THE FUTURE OF WORK
The previous paradigm driving the Jobs Agenda

Employment and GDP Correlation
(LICs and LMICs)
PRO-GROWTH APPROACH IGNORES EXTERNALITIES LINKED TO JOBS CREATION

Private investments that would be socially efficient do not take place

Private Rate of Return ≠ Social Rate of Return
How the Labor Force Looks Today

Working Age Population = 4.87 B

Inactive
29% (1.42 B)

260 M Youth are Out of School and Out of Work

Active
71% (3.41 B)

Self-Employment 65%

Formal Wage Employment 15%

Informal Wage Employment 20%

Youth Unemployment = 2.4 x unemployment rate
Technology is an engine of growth

Source – World Bank, Trouble in the making (2017)
But, also a source of disruption

Technological disruptions imply a significant **reallocation of employment between activities**
# Impact on labour markets

## Interactions between technology and skills at work

<table>
<thead>
<tr>
<th>Ease of automation (Technology is labour saving)</th>
<th>Ease of Complementarity (Technology is labour-augmenting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (routine tasks)</td>
<td>High (tasks intensive in cognitive, analytical and socio-emotional skills)</td>
</tr>
<tr>
<td>Low (non-routine tasks)</td>
<td>Low (tasks intensive in manual skills)</td>
</tr>
<tr>
<td>High</td>
<td>Quadrant 1: Bookkeepers, Proofreaders, Clerks</td>
</tr>
<tr>
<td>Low</td>
<td>Quadrant 2: Machine Operators, Cashiers, Typists</td>
</tr>
<tr>
<td>Quadrant 3: Cleaners, Hairdressers, Street Vendors</td>
<td>Quadrant 4: Researchers, Teachers, Managers</td>
</tr>
</tbody>
</table>


## Job Polarization

### Changes in share of total employment by skill level, 1995-2015

![Job Polarization Chart](chart.png)

Source: OECD Employment Outlook (2017)
The interaction of big data, machine learning and artificial intelligence are now enabling both non-routine cognitive and manual tasks to be automated.

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Occupation-based approach (FO Methodology)</th>
<th>Task-based approach</th>
<th>Estimates of share of jobs at risk of automation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frey and Osborne (2013)</td>
<td>United States</td>
<td>✔</td>
<td></td>
<td>47%</td>
</tr>
<tr>
<td>Brzeski and Burk (2015)</td>
<td>Germany</td>
<td>✔</td>
<td></td>
<td>59%</td>
</tr>
<tr>
<td>Citi GPS and Oxford Martin School (2016)</td>
<td>China</td>
<td>✔</td>
<td></td>
<td>77%</td>
</tr>
<tr>
<td>Citi GPS and Oxford Martin School (2016)</td>
<td>India</td>
<td>✔ (using World Bank data)</td>
<td></td>
<td>69%</td>
</tr>
<tr>
<td>OECD (2016)</td>
<td>United States</td>
<td>✔</td>
<td></td>
<td>9%</td>
</tr>
<tr>
<td>OECD (2016)</td>
<td>Korea</td>
<td>✔</td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>OECD (2016)</td>
<td>Germany and Austria</td>
<td>✔</td>
<td></td>
<td>12%</td>
</tr>
</tbody>
</table>
Diffusion of Technology varies between and within countries

- Do different countries require separate responses to deal with the challenge?
- How can we facilitate global cooperation and coordination to lay the foundation for an automated future which is productive and inclusive?

Source: International Federation of Robotics (2016)
Policy Responses

Education & Skill Development
- Educational institutions must reduce current levels of skill-mismatch
- Stronger linkages between universities, employers and vocational institutes must be fostered
- Curricula must be more forward-looking

Labour Regulations
- Must account for and anticipate a changed labour landscape
- Allow extension of social security benefits to workers in non standard forms of employment, possibly by reducing eligibility thresholds

Social Safety Nets
- Social safety nets enhance workers ability to deal with disruption, and must be maintained and strengthened
- The aim should be to protect people not jobs, since regulation would be unable to keep up with the pace of change of the latter

Taxation
- Public spending will play an important role in managing the 4th Industrial Revolution
- Expanding the tax base in a progressive manner and curbing Base Erosion and Profit Shifting (BEPS) Activities must be a priority for all governments

Competition Policy
- Recent trends point to innovation and market power being concentrated in the hands of a few “superstar” firms
- Less competitive markets dampen innovation and productivity, ultimately harming the potential that technology holds for doing good
- Competition policy, therefore, must enforce norms of fair competition, and prepare for doing so in markets that are in constant churn
The Rise of Informality in India

- The informal sector is the biggest job creator, followed at distant second by the government (30.5 million) and private sector 19.2 million.
- There is also a glaring gender gap in India’s labour force, with the labour force participation of women being among the lowest in the world (23.7% LFPR as reported by the 5th EUS, 2015-16)
The demographic profile

Source: United Nations Population Division, 2017
Challenges and Opportunities for India

- Challenge of job creation exacerbated:
  *Will manufacturing be a less accessible pathway for growth and development?*
  *Will reconfiguration of GVCs reverse the importance and length of GVCs and reorient global trade and production back towards advanced countries*

- Impact on informal economy complex

But, also opportunities ahead...

- Technology can improve delivery of public services and expand access to new opportunities—including programs targeting those who are displaced or vulnerable.
- While there is a risk that manufacturing may be a less accessible pathway for low-income countries to develop, there are also opportunities to “leapfrog” the traditional development path.

![Employment Distribution by Skills](chart)

Source – ILOSTAT
Thank You!

For questions or clarifications please reach out at rkathuria@icrier.res.in