THE FUTURE OF WORK AND SKILLS

Joakim Wernberg
Associate professor in Technology and Society, Head of SoeTech, Lund University
Research Director, Digitalisation and Tech Policy, Swedish Entrepreneurship Forum
AGENDA

• WHAT AI IS (AND ISN’T)
• AI AND WORK
• FUTURE SKILL NEEDS
FIRST: WHAT AI IS NOT

• AI is not separate from digitalisation
  Compute, data-generating networks, and software
  (General Purpose Technology)

• AI is not one thing, but an umbrella term (in motion)
  (Machine learning)

• Impact of AI does not depend on the supply-side only

• AI is ≠ human intelligence
  (Intelligence not one-dimensional)
PINNING AI DOWN

• Attempt:

   Machines that can **perform tasks** which usually require human intelligence

• But AI and humans conduct **different work performing the same task** (AI ≠ human intelligence)
PINNING AI DOWN

• Attempt #1

Machines that can **perform tasks** which usually require human intelligence

• But AI and humans conduct **different** work performing the **same** task (AI not = human intelligence)

• Attempt #2

Machines that **conduct analytical work**
<table>
<thead>
<tr>
<th>Narrow AI</th>
<th>AGI</th>
<th>Superintelligence</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI today</td>
<td>Goal of current AI-development</td>
<td>Vision</td>
</tr>
<tr>
<td>”Smart” within narrow domain</td>
<td>Can be generalised from one task to others without reconfiguration</td>
<td>Generalised to all types of tasks, improves itself and has agency comparable to a human</td>
</tr>
</tbody>
</table>
AI AND WORK
AI AND WORK

- Jobs destroyed \(<=\) work reorganised

47%
AI AND WORK

- Jobs destroyed <= work reorganised
AI AND WORK

- Jobs destroyed $\iff$ work reorganised
- **Routineisation** hypothesis
AI AND WORK

- Jobs destroyed $<=>$ work reorganised
- Routinisation hypothesis
- Job polarisation

Figur 2: Jobbpolarisering i Europa

AI AND WORK

- Jobs destroyed <= work reorganised
- Routinisation hypothesis
- Job polarisation
- Comparative advantages: Centaurs
AI AND WORK

- Jobs destroyed ↔ work reorganised
- Routinisation hypothesis
- Job polarisation
- Comparative advantages: Centaurs
- Not just technology adoption, but organisational adaptation
SKILLS FOR WORKING WITH MACHINES IN NEW WAYS
FUTURE SKILLS DEMAND AND SUPPLY

- Cognitive demand increases (on the margin)
  From knowledge to (lifelong) learning
FUTURE SKILLS
DEMAND AND SUPPLY

- Cognitive demand increases (on the margin)
  From knowledge to (lifelong) learning

- Expert professions challenged
FUTURE SKILLS
DEMAND AND SUPPLY

- Cognitive demand increases (on the margin)
  From knowledge to (lifelong) learning

- Expert professions challenged:

- Three skill categories:
  - Technical expertise
  - General (user) skills
  - Complementary (non-tech) skills
Cognitive demand increases (on the margin)
From knowledge to (lifelong) learning

Expert professions challenged:

Three skill categories:
- Technical expertise
- General (user) skills
- Compelementary (non-tech) skills

Challenge to educational system
- Skill bias / task bias
- New actors and wider ecosystem

FUTURE SKILLS
DEMAND AND SUPPLY

Tacit knowledge
(Non-routine)
Practical
(Manual)
Theoretical
(Analytical)
Codifiable knowledge
(Routine)
FUTURE SKILLS DEMAND AND SUPPLY

• Cognitive demand increases (on the margin)
  From knowledge to (lifelong) learning

• Expert professions challenged:

• Three skill categories:
  • Technical expertise
  • General (user) skills
  • Compelementary (non-tech) skills

• Challenge to educational system
  • Skill bias / task bias
  • New actors and wider ecosystem
SUMMARY

• Shift from artificial intelligence to cognitive/analytical work

• Jobs destroyed <= Work reorganised

• Difference between technology adoption (known cost) and organisational adaption (unknown cost)

• Lower share of routine-based work life-long learning

• Technical expertise – General (user) skills – Complementary (non-tech) skills

• Challenge to educational system, more of the same no enough
FURTHER READING: (SHAMELESS SELF-PROMOTION)
Bergh & Wernberg

Funderingar om teknik, ekonomi och framtid

Funderingar kring samtid och framtid med välfärdsforskaren och ekonomen Andreas Bergh och Joakim Wernberg som forskar om digitalisering och växelverkan mellan teknik och ekonomi. Andreas Bergh är verksam vid Institutet för ...More  

SUBSCRIBE
THANK YOU FOR YOUR ATTENTION!

Joakim Wernberg
joakim.wernberg@lth.lu.se