

The shift to distributed manufacturing, mass customisation and the future of work

Jeremy Millard

Danish Technological Institute

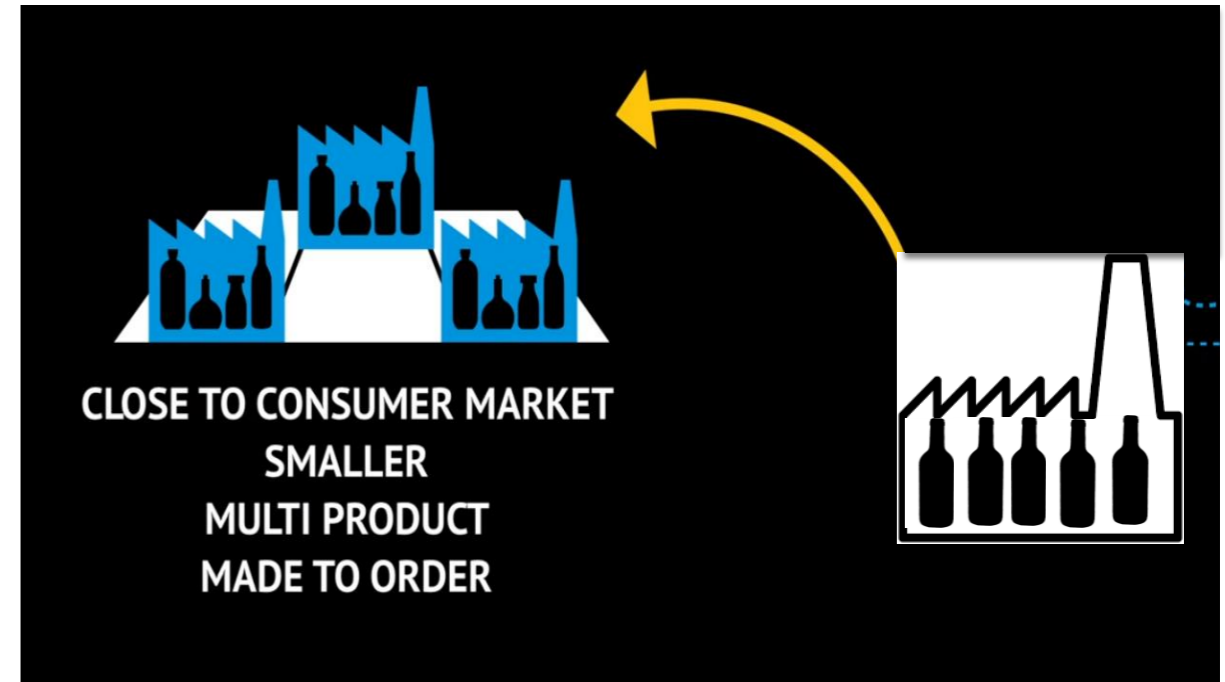
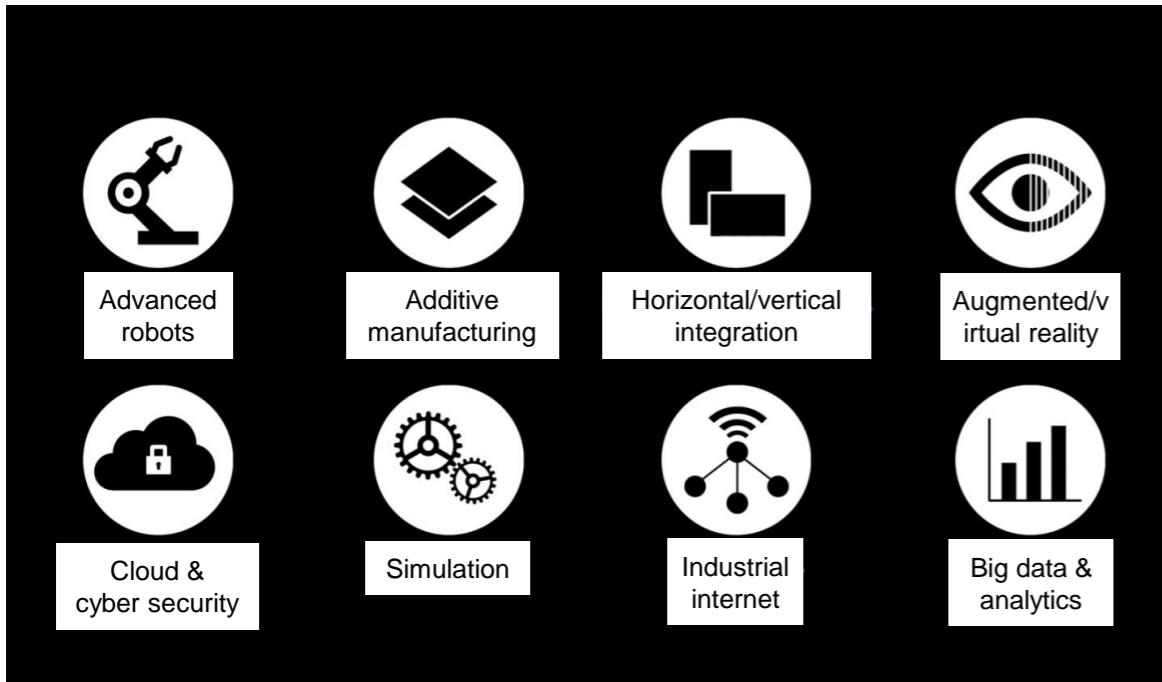
Brunel University Business School, London

Third Millennium Governance

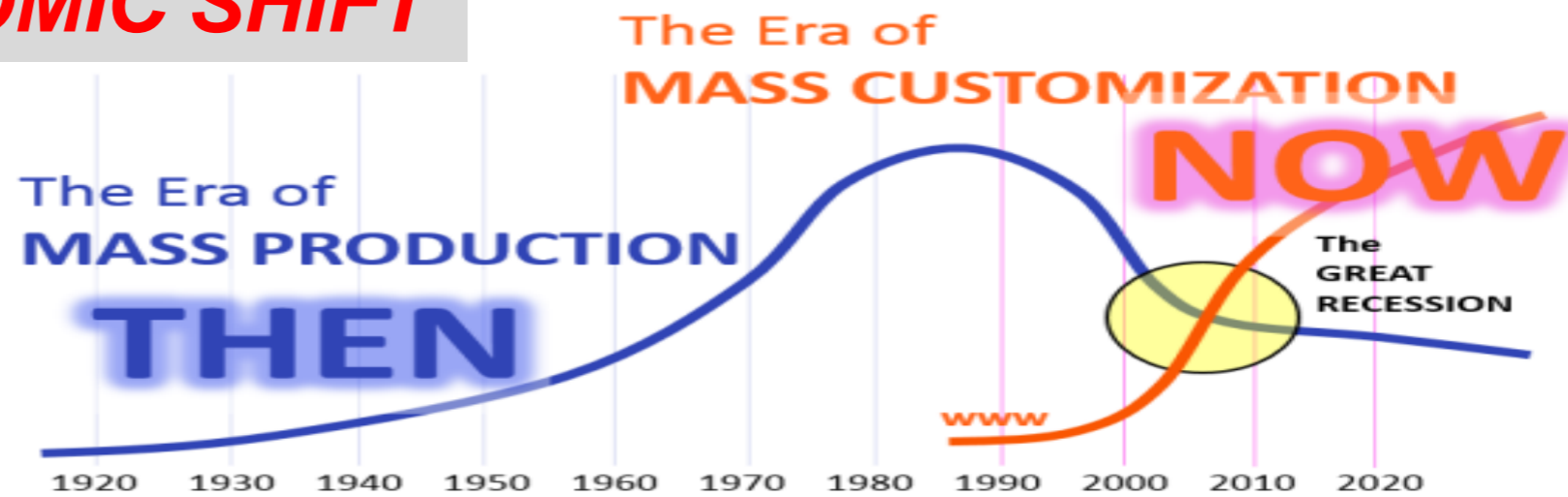
jeremy.millard@3mg.org



How Industry 4.0 will hugely increase productivity and thereby growth



MASSIVE MACRO-ECONOMIC SHIFT

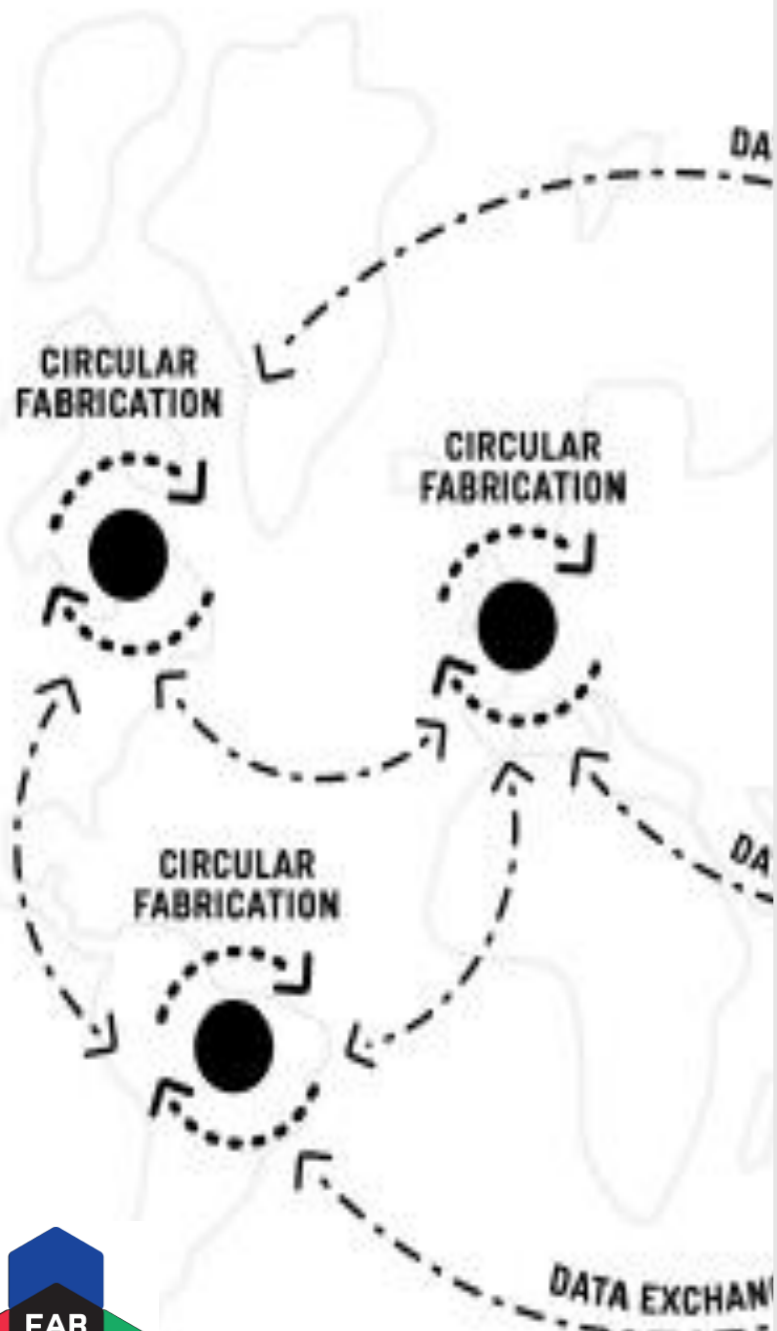


Winnipeg, Canada

The prime role of cities in ensuring Industry 4.0 will be efficient, effective and ecological

From linear to spiral production

↳ DIDO - Data in /



Barcelona
Boston
Somerville
Cambridge
Ekurhuleni
Kerala
Georgia
Shenzhen
Amsterdam
Toulouse
Occitane Region
Paris
Bhutan
Sacramento
Santiago
Detroit

FROM current linear production: raw materials & exporting waste in
to spiral innovation: materials flow globally whilst information on how things are produced circulate globally
from centralised mass production to decentralised distributed manufacturing and automation.

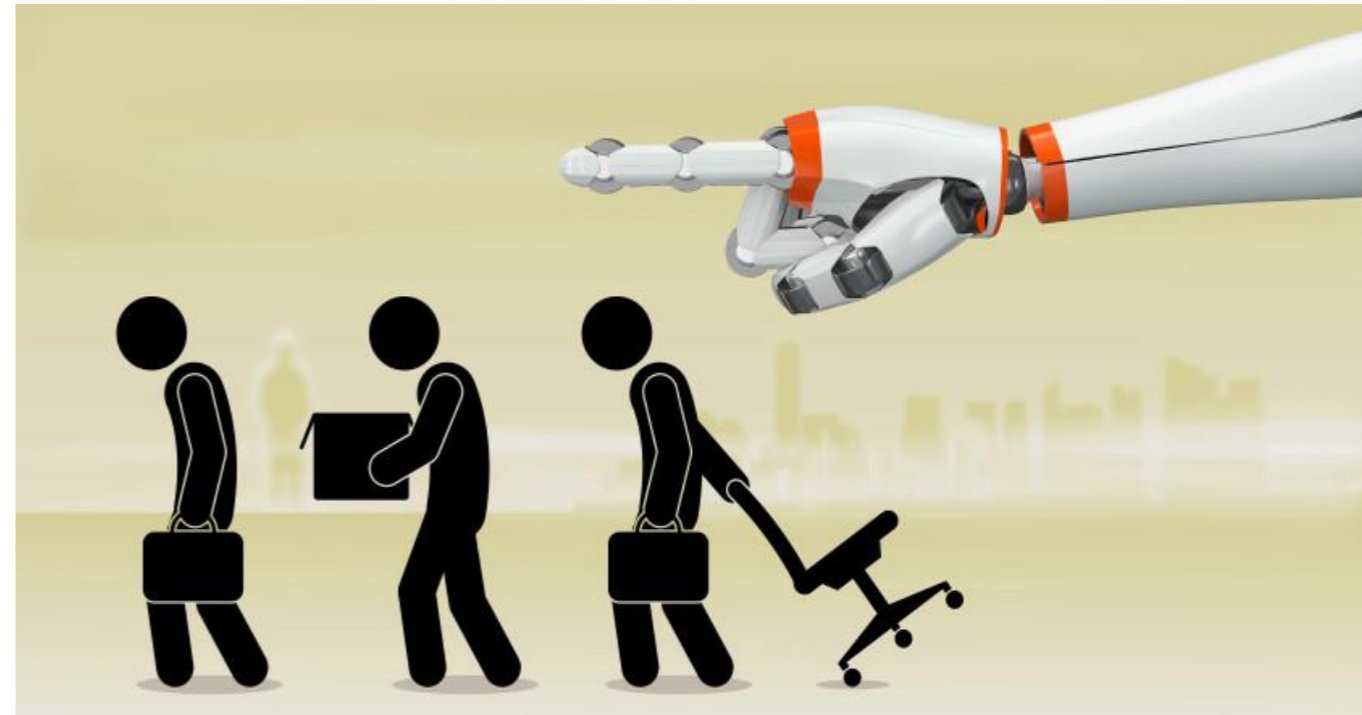
2nd & Tuesday 3rd, October 2017
Vancouver, Canada



Choices about the future of work (1)

Dystopia ?

- 47% of US jobs at risk from automation (Frey & Osborne 2013)
- Robots threatening between 40m and 75m jobs worldwide (WEF 2016)
- Fewer jobs for people to do (WEF 2016):
 - Detroit 1990: 3 biggest firms market value \$36bn, revenues \$250bn, 1.2 million workers
 - Silicon Valley 2014: market value \$1.09tn, revenues \$247bn, 137,000 workers
- Replacing not just no/low skilled workers with machines but now also managers & professionals
- A 'race to the bottom' and a growing 'precariat' as an emerging global class with no financial security, job stability or prospect of career progression.



**THE GIG
ECONOMY**

PRECARIOUS WORK

**NO
TO
ZERO
HOUR
CONTRACTS**

Choices about the future of work (2)

Utopia ?

- Machines best at routine, frequent, high-volume tasks, learning from past data – as long as this is the “right” data.
- People are (and will remain?) better at tackling new situations & problems – bring together different strands of competence, e.g. cross/open innovation, business strategy.....
- Machines can improve/support this work of managers & professionals, not replace them
- E.g. project work – but individuals must be responsible for own skills, career, etc.
- Work involving personal interaction, empathy, understanding, intuition, ‘common sense’, etc., will not be replaced but enhanced
- Much work in society needs doing, not always in a market context, so how to organise society to enable this to happen?

