connecting virtual (Design for eXcellence) and real world (big data)

Marcel Swinnen

30/31 MEI & 1 JUNI 2017
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introducing

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the business of perfection

- EMS, production of electronics for third parties (B2B)
- development, early supplier involvement,
  test engineering, assembly, testing and box building
- responsible for complete supply chain
- high tech, high mix, high flex, low volume

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the business of perfection

• turnover	€ 30 million	
• locations	2	
• employees	120	
• customers	50+	
• floor space	8.000	m^2
• ISO 9001:2008, AQAP 2120:2009, ISO14001		
• ISO13485	medical	Q2 2017

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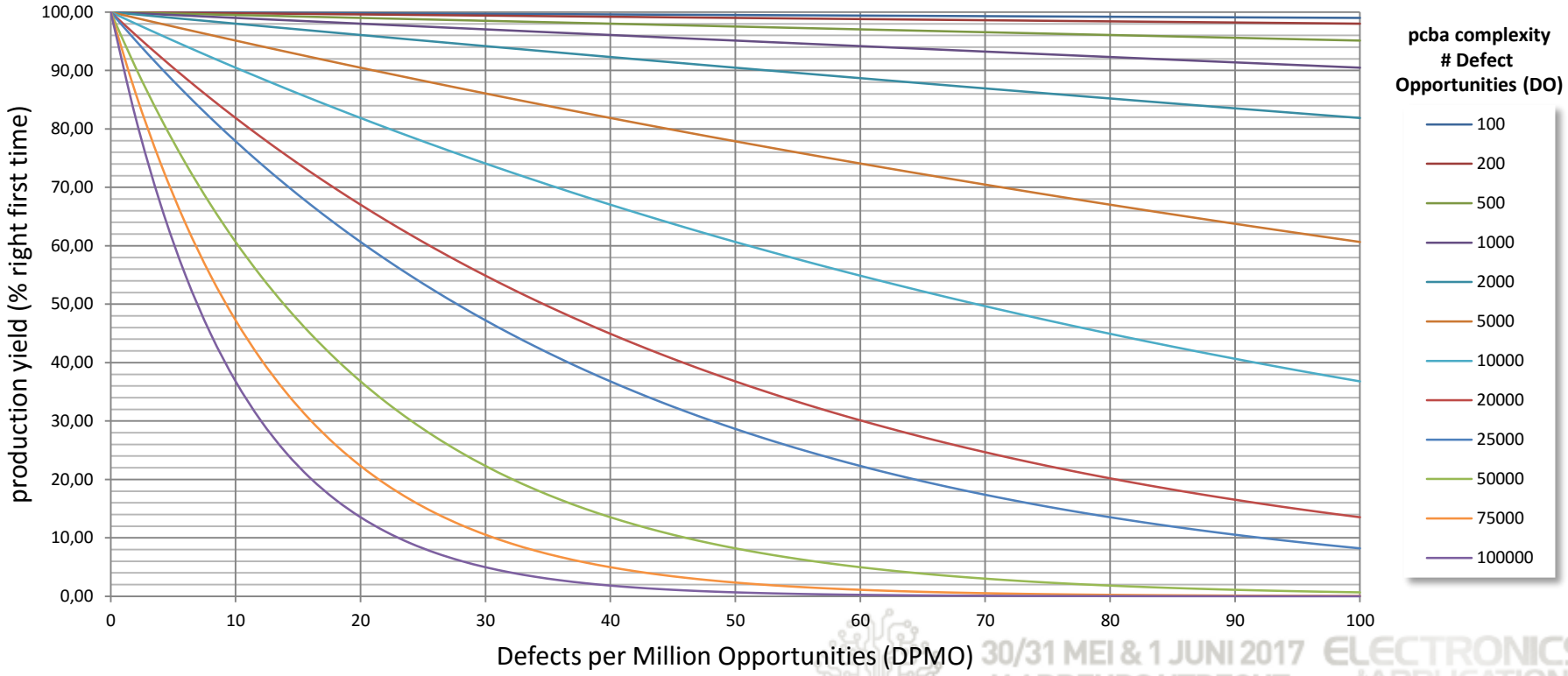
virtual world – Design for eXcellence



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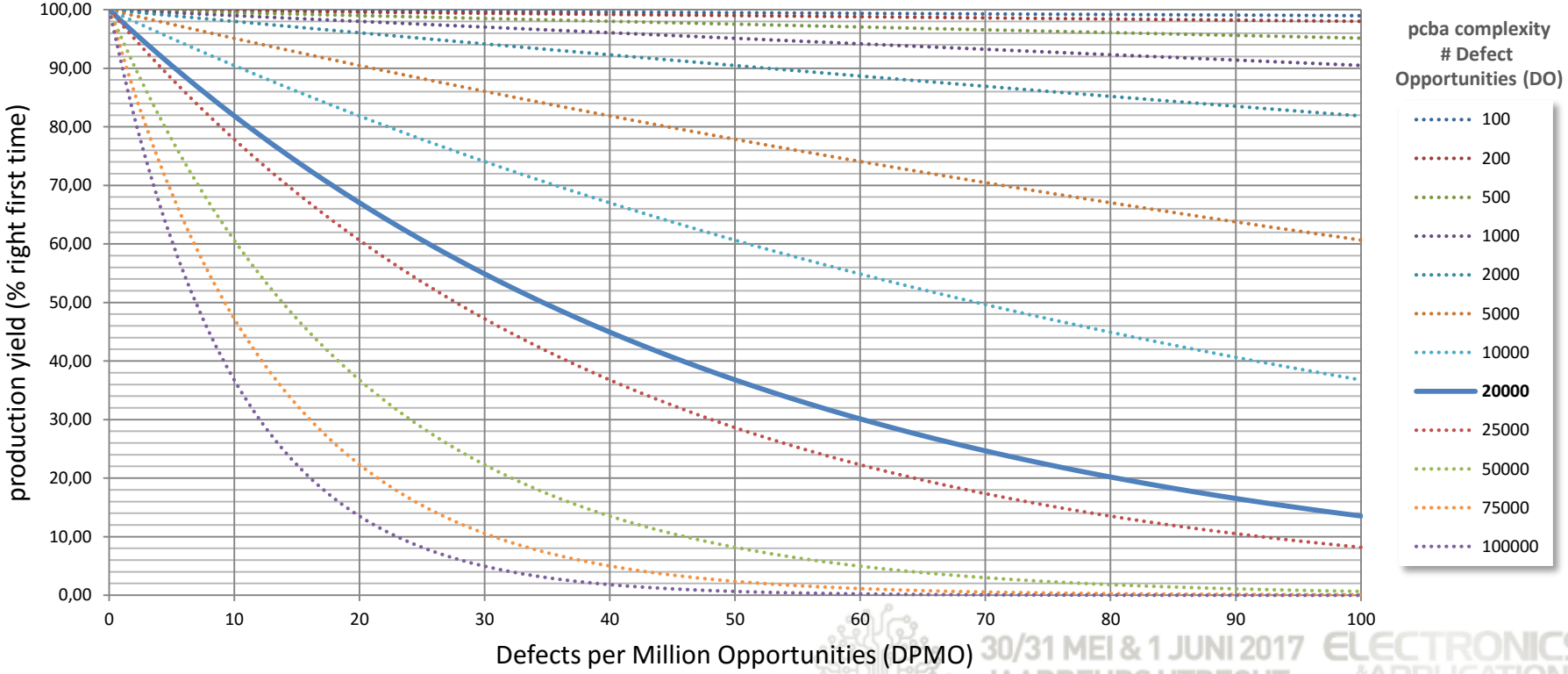

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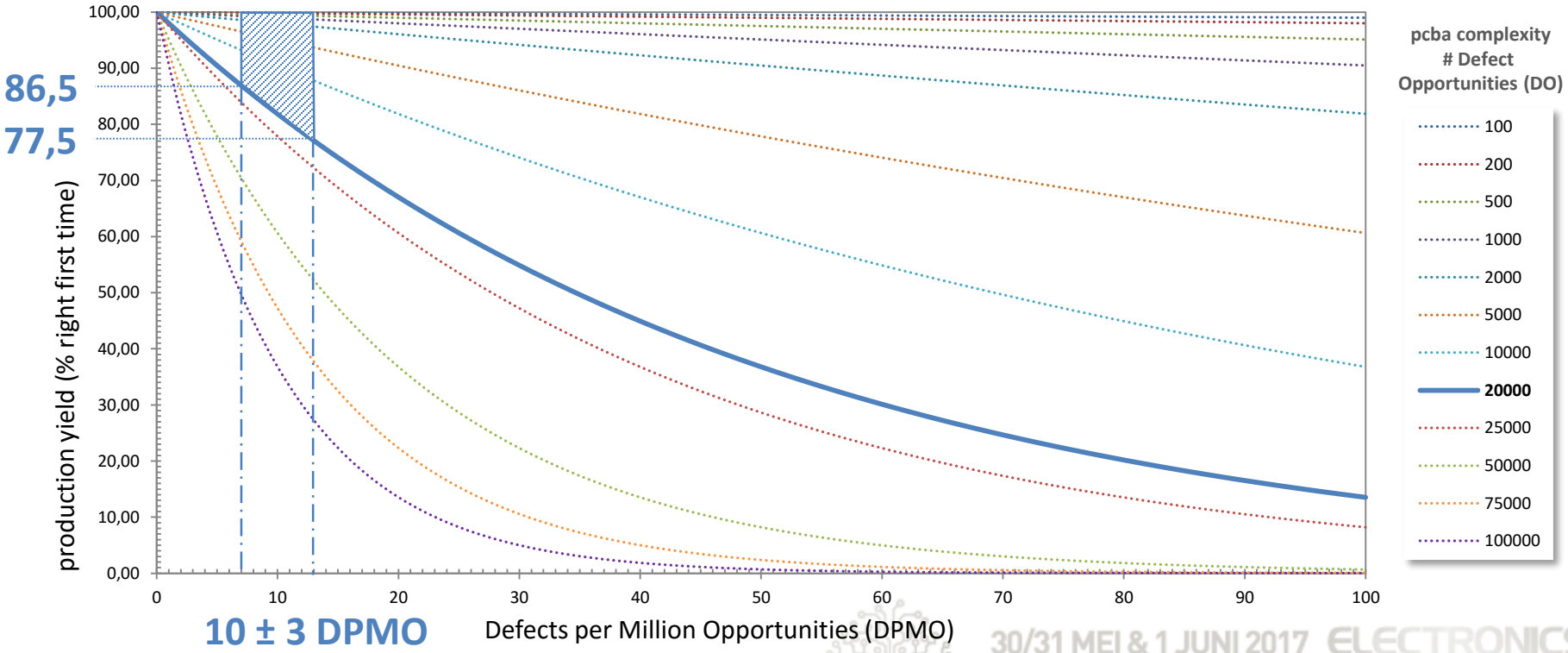

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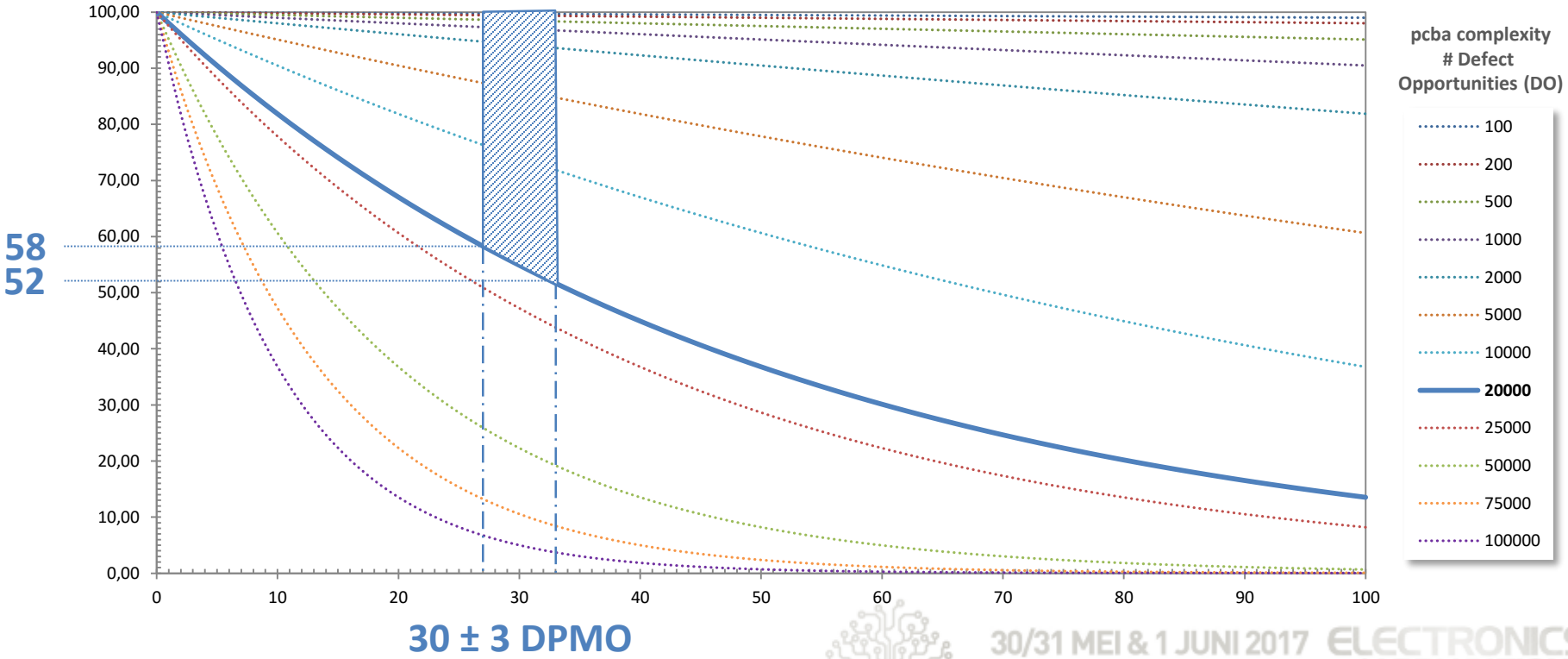

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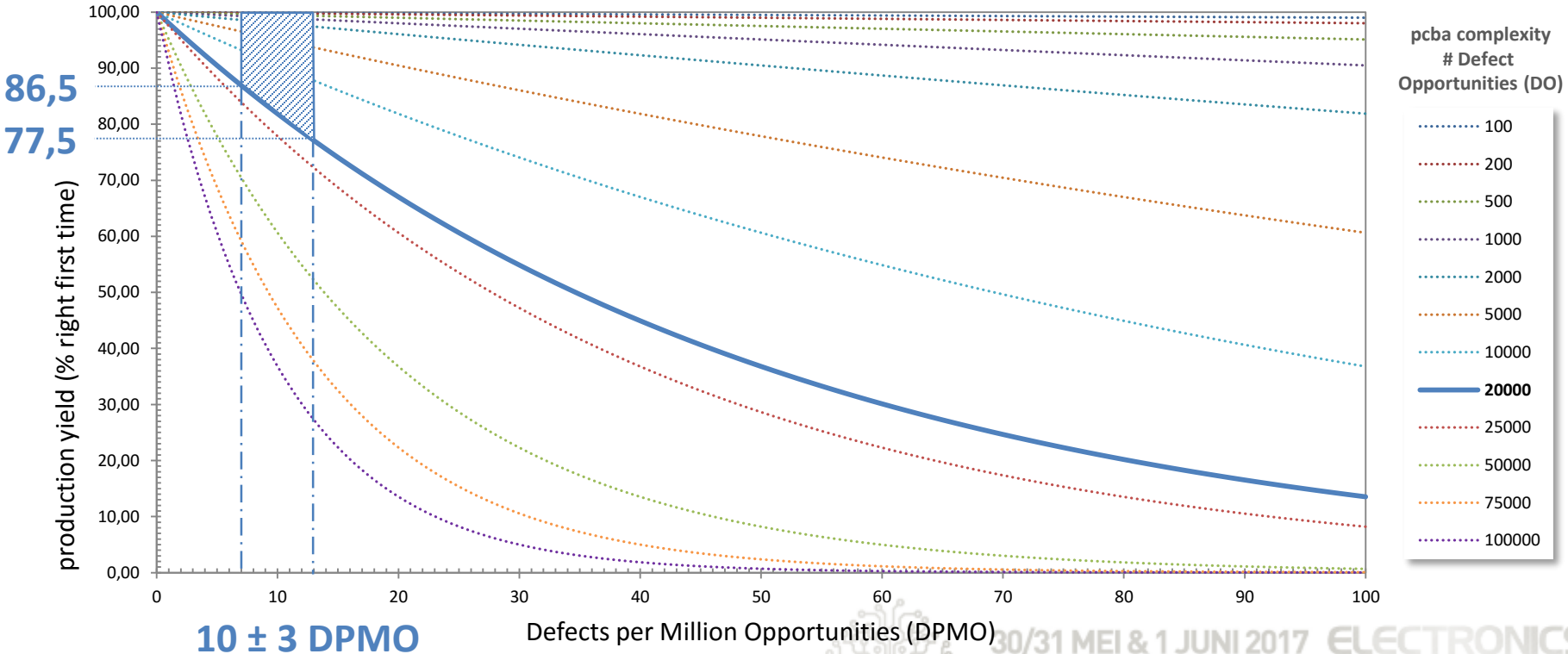

10 ± 3 DPMO

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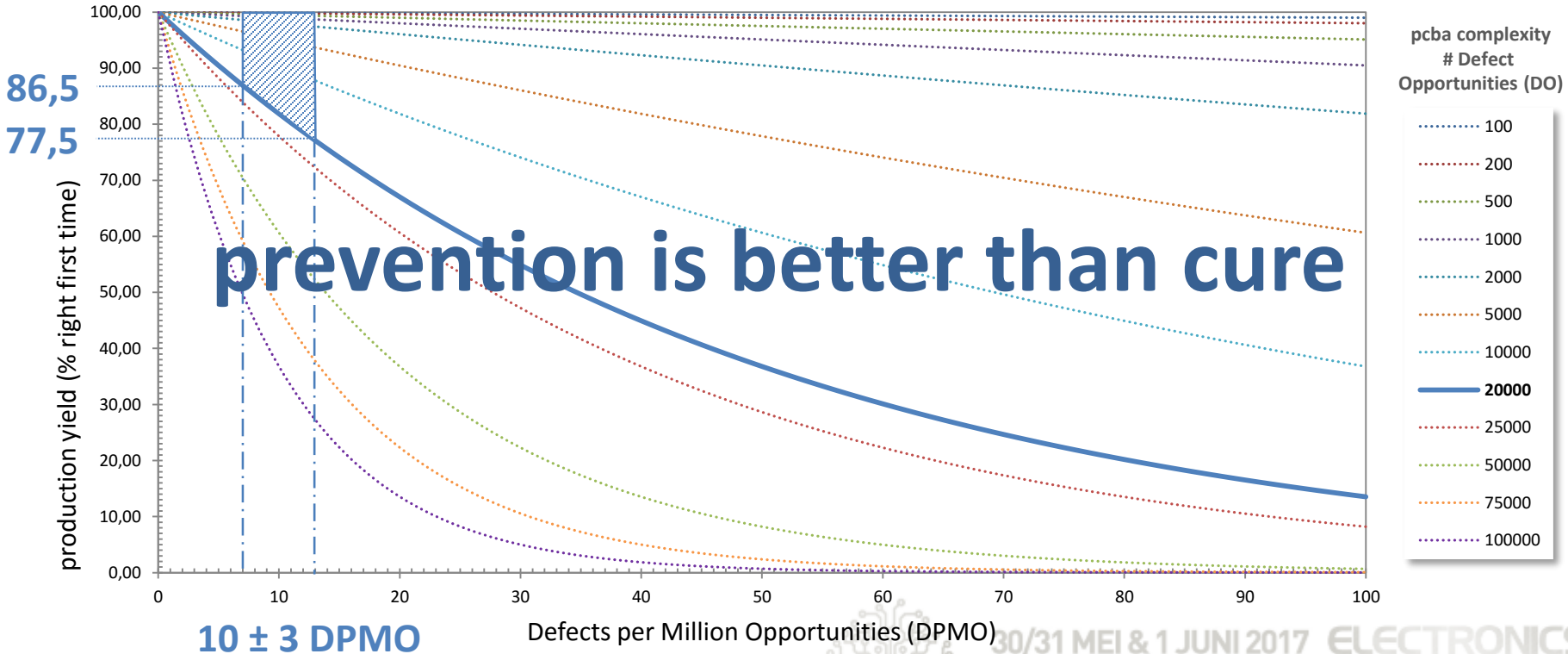
virtual world - Design for eXcellence



prevention is better than cure

10 ± 3 DPMO

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prevention is better than cure – how to prevent?

- improve manufacturability of design

  (Design for Manufacturing)

- increase manufacturing capabilities

  (smart industry)

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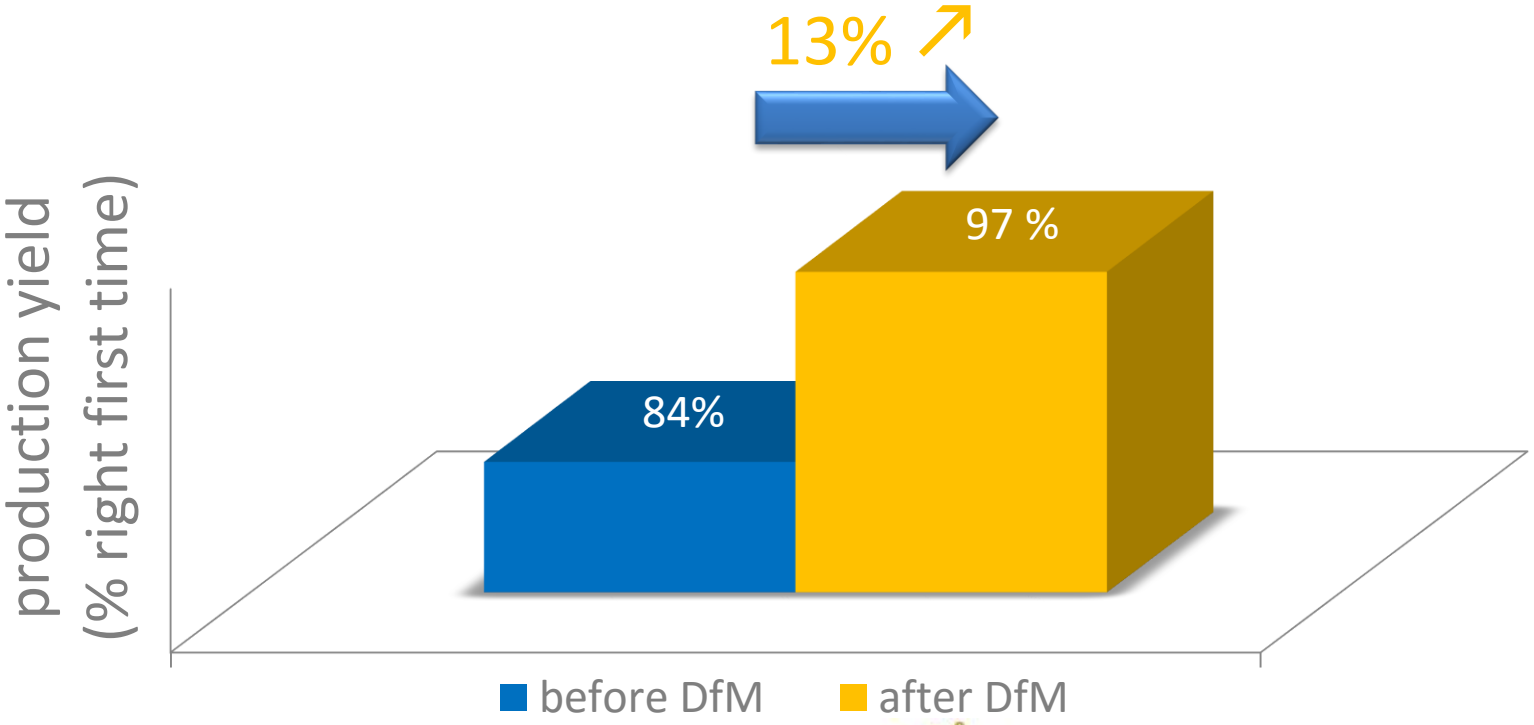
DfM analysis - production yield (right first time)



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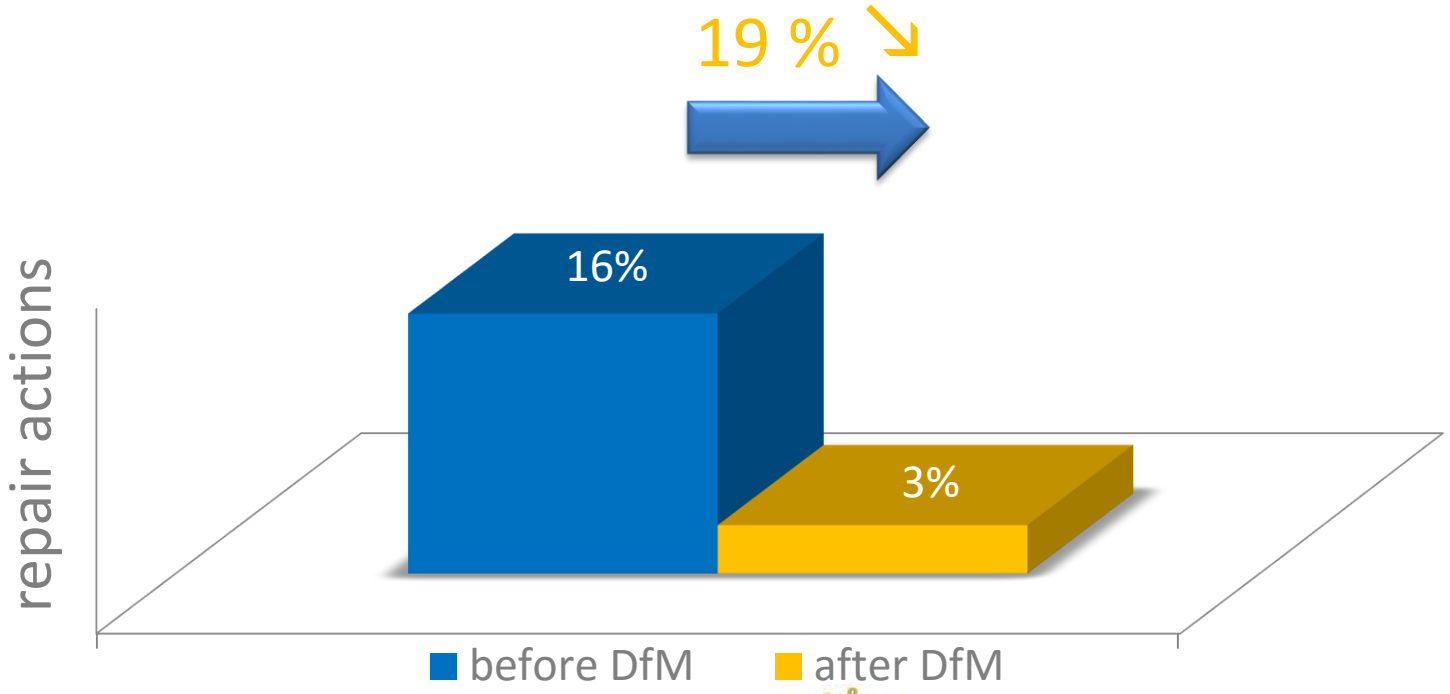
DfM analysis - repair actions



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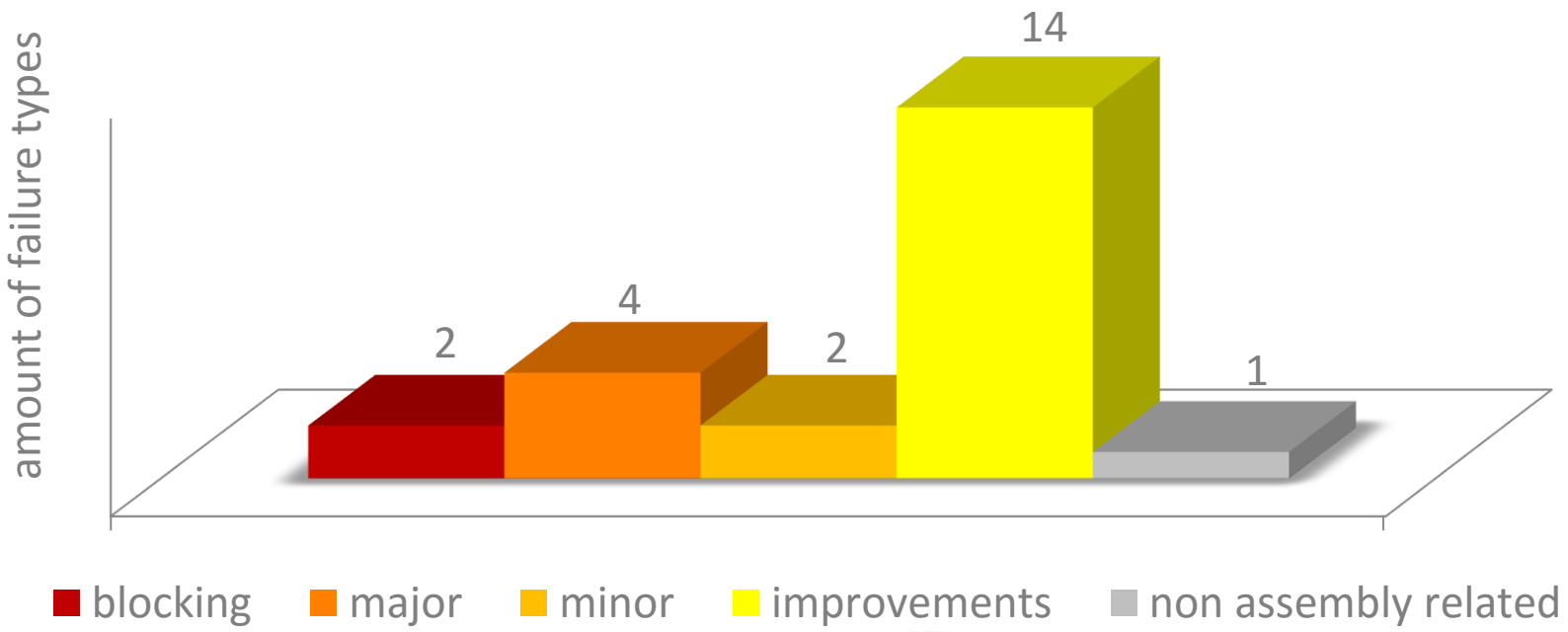
DfM analysis - amount of failure types



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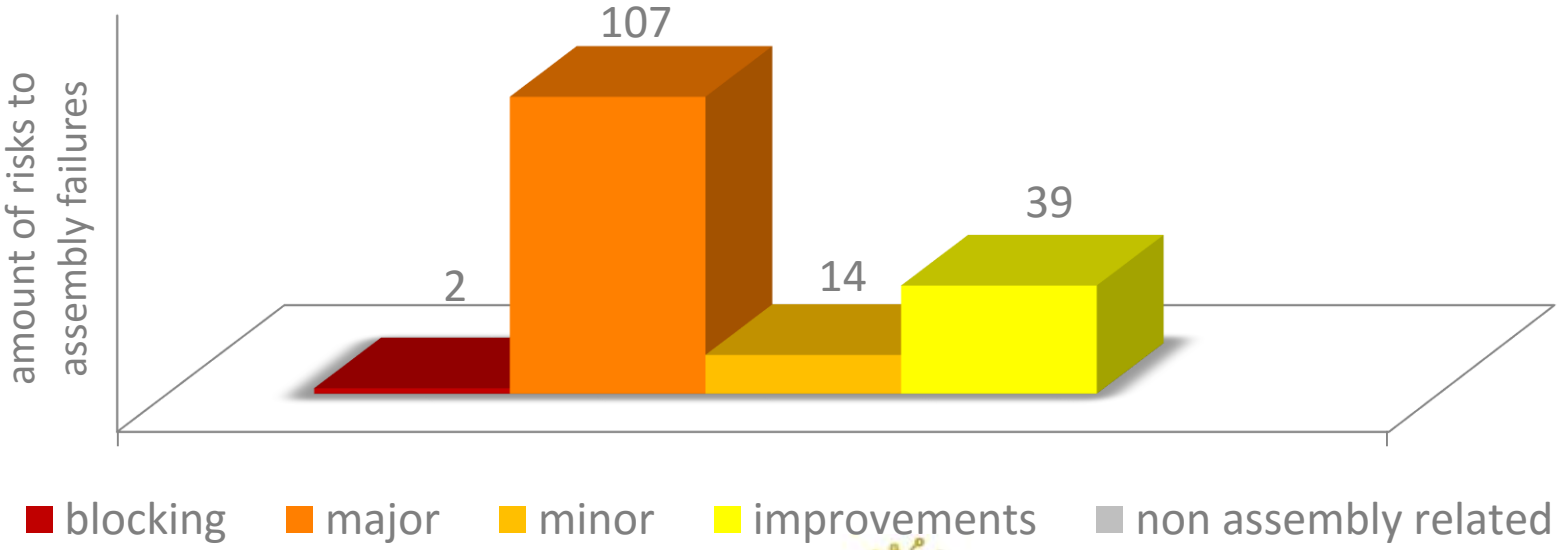
DfM analysis - amount of risks to assembly failures



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DfM analysis - conclusion

- improve production yield (right first time)
- less repair actions
- minimising cost
- higher reliability
- maximising delivery performance

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virtual world - DfX - feed forward path

early supplier involvement

production yield
amount of rejects
test strategy
production flow

Manufacturing Execution System (MES)

test db

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real world - big data - production path

early supplier involvement

production yield
amount of rejects
test strategy
production flow

Manufacturing Execution System (MES)

test db

forced routing
full traceability
process quality control

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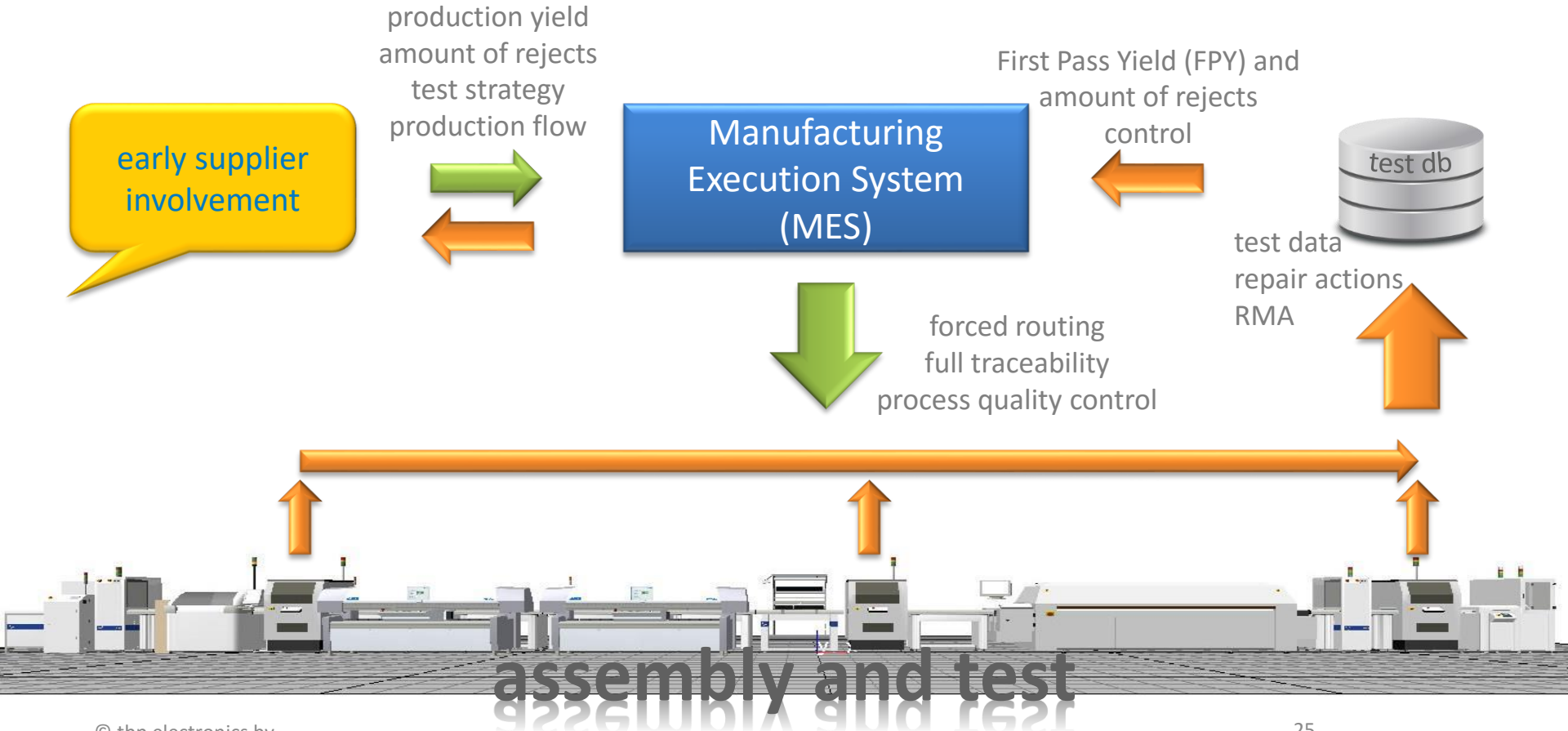
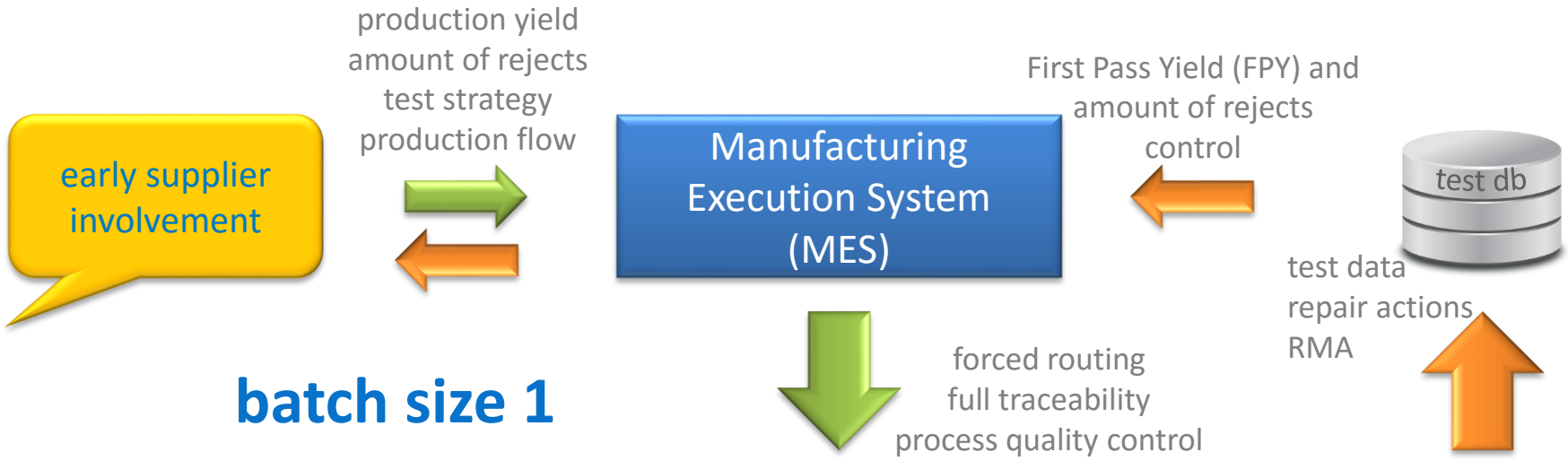
real world - big data - feed back path



real world - big data - self-correcting assembly line



batch size 1

real time based machine to machine connection

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conclusion

prevention is better than cure

requirement:

connecting virtual world (DfX) to real world (big data)

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quote Deming

“focus on cost drives out quality…

focus on quality drives out cost”

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questions

stand 7E072

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