DIGITALISATION AND THE FUTURE OF MANUFACTURING IN AFRICA
OVERVIEW

• Conceptualising the digital economy
• Main findings
  o New empirical evidence for low-income countries
• Opportunities and Challenges for African countries in the digital economy
• Policy-approach
WHAT IS THE DIGITAL ECONOMY?

Inputs to the digital economy

- Digital technologies
  - Cloud computing
  - Machine-to-machine learning
  - Big Data
  - Artificial intelligence and other ICT technologies

- ICT infrastructure
  - Routers
  - Cable wires
  - Broadband lines
  - Sensors
  - Satellites
  - Other ICT infrastructure

Outputs from the digital economy

- Smart platforms/applications
  - Google
  - Amazon
  - Facebook
  - Apple
  - FinTech apps
  - Others

- Digital products
  - Goods listed through e-commerce platforms
  - Electronically-transmitted products

- Smart machines
  - Phones
  - Computers
  - Robots
  - 3D printers
  - Others

Enabling environment

- Digital skills
- National innovation systems
- Policy and regulatory framework
- Digital accelerators: environmental, cultural and behavioural aspects
LOW LEVELS OF DIGITALISATION IN AFRICA

Regional share of the number of industrial robots shipped globally in 2015 (%)

- Europe: 20.7%
- Asia/Australia: 59.1%
- America: 16.5%
- Africa: 1.5%

Share in global GDP ({}: 27.6%, Asia/Australia: 50.2%, America: 23.8%, Africa: 4.8%)

Share in robots sold ({}: 22.9%, Asia/Australia: 49.5%, America: 17.3%, Africa: 4.7%)

Use of internet in Kenyan manufacturing

- Using computers: 97.1%
- With internet: 93%
- With a web presence: 54.9%
- With an IT policy: 40.9%
- Engaged in e-commerce: 40.9%
- Engaged in online selling: 27%
- Using cloud computing: 25.1%

Source: Data from International Federation of Robotics (2016).
LOWER IMPACT OF INTERNET PENETRATION IN LICs

Average impact of doubling of internet penetration on manufacturing labour productivity (%)
IMPORTANCE OF TARGETED SKILLS-DEVELOPMENT

Increase in the impact of digitalisation on manufacturing labour productivity, with one unit increase in Human Capital Index

Share of skilled employment, by level of digitalisation in Kenyan manufacturing firms

- Firms with internet, web presence and engaged in e-commerce
- Firms with internet and web presence
- Firms with internet but no web presence
- Firms with no internet and no web presence
OPPORTUNITIES FROM DIGITALISATION IN AFRICA

• Lowering costs of trade and coordination; increasing GVC participation
• Lowering costs of production and entry into the export market
• Improvements in productivity; boosting output and exports.
• Case studies; Funkidz and A-Z factory
• Re-shoring; cost of capital is rapidly falling in developed economies, while wages in developing countries are rising.
• 250,000 jobs have already been re-shored to the US since 2010.
• 126 African jobs lost per US company re-shored.
• Slow-down of convergence in growth for developing countries.
CONCLUSION

A two-pronged approach is needed in Africa;

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<th>Boost traditional manufacturing</th>
<th>Digitalise manufacturing</th>
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<td>Window of opportunity for 15-20 years</td>
<td>Invest in internet and digital technologies</td>
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<td>Build industrial capabilities to move into higher-value added manufacturing</td>
<td>Targeted skills-development; focus on STEM; private sector collaborations</td>
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<td>Address basic constraints to manufacturing; leapfrogging not possible without improving infrastructure, roads, ports etc.</td>
<td>Promotion of technological innovations, well embedded innovation hubs, and effective PPPs.</td>
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THANK YOU!

- Read the full report at: https://set.odi.org/digitalisation-manufacturing/.

- QUESTIONS TO COUNTRIES
  - How is digitalisation visible in your manufacturing sector?
  - How is the country preparing for a more digital future?
  - Which manufacturing activities are least at risk from digitalisation and can be promoted?