



The Next Production Revolution: Implications for Government and Business

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The Next Production Revolution

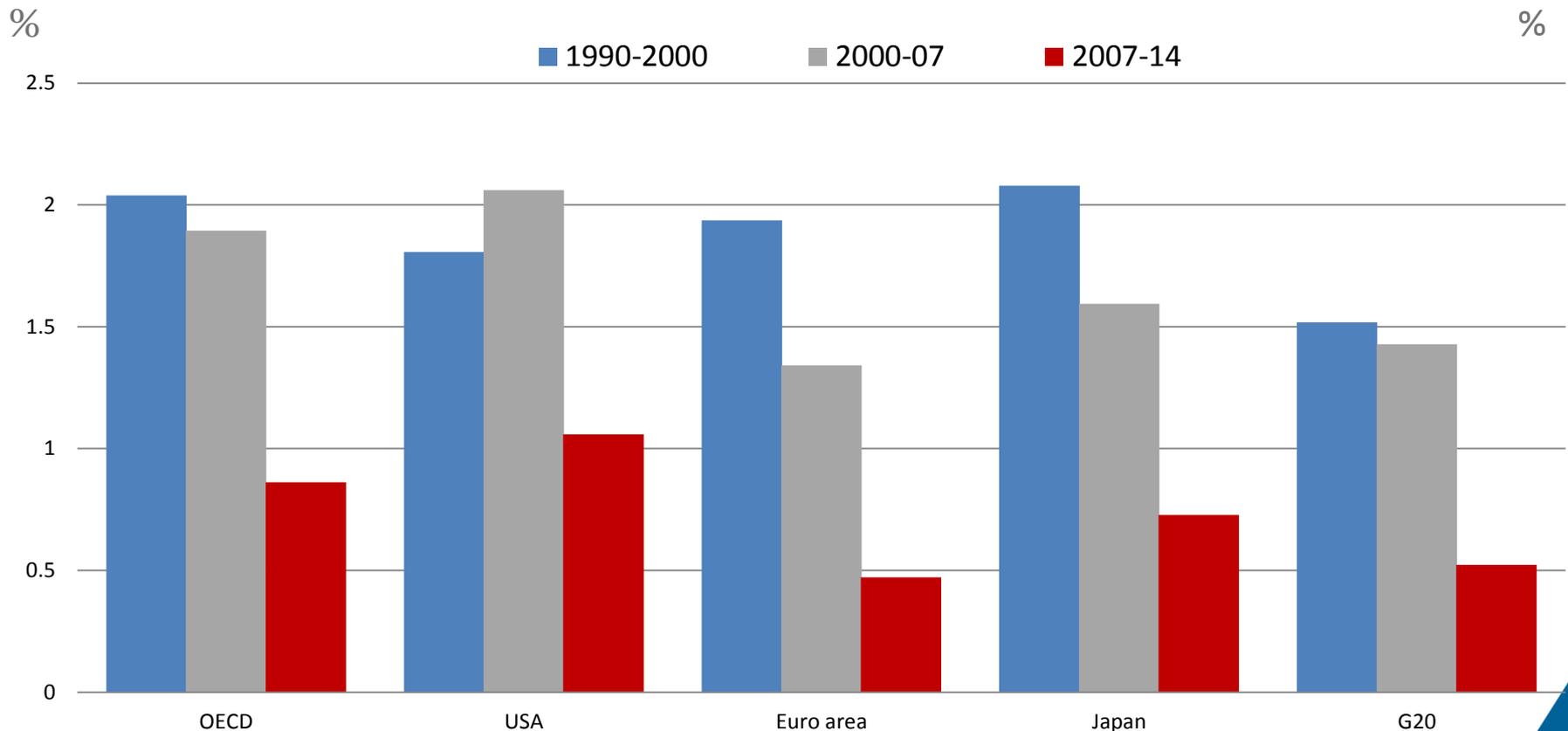
IMPLICATIONS FOR GOVERNMENTS AND BUSINESS





The potential productivity benefits of new technologies are urgently needed.

Productivity growth has declined since the 1990s
Annualised growth of labour productivity (output per hour worked)



Source: OECD estimations using OECD National Accounts database; OECD Productivity database; International Labour Organisation database. Statlink: <http://dx.doi.org/10.1787/888933367500>



Digital technology and “*servicification*” of manufacturing



has transformed its business into a service with “Power by the Hour”, where customers pay only for the time they use an engine. RR engineers oversee management of customer’s fleet.

- The IoT is used to collect data on real-time engine usage
 - > minimises RR’s operation costs (maintenance costs)
 - > maximises engines’ operation time (service revenues)

Based upon FY 2014 revenues, RR’s savings could range from USD 400 million to USD 600 million and revenues increase could be USD 1 billion annually



Using big data, cloud computing, and the IoT: the case of John Deere



JOHN DEERE

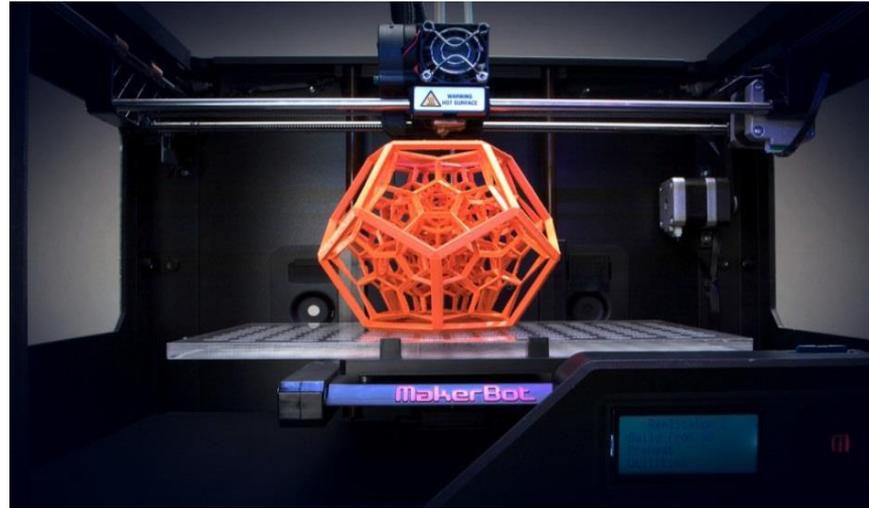
is connecting farm machines to each other and to the cloud (MyJohnDeere) via the IoT to collect and process big data

> autonomous vehicles enable a single farmer to plant and harvest up to 600 acres a day (compared to 150)

Global precision farming market now worth
~ USD 3 billion and expected to be worth
~ USD 5 billion by 2020 (CAGR: 12%)



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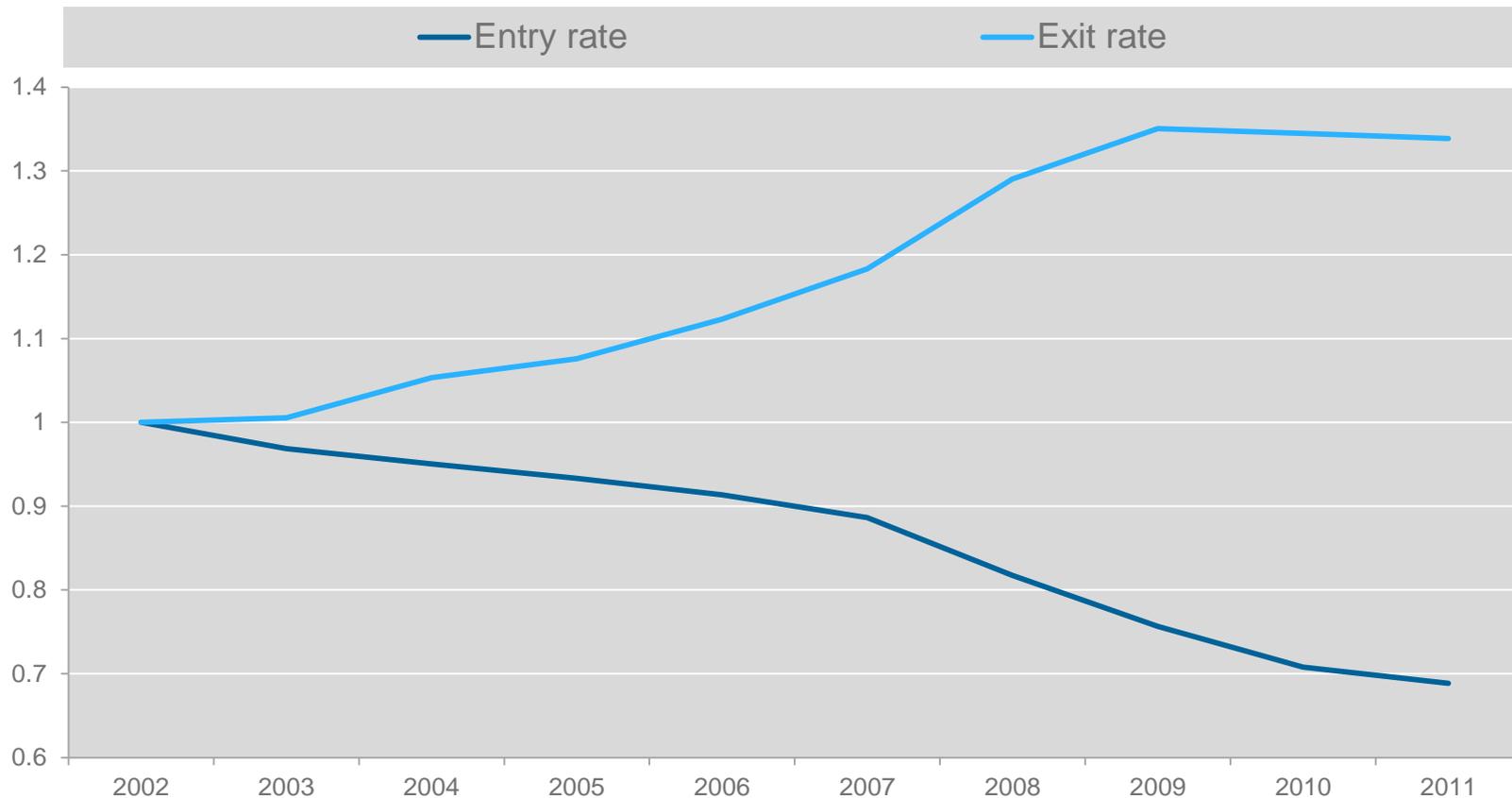
- Marketplace for 3D printable files (like Shutterstock or Fotalia, but 3D).
- Some such markets already exist, but with limitations (Thingiverse, Markerbot's marketplace, does not allow makers to monetize their designs).





Business Entry and Exit rates

Cross-country average





New forms of business organisation : 2nd industrial revolution



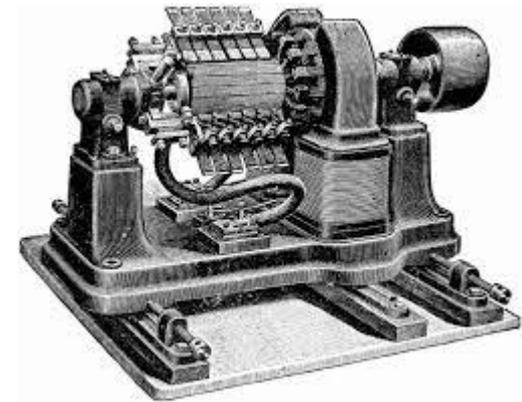
Source: David, P.A. (1990), 'The Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox', American Economic Review, Volume 80, Issue 2, pp.355-361.



New forms of business organisation : 2nd industrial revolution



*Introduction begins
in mid-1890s*



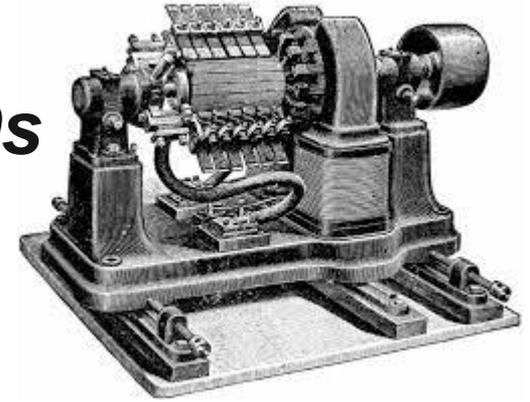
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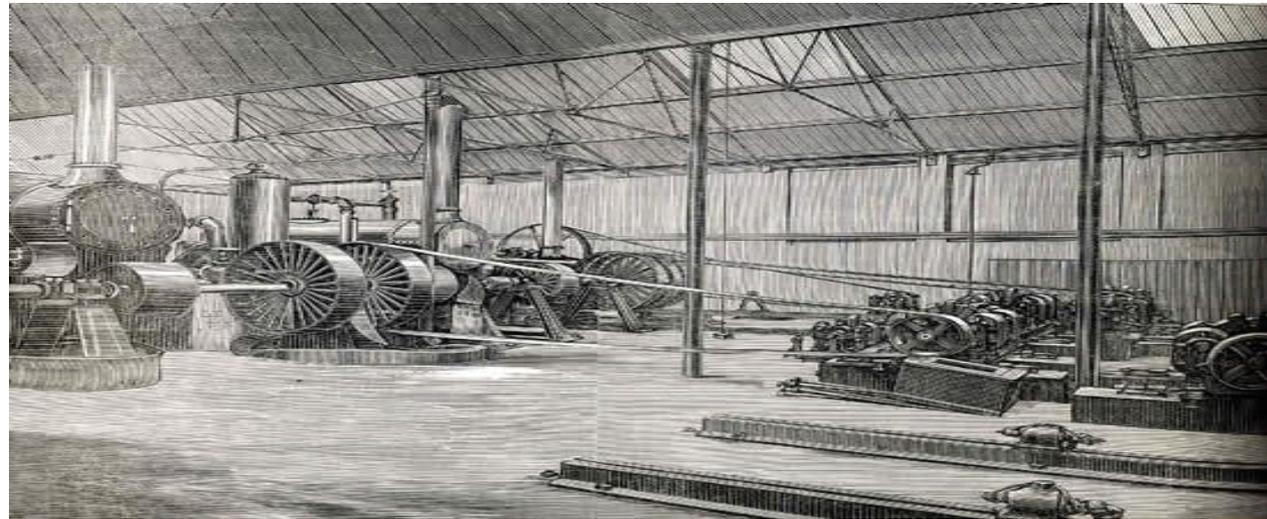
New forms of business organisation : 2nd industrial revolution



Mid-1890s



*Industrial
productivity
only rises in
early 1920s*



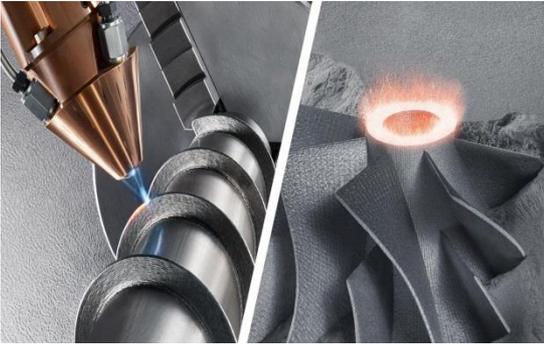


Thank you



3D printing – another aspect of strategy

Metals Additive Manufacturing (MAM)



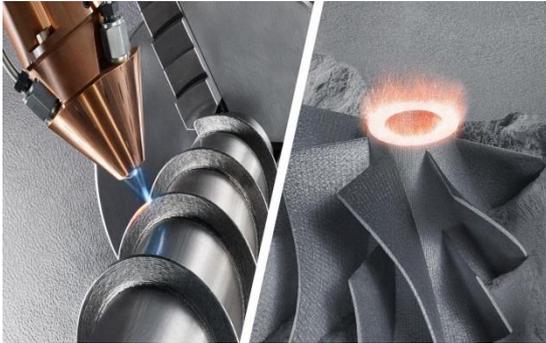
Many
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3D printing – another aspect of strategy

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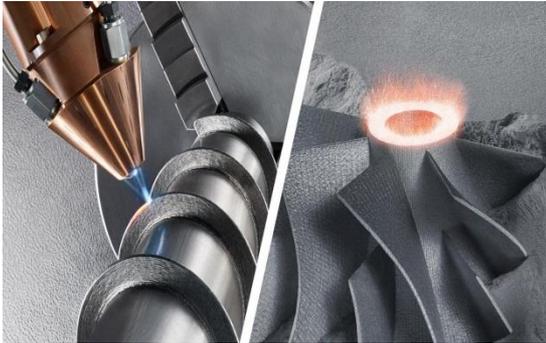


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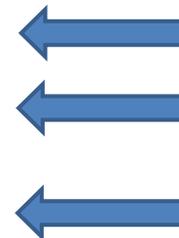
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Government can help



- Technical and institutional infrastructure (e.g. materials databases)
- Promote standards
- Forge data sharing agreements across industry, government labs and academia