



VIII Congresso de Sistemas Lean
“Em busca da excelência do fluxo de valor”

Digital Transformation in the Czech Republic

Presented by Felipe Martinez
Centre for Digital Transformation



29 e 30 de junho – Florianópolis - Mercure Convention Hotel





Who I am

- Lean
- Digitalisation
- Organisations
- Eng. 2000
- PhD. 2013

- Colombia
- 13 years in CZ
- India, Argentina and Canada
- Entrepreneur, Manager, Consultant, Faculty...



Who we are



- ▶ **Interdisciplinary operational platform** of professional and academics.
- ▶ Faculty of Business Administration (**FBA**), University of Economics, Prague (**UEP**).
- ▶ We focus on the **socio-economic** aspects of **digital transformation**.





What we do

- ▶ We provide **professional and academic knowledge** to firms willing to **implement Industry 4.0** and their technologies.



CENTRE FOR DIGITAL TRANSFORMATION



Supply Chain Management



Digitalization & process excellence



Work & Education 4.0



Consulting & Research





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Industry 4.0



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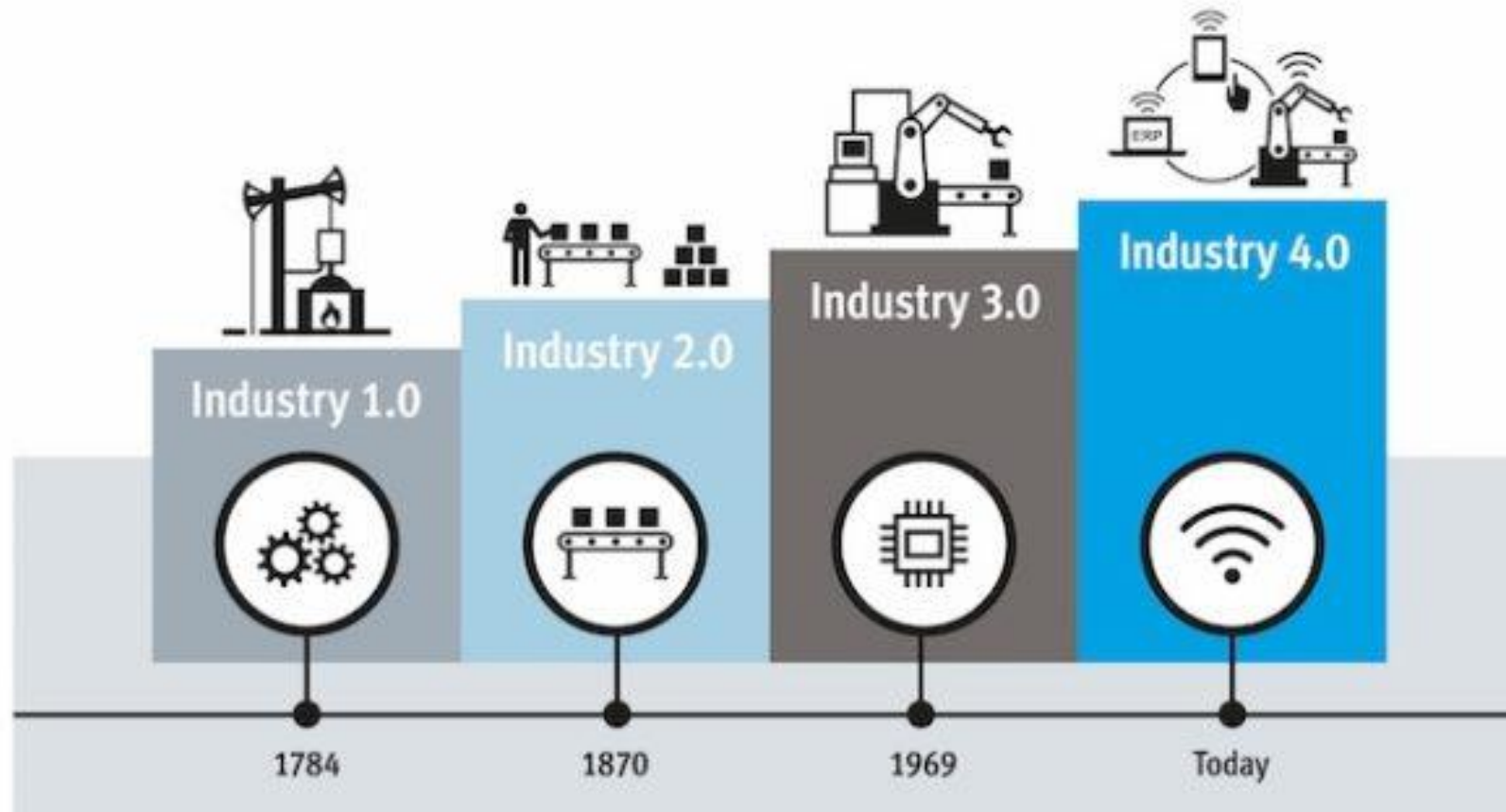
What is it?

- Industry 4.0
- i4.0
- Germany, 2012
- Europe catch phrase
- Internet of Things
- IoT
- Apply to Industry
- IIoT





Industry 4.0





Technologies...

1. Advanced Robotics
2. Big data
3. Digital modelling
4. The Internet of Things
5. Human-Machine Interaction
6. Augmented reality
7. Virtual Assistants
8. Energy sourcing
9. New sensors
10. Machine learning
11. Biosensors
12. Terahertz
13. Autonomous robots
14. Brain interface
15. Cognitive computing
16. Quantum technologies
17. New graphene characteristics



Top 10 skills



Top 10 skills

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity



Source: Future of Jobs Report, World Economic Forum

Top 10 skills

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in 2015

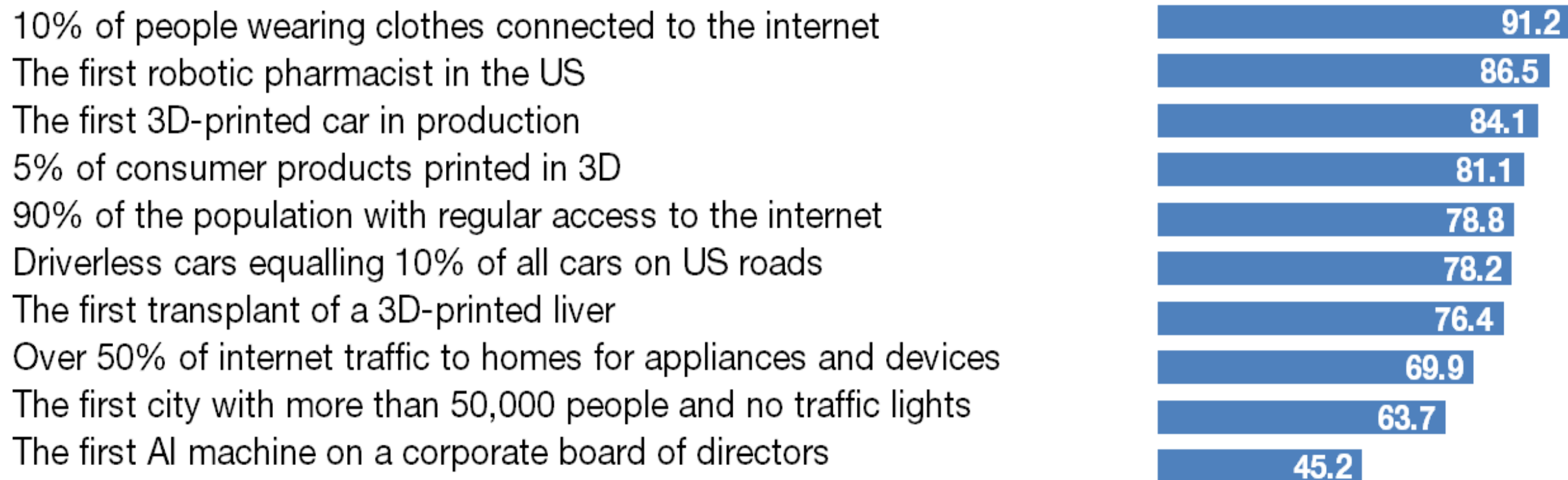
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When will the future arrive?

800 technology executives and experts from the information and communications technology sector were surveyed as part of our *Technology Tipping Points and Societal Impact* report

Technology tipping points expected to occur by 2025

Percentage of respondents



Revolution?



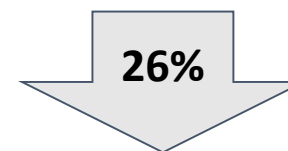


Industry 4.0. The end Lean Management?

Lean management:

- Value
- Waste
- Continuous Improvement

Just **26%** occurrence
But
Low correlations





Industry 4.0 in the Czech Republic – State of the art.

Does CZ understand i4.0?



[JIRSÁK, Petr](#), [MARTÍNEZ, Felipe](#), [LORENC, Miroslav](#), [JANČÍK, Jakub](#). Industry 4.0 in the Czech Republic – State of the art. In: LÖSTER, Tomáš, PAVELKA, Tomáš (ed.). *The 10th International Days of Statistics and Economics* [online]. Praha, 08.09.2016 – 10.09.2016. Slaný : Melandrium, 2016, s. 755–769. ISBN 978-80-87990-10-0. Dostupné z: https://msed.vse.cz/msed_2016/article/209-Jirsak-Petr-paper.pdf.





Industry 4.0 in the Czech Republic – State of the art.

- Scientific articles - less than 1%
- Academic articles 12%
- Business articles 56%
- Technology articles 31%





Implications, Applications, Trends, and Topics of Industry 4.0

Round table

Implications of i4.0 for

- Management
- Economy
- Society



[MARTÍNEZ, Felipe](#), [JIRSÁK, Petr](#), [LORENC, Miroslav](#). Implications, Applications, Trends, and Topics of Industry 4.0. In: *International Business and Management Conference* [online]. Praha, 11.11.2016 – 12.11.2016. Praha : Oeconomica Publishing House, 2017, s. 213–216. ISBN 978-80-245-2215-9. Dostupné z: <http://ieeca.org/2016-prague-international-management-conference/>.



Implications, Applications, Trends, and Topics of Industry 4.0

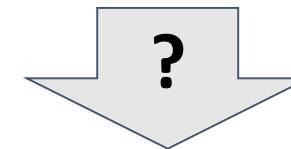
- Human capital.
 - Cross functional teams.
 - Holistic view.
 - People willing to do i4.0
 - Prepare to work with data... BIG data
- Management
 - Traditional vs. modern
 - Global vs local implementation
- Economy
 - It is a major change
 - Industry 70%
- Society
 - Education 4.0





Startups role in national industry 4.0 implementation

Do strategic documents to develop i4.0 include or consider startups as part of the strategy to the development of i4.0 in Czech Republic?

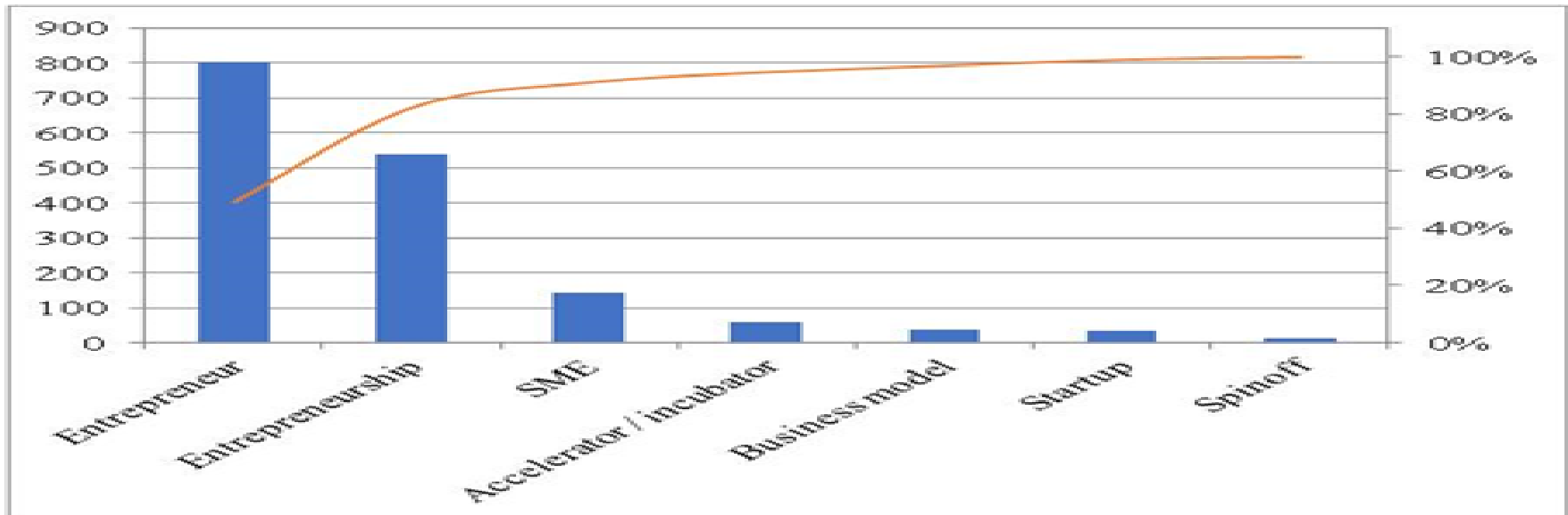


MARTÍNEZ, Felipe, SVOBODOVÁ, Ivana, LORENC, Miroslav. Startups role in national industry 4.0 implementation. In: DVOULETÝ, Ondřej, LUKESŠ, Martin, MÍSAŘ, Jan (ed.). *Innovation Management, Entrepreneurship and Sustainability (IMES 2017)* [online]. Praha, 25.05.2017 – 26.05.2017. Praha : Nakladatelství Oeconomica, 2017, s. 584–594. ISBN 978-80-245-2216-6. Dostupné z: http://imes.vse.cz/wp-content/uploads/2015/08/Conference_Proceedings_IMES_2017.pdf.





Startups role in national industry 4.0 implementation

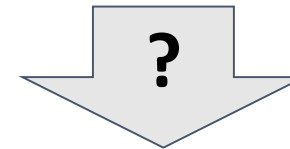
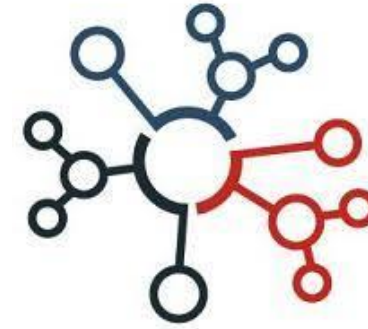


The total documents keyword density is 4.2%



INDUSTRY 4.0 IN CLUSTERS

Do clusters in CZ implement i4.0?



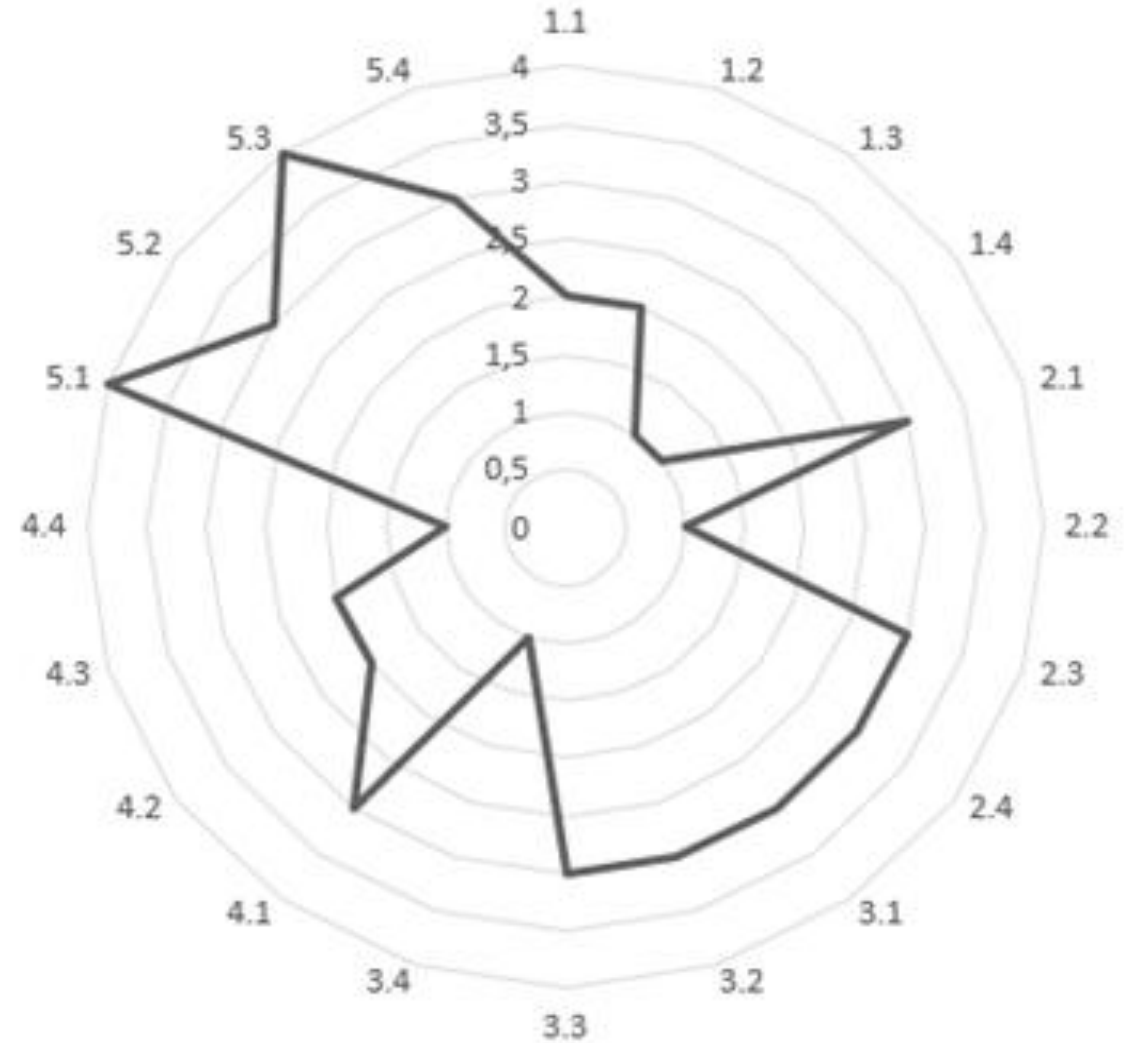
HYKYŠOVÁ Zuzana, MARTÍNEZ, Felipe. Industry 4.0 in clusters. The 11th International Days of Statistics and Economics. September 14–16, 2017; Prague. Presented paper.





INDUSTRY 4.0 IN CLUSTERS

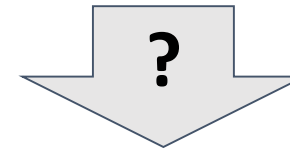
1. Strategy
2. Cyber security
3. Processes
4. Data
5. Collaboration





ASSESSING PROCESS EXCELLENCE WITH DIGITALIZATION

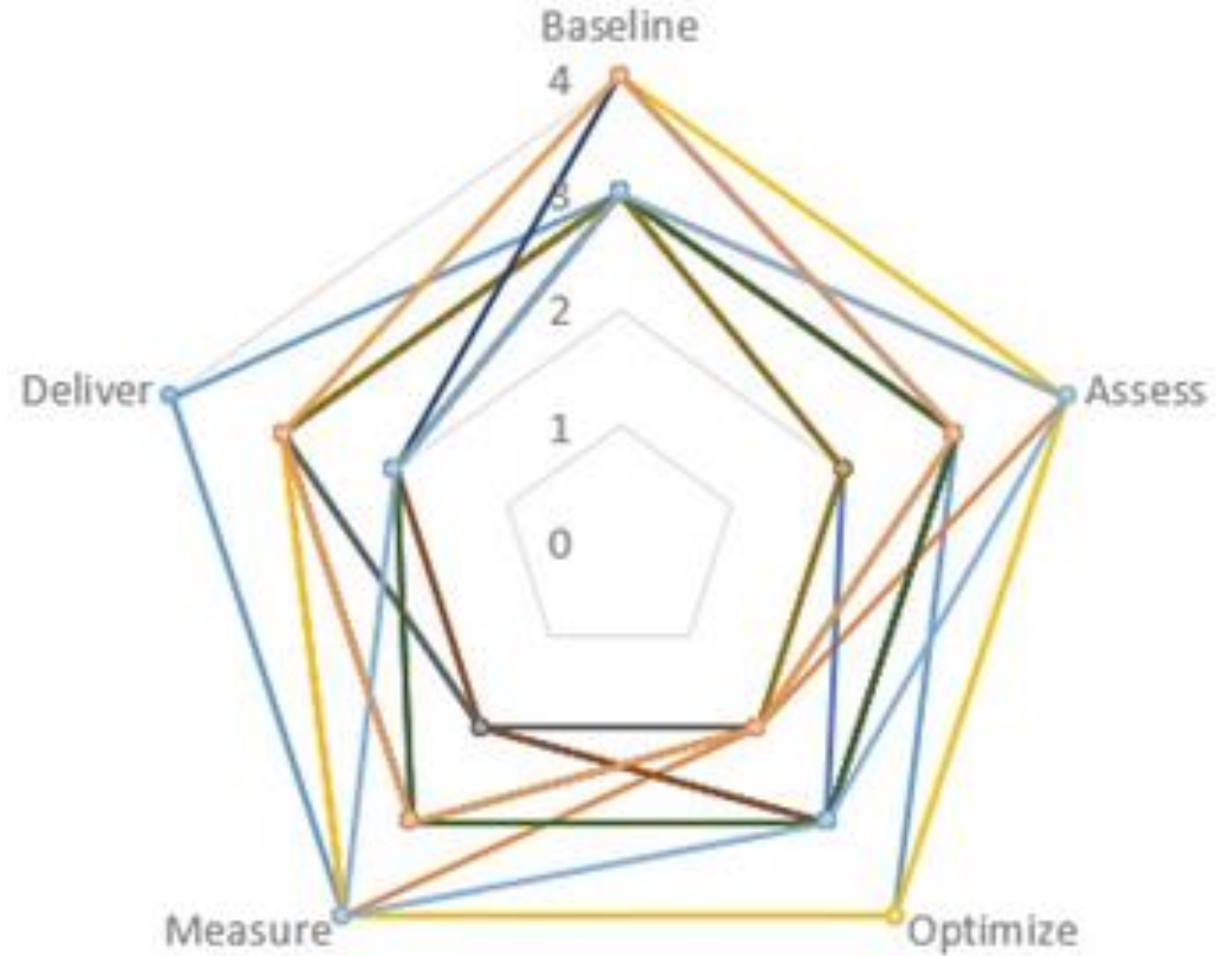
Do Service firms in CZ implement i4.0?



BÓDIOVÁ Zuzana, MARTÍNEZ, Felipe. Assessing process excellence with digitalization. The 11th International Days of Statistics and Economics. September 14–16, 2017; Prague. Presented paper.

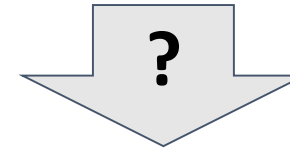


ASSESSING PROCESS EXCELLENCE WITH DIGITALIZATION





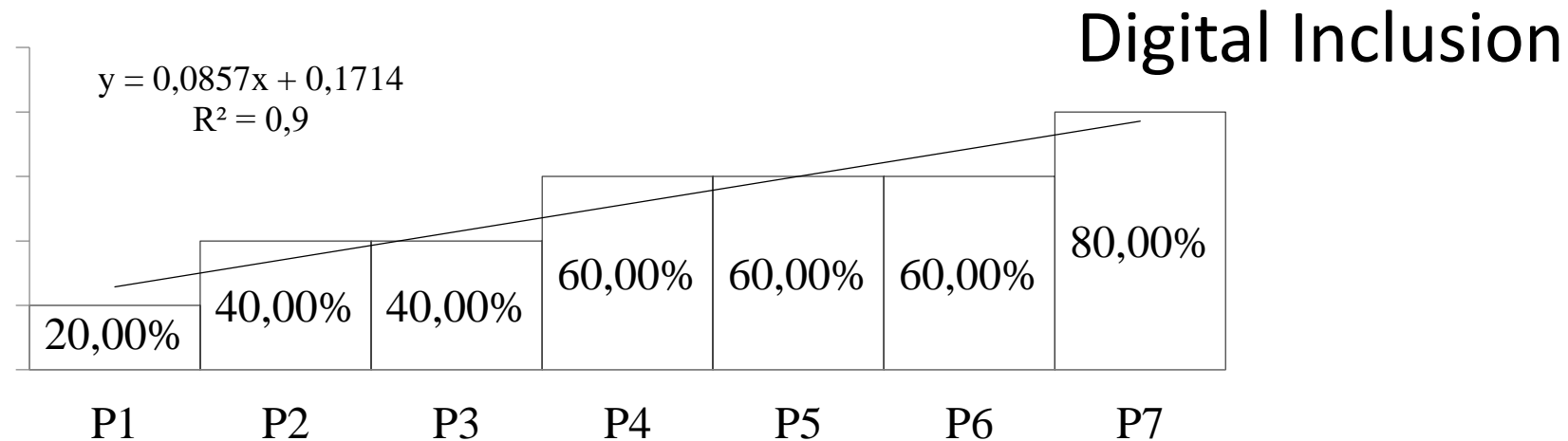
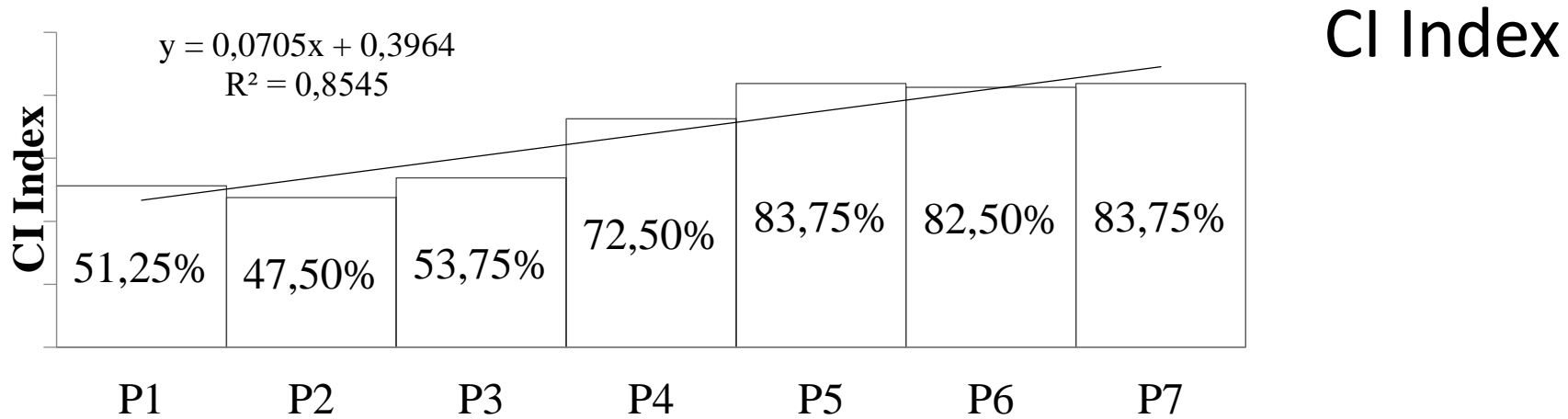
Lean my food: From sandwich to catering with digitalisation Do Catering firms in CZ implement i4.0?



MARTÍNEZ, Felipe. Lean my food: From sandwich to catering with digitalisation
Proceedings of the 24th EurOMA Conference. Edinburgh, Scotland, 1st-5th
July 2017, in Edinburgh, Scotland.



Lean my food: From sandwich to catering with digitalisation





Industry 4.0





Big acquisitions...

ABB completes acquisition of B&R



Group press release | Zurich, Switzerland, 06 July 2017





Big acquisitions...

China's Midea receives U.S. green light for Kuka takeover

[#BUSINESS NEWS](#)

DECEMBER 30, 2016 / 3:01 AM / 9 MONTHS AGO





Big moves...

General Electric rids itself
of financial unit in
\$26.5bn deal as it hones
focus

Friday 10 April 2015 14.58 BST





Big moves...

Bosch: Investing In Data-Driven Innovation

Tech #BigData

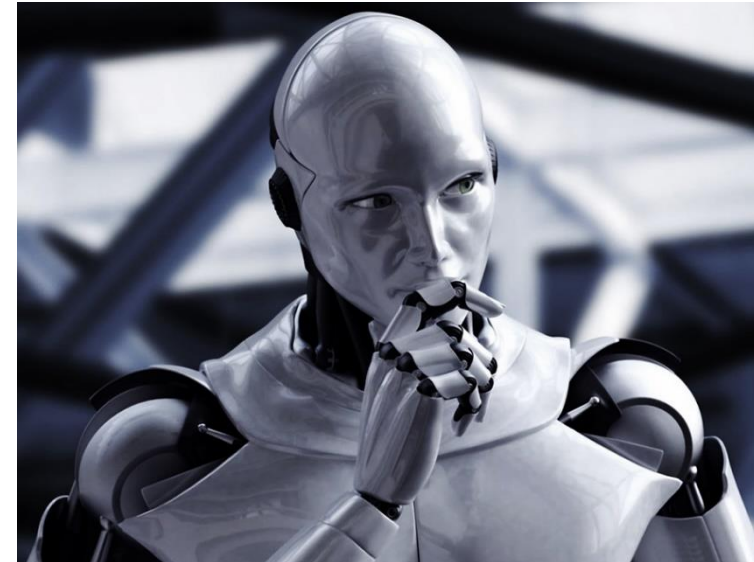
JUL 26, 2017 @ 08:18 AM





Current Research

Does process excellence facilitate digitalisation?

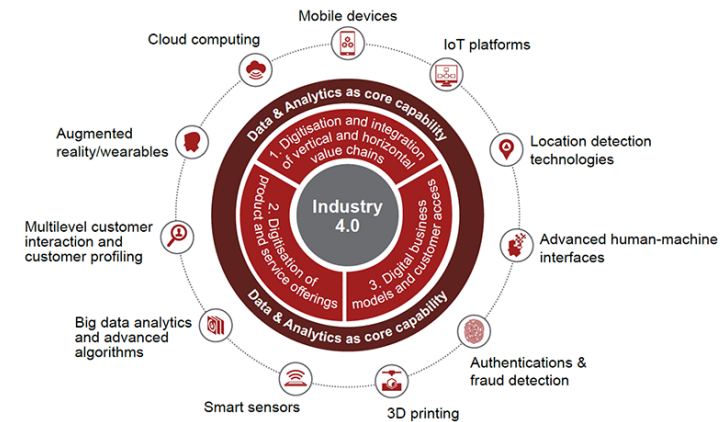




Current Research

- Education 4.0
 - Competences
 - Subjects
 - Feedback
- Implementation i4.0
 - Structure
 - Strategy
 - Investments
 - Business model
 - HR
 - Processes
 - Supply chain

- New technologies
 - Additive manufacturing
 - Collaborative Robots
 - Artificial Intelligence
 - Augmented reality
 - ...





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Questions?





FPH

CENTRE FOR DIGITAL
TRANSFORMATION



Thank
You



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