JOBS, WORK AND SKILLS IN THE DIGITAL TRANSFORMATION

“Working, Earning, Learning in the Age of Intelligent Tools”
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1 Understand

How does the digital transformation change labour markets, jobs and the skills that workers need?

2 Policy

How can policies help address the challenges of the digital transformation for jobs and skills?
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Dispersion of sectors in each considered dimension of digitalisation, 2013-15

THE DIGITAL TRANSFORMATION: OF DIFFERENT SPEED, SCALE AND SCOPE

Digital penetration of sectors over time, growth rate, 2001-15

- ICT tangible investment
- Intermediate ICT goods
- Software investment
- Intermediate ICT services
- Robot use
- ICT specialists
- Online sales revenues

Agriculture, Mining, Manufacturing

Services

Source: OECD calculations based on Calvino et al. (2017)
THE DIGITAL TRANSFORMATION: 
..OF DIFFERENT SPEED, SCALE AND SCOPE

Intensity and length of ICT patent burst

Agriculture
Mining
Food
Textiles
Wood & paper
Coke & oil
Chemicals
Metals
Electrical equipment
Machinery
Transport equipments
Electricity & gas
Water & sewage
Transport & storage
Accomodation &…
Publishing & audiovisual
Telecommunications
It services
Real estate
Legal & accounting
R&D
Professional services
Admin & support services
PA & defence
Health services
Arts & entertainment
Other services

Source: OECD calculations based on Calvino et al. (2017) and Dernis et al. (2016. https://doi.org/10.1007/s10961-015-9449-0
The nature of work is changing...

Share of non-routine employment and ICT task intensity, 2012 or 2015

Non-routine employment (%)

Market service industries

Manufacturing

INDUSTRIES DIFFER IN THEIR DIGITAL AND SKILLS CONTENT...

Average skill levels in digital and non-digital industries
Cross-country averages, 31 OECD and non-OECD countries, 2012 or 2015

Source: OECD Science, Technology and Industry Scoreboard 2017; Statlink: http://dx.doi.org/10.1787/888933617453
RETURNS TO SKILLS ARE HIGHER IN DIGITAL INDUSTRIES

Additional labour market returns to skills in digital-intensive industries, 2012 or 2015

Source: OECD Science, Technology and Industry Scoreboard 2017, Statlink: http://dx.doi.org/10.1787/888933617472
SKILLS BUNDLES ARE HIGHLY REWARDED

RETURNS TO MANAGEMENT AND COMMUNICATION SKILLS, BY COUNTRY

“PREMIUM” IN ICT INTENSIVE JOBS

AVERAGE RETURNS TO MANAGEMENT AND COMMUNICATION SKILLS

Source: OECD Science, Technology and Industry Scoreboard 2017, Statlink: http://dx.doi.org/10.1787/888933618669
AUTOMATION PUTS SOME WORKERS AT RISK

RISK OF AUTOMATION: WHAT DO WE KNOW?
ROUTINE WORKERS ARE MORE AT RISK

Source: Marcolin et al. (2016a), http://dx.doi.org/10.1787/5jm0mq86fljg-en
ROUTINE WORKERS ARE MORE AT RISK

if automation and routine content are correlated
ROUTINE WORKERS ARE MORE AT RISK…

Source: Marcolin et al. (2016a), http://dx.doi.org/10.1787/5jm0mq86fljg-en
Although technology may act both ways,

+100

Source: OECD calculations based on Marcolin et al. (2016b). [http://dx.doi.org/10.1787/18151965]
EVALUATING DISTANCES IN TERMS OF SKILLS BETWEEN OCCUPATIONS TO BETTER DESIGN/TARGET TRAINING POLICIES
1 Understand

- Map distances in skill endowment across occupations;
- Identify skill-related improvements needed to transit across jobs.

2 Policy

- Identify and define VET, training and long-term education policies facilitating transition.
How is training associated with skills, gender and routine task intensity?

- Probability of training if worker is female
- Duration of training if worker is female
- Difference if worker is male

THANK YOU

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