

The Future of Manufacturing: Opportunities for Brazil

**Project “Industry 2027 and Disruptive Innovations: Risks
and Opportunities for Brazil”**

Mobilização Empresarial pela Inovação (MEI)
Confederação Nacional da Indústria (CNI)
Instituto Euvaldo Lodi (IEL)

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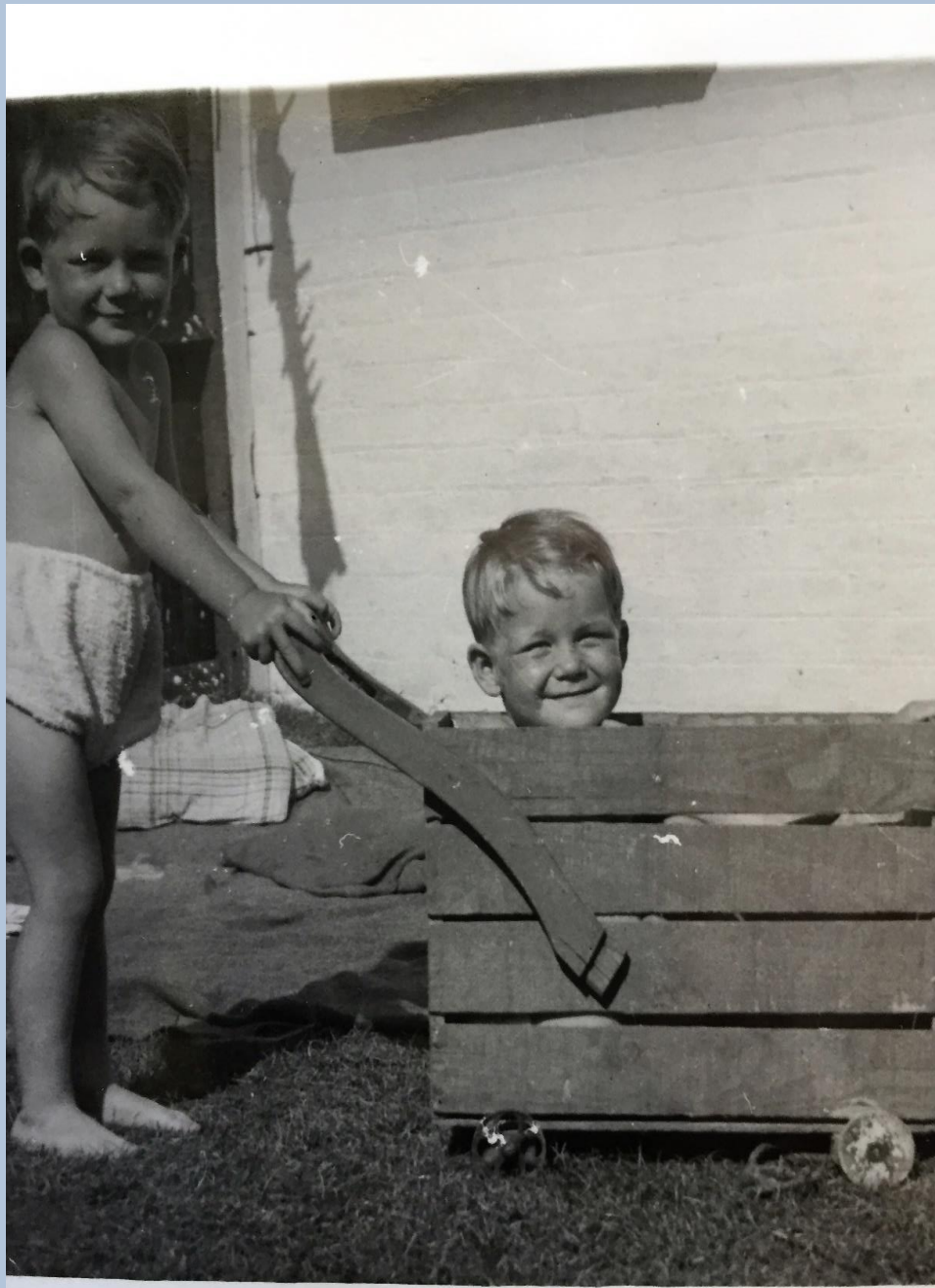
Instituto de Economia, UFRJ
Instituto de Economia, UNICAMP
Sao Paulo, June 8 2017

Address by Peter Marsh

Author, The New Industrial Revolution

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WHAT'S SPECIAL ABOUT MANUFACTURING?



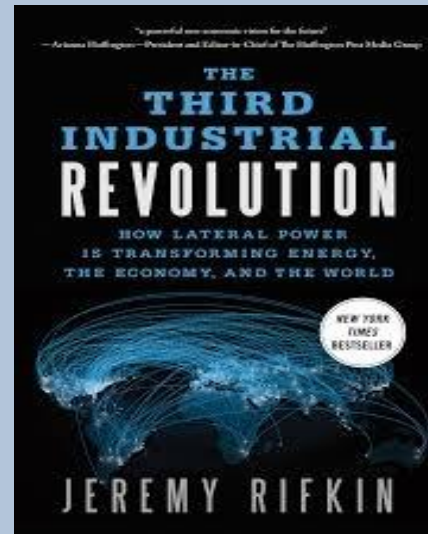
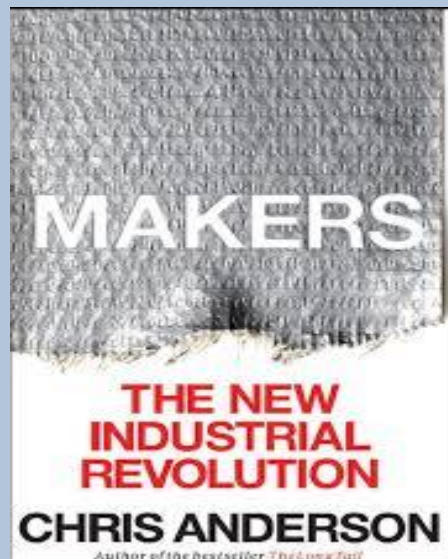
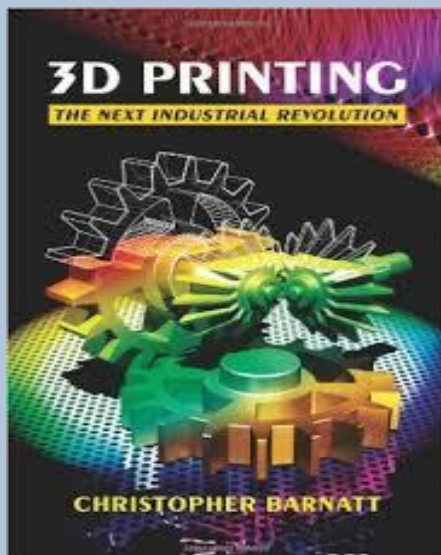
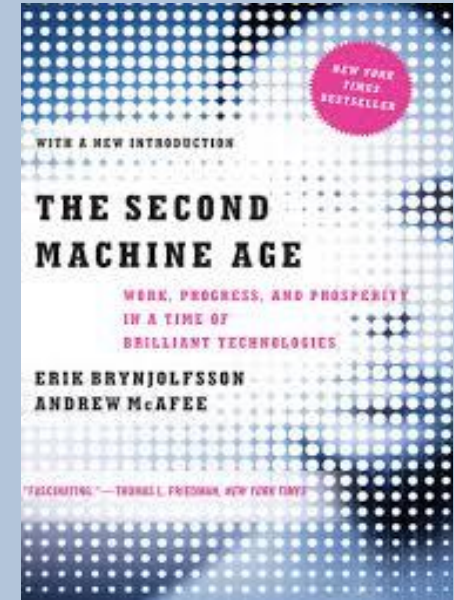
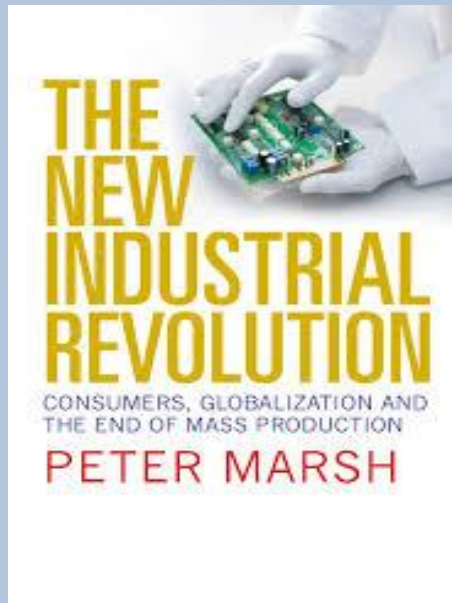
ENTROPY IN ACTION







Revolutionary talk



The last 3,500 years

- **Pre-industry (1,500BC to 1500 AD)** : Iron Age, glass production, metals
- **Proto-industry (1500- 1780)** ; Venice shipyard (c.1500)
- **First Industrial Revolution (1780-1850): steam power, textile machinery**
- **Second Industrial Revolution (1840-1890)** : communications; railways, telegraph
- **Third Industrial Revolution (1860-1930):** science based methodology; electricity, chemistry
- **Fourth Industrial Revolution (1950-2000):** computers, electronics
- **Fifth Industrial Revolution (2005-?):** connections, creativity, customisation, helped by ICT/technology convergence





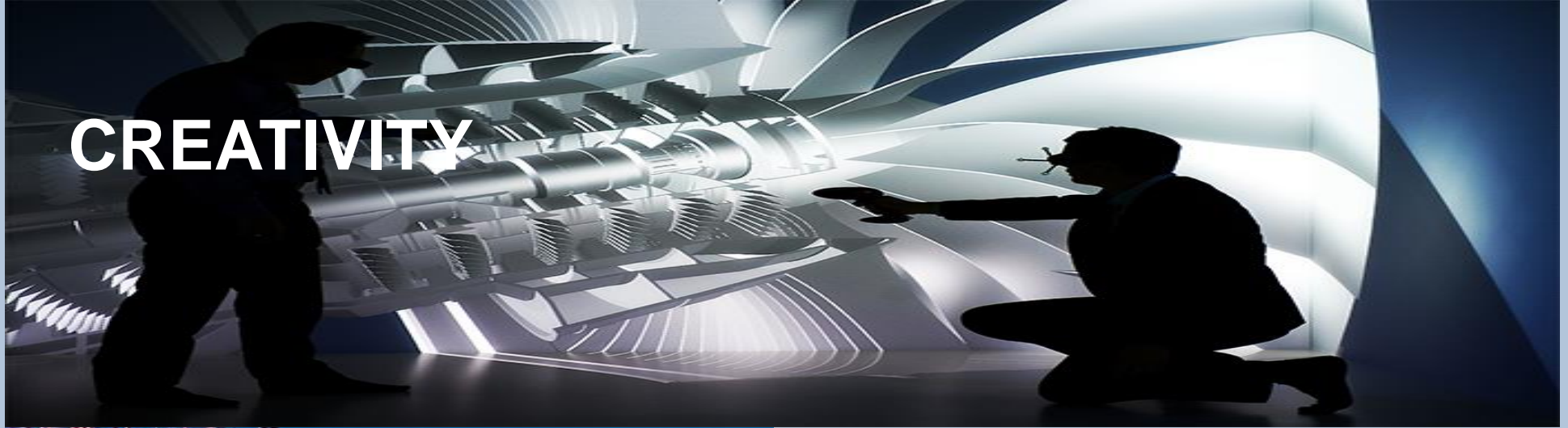




DIGITISATION



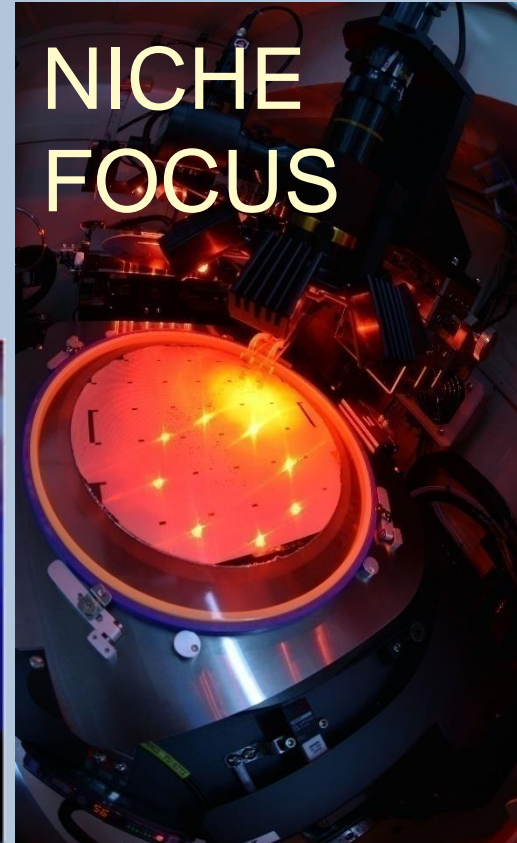
CREATIVITY



CONNECTIONS



**NICHE
FOCUS**



**SERVICE
THINKING**



CUSTOMISATION



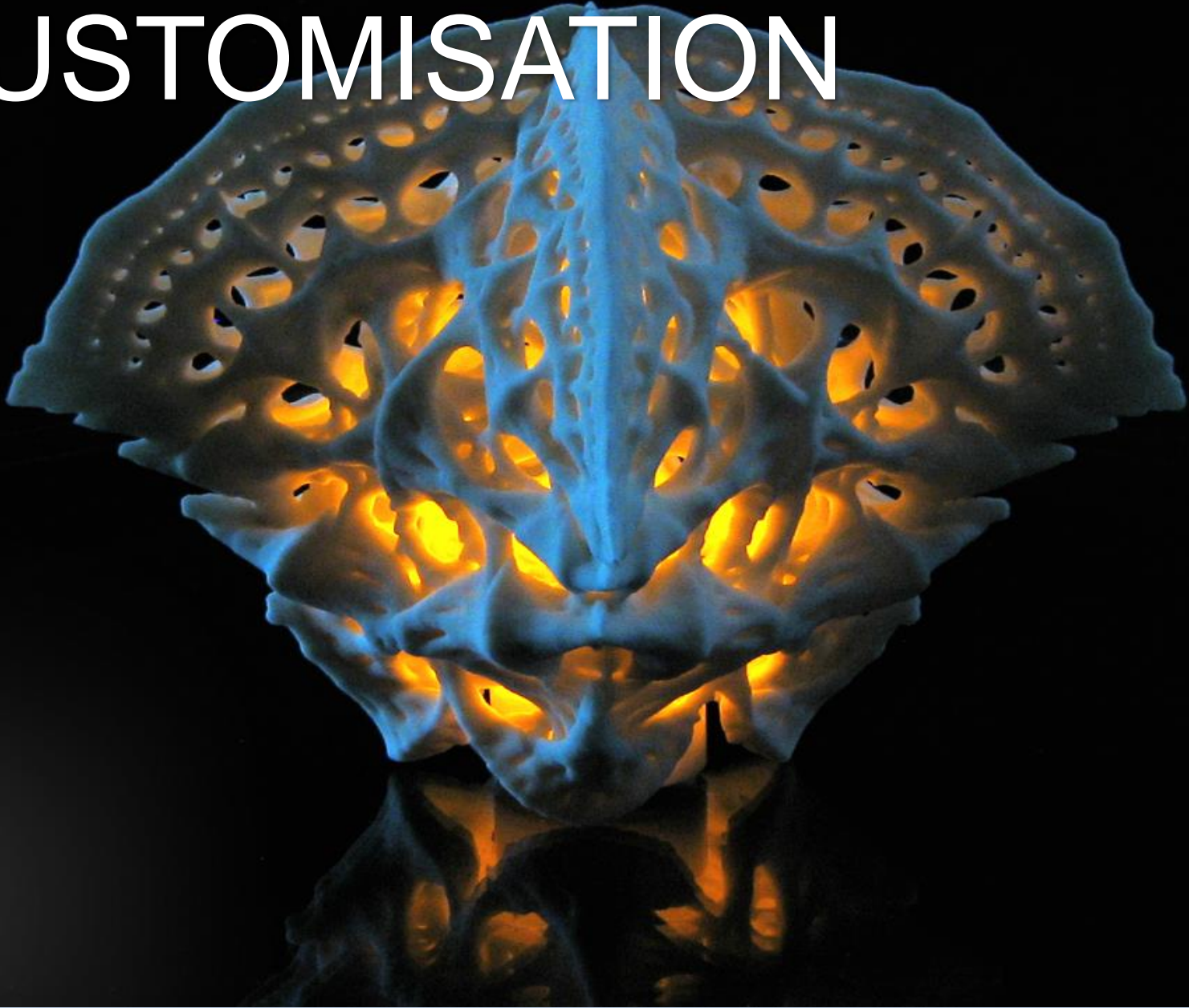
CONNECTIONS



CREATIVITY (TECH BLENDING)



CUSTOMISATION



CRAFT



CHINA



NICHE FOCUS



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ENVIRONMENTAL STEWARDSHIP



SERVICE THINKING



Beyond digitisation: pliers paradise(Knipex)



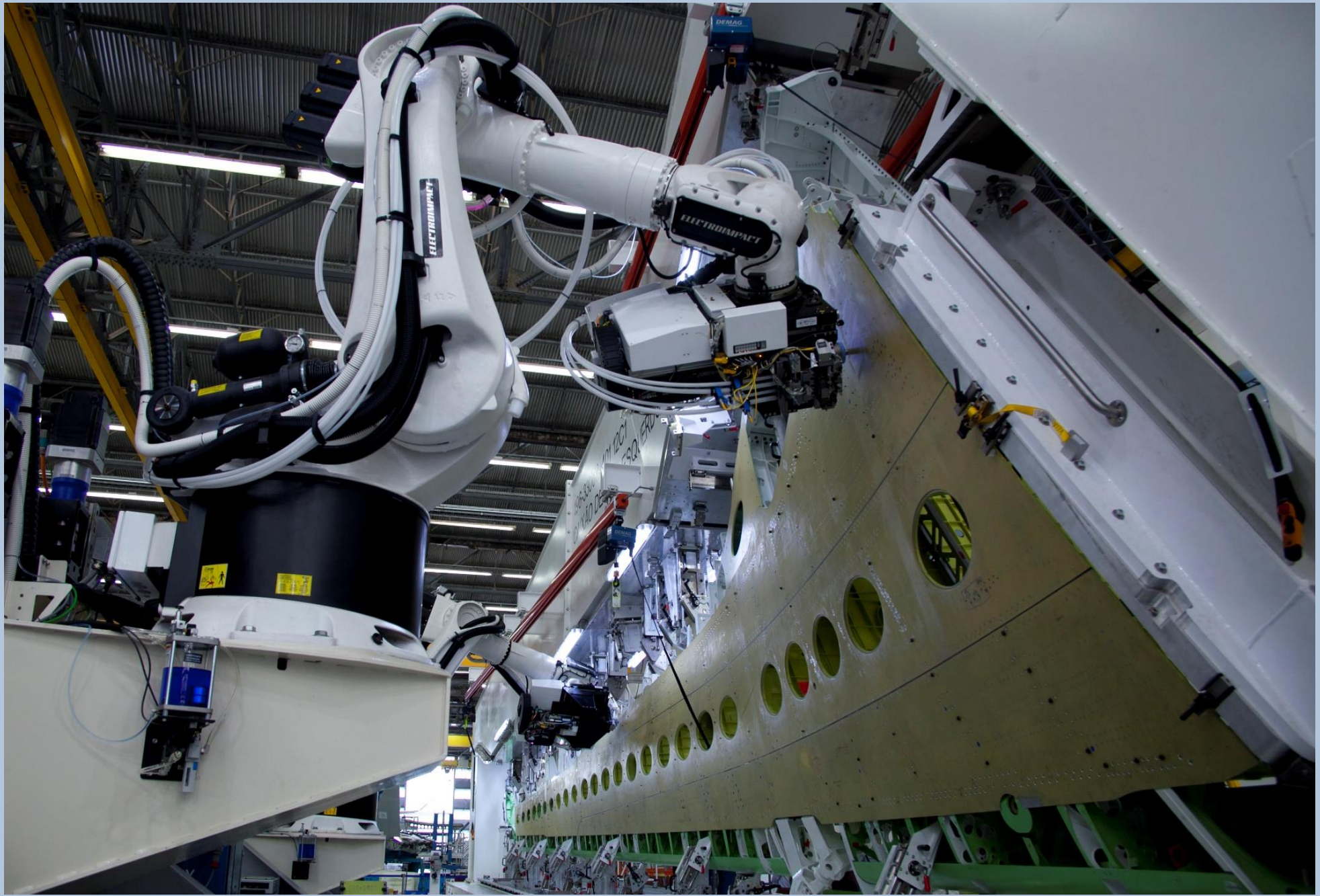
Ralf Putzch and 100 years of innovation





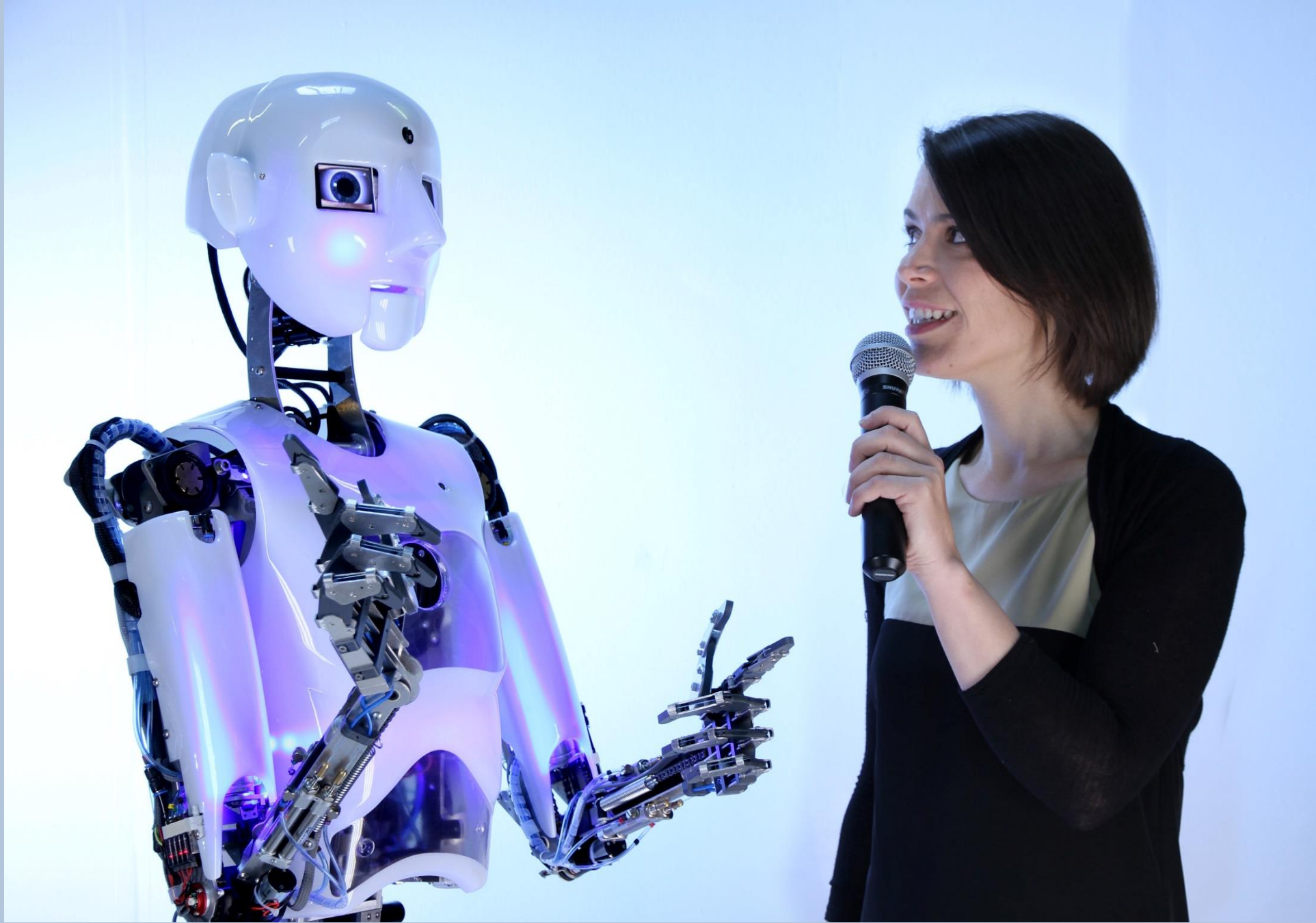












How policy makers should react:

- **Educate people about the new manufacturing**
- **Showcase success stories**
- **Encourage 'clustering'**
- **Promote technology**
- **Exhort global thinking**
- **Stay keen on start-ups but also focus on existing companies that might need assistance**



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