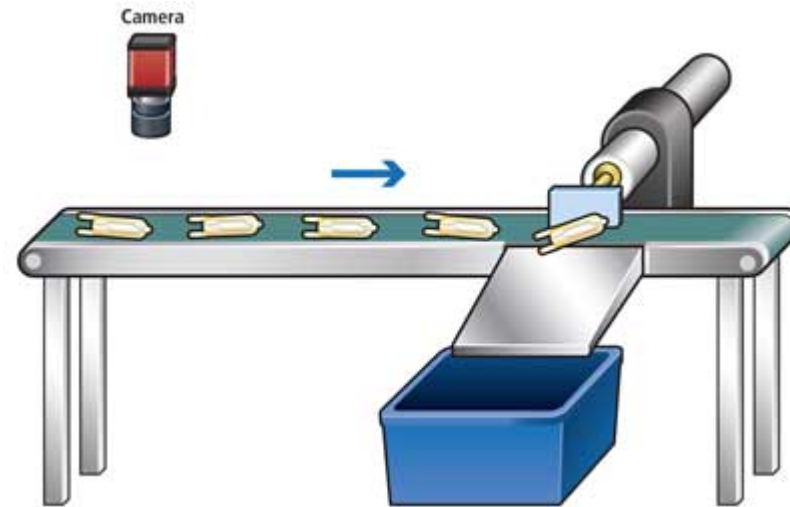
# Reduced Life-cycles

- We can no longer afford continuous improvement.
- Problems after launch = a dead product

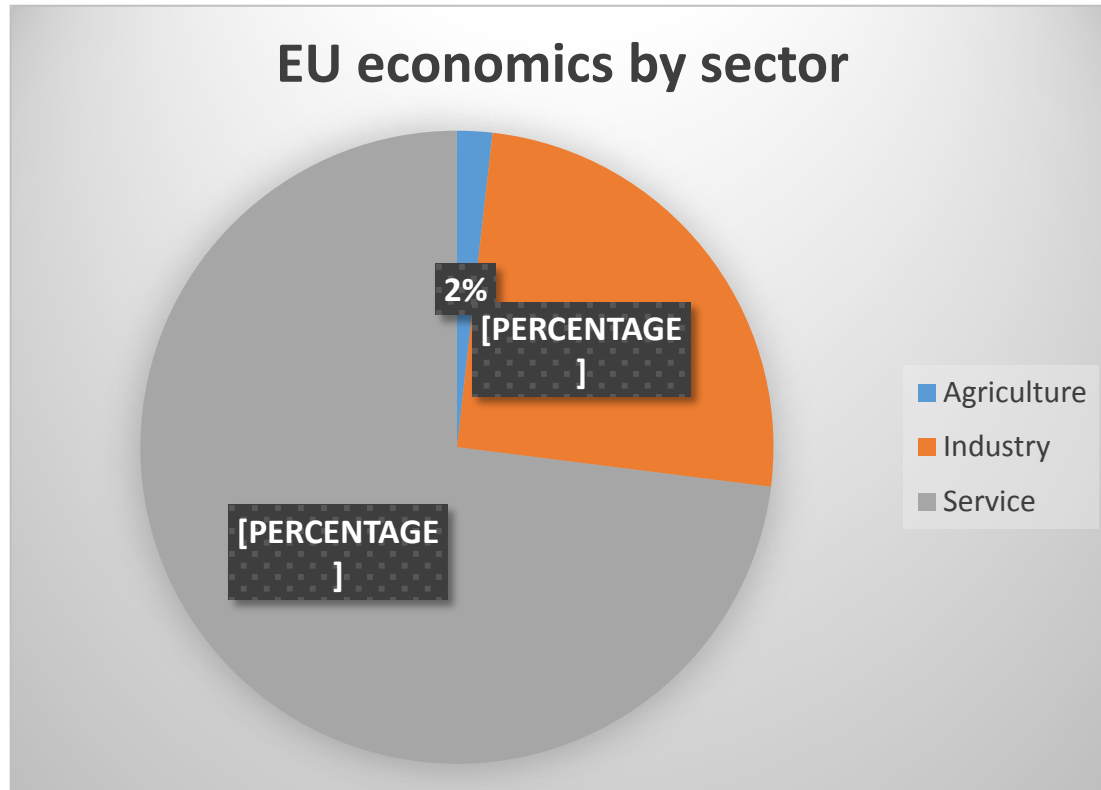


# Increased Customer requirements

- From % to PPM
- No statistical control method can guarantee a  $< 10$  ppm output



# Economic evolution



- Quality language and Quality tools
  - Developed in Industry
  - Introduced in Service
  - The tools we know in an environment that we do not know.

# Service

- CCC
  - Customer
  - Created
  - Chaos
- Each customer is a special cause of variation
- There is no such thing as an “average” customer, there may be a mean customer.

# The current use of SPC

- When obliged by customers (automotive)
- Show **P**rocess for **C**ustomers
- Mainly registration, very few control

# Quality needs to change its focus

- From control to prevention
- From production to development
- From SPC to Poka Yoke
- From on-line engineering to off-line engineering
- From continuous improvement to robust processes
- From standardised to flexible



# Training

- Re-think the Body Of Knowledge of Quality
- Focus on methods applicable in development
  - TRIZ, Axiomatic Design, QFD, FMEA, ...
- Focus on the study of human interactions

# Thank You

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