

**FROM SUBSISTENCE TO ROBOTS:
Could 4IR bring inclusive economic
transformation to Africa**

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Framework: Technology Adoption and Economic Transformation

Previous work followed methodologies from US/Europe

- Forecasting job gains/job losses
- Analyzing potential gains, what investments and policies were needed

Our approach – Africa need economic transformation

- Will 4IR technology solve current and urgent productivity issues in African production units?
- If so, are the conditions in place for it to be adopted? Why or why not?
 - Following lead of McGruder (2018) and Verhoogen (2021)

If adopted, what might be the future employment effects

- Analyze formal and informal sectors separately (whole private sector)

Findings – by main sectors

Agriculture - longstanding issues of risk (weather and market) and land tenure have hampered technology adoption

- Will happen with 4IR technology
- If adopted, technology should increase earnings, not have employment effects on extensive margin
- Could have positive externalities (save water, control pollution/soil degradation, etc.)

Manufacturing – robots have absolute advantage over people in many tasks

- Competitiveness concerns will push adoption; factor prices will play a small role
- Exporting depends on improved logistics
- 3D printing could reduce economies of scale in manufacturing; could benefit African designers/inventors producing for local /regional market
- Finance is an issue
- No big net job losses or gains

Findings – Service sector

Formally-supplied services - technology support productivity gains, makes exporting easier, helps create more formal jobs

- Tourism, travel, transport
- Whsle. Retail trade (e-commerce)
- Fintech has created jobs (not big direct impact)
- Maybe BPO – depends on skills

Informal service sector has longstanding constraints to technology adoption (insecure workspace, high competition, market risk)

- Platforms – some potential
- Fintech already has benefits
- Not lead to mass formalization

Issues and prediction

Infrastructure – strategies should crowd-in public financing

ICT service regulation – to ensure services are affordable

Trade policy (not a luxury good); red tape regulations (ongoing issues)

Cybersecurity

Skills – specialized skills need to be privately financed

Predictions – yes, 4IR technology could support transformation

- No large job losses; Pre-COVID trajectory change slightly; informal will be normal