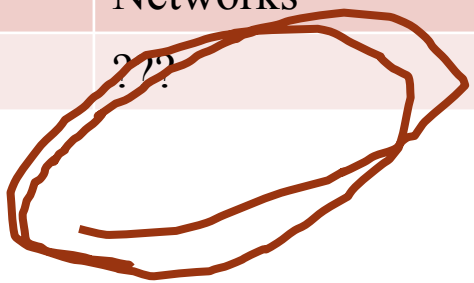
MODULE 1: POST-WORK FUTURES

SHAPING 4IR

	Technological Revolutions	Social Revolutions
1st Industrial Revolution	Coal/ Steam + Clock Time	Centralization of labour, Capitalism
2nd Industrial Revolution	Oil + Assembly Line	Secularization, functional differentiation/ specialization
3rd Industrial Revolution	Silicon chips	Networks
4th Industrial Revolution	Automation	???



Module 1: Post-Work Futures

THIS TIME IS DIFFERENT!

- https://www.youtube.com/watch?reload=9&v=7Pq-S557XQU&t

WHY TECHNOLOGY?

- Efficiency, Productivity, increases accuracy – Economic advantage
- Lifestyle: Technology makes things easier (by diminishing repetitive and arduous tasks), Social class
- More working time

HOW DOES TECHNOLOGY IMPACT WORK/LABOUR?

- Simplifies work

- Frees up labour force to do more skilled work

ARE THERE NON-DETERMINIST VERSIONS OF THIS STORY? WHAT CAN WE LEARN FROM EARLIER INDUSTRIALIZATIONS?

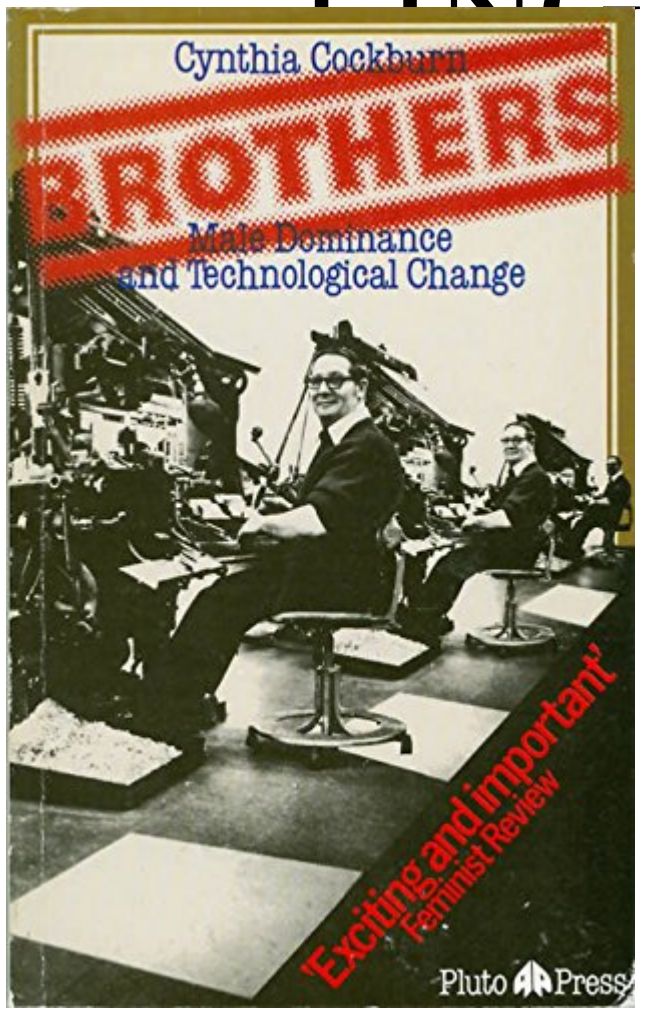
DELIBERATE CHOICES

- At Cyrus McCormick's reaper manufacturing plant in Chicago in the middle 1880s, pneumatic molding machines, a new and largely untested innovation, were added to the foundry at an estimated cost of $500,000.
- But historian Robert Ozanne has shown why the development must be seen in a broader context. At the time, Cyrus McCormick II was engaged in a battle with the National Union of Iron Molders.
- He saw the addition of the new machines as a way to 'weed out the bad element among the men,' namely, the skilled workers who had organized the union local in Chicago.
- The new machines, manned by unskilled labor, actually produced inferior castings at a higher cost than the earlier process.
- After three years of use the machines were, in fact, abandoned, but by that time they had served their purpose: the destruction of the union.
- Thus, the story of these technical developments at the McCormick factory cannot be understood adequately outside the record of workers' attempts to organize, police repression of the labor movement in Chicago during that period, and the events surrounding the bombing at Haymarket Square.
- Technological history and American political history were at that moment deeply intertwined.

Source: Winner, Langdon. "Do Artifacts Have Politics?" in McKenzie, Donald and Judy Wajcman eds. *Social Shaping of Technology: Or How the Refrigerator got its Hum*. Milton Keynes: Open University Press. 1985. p. 29

DESKIL LING

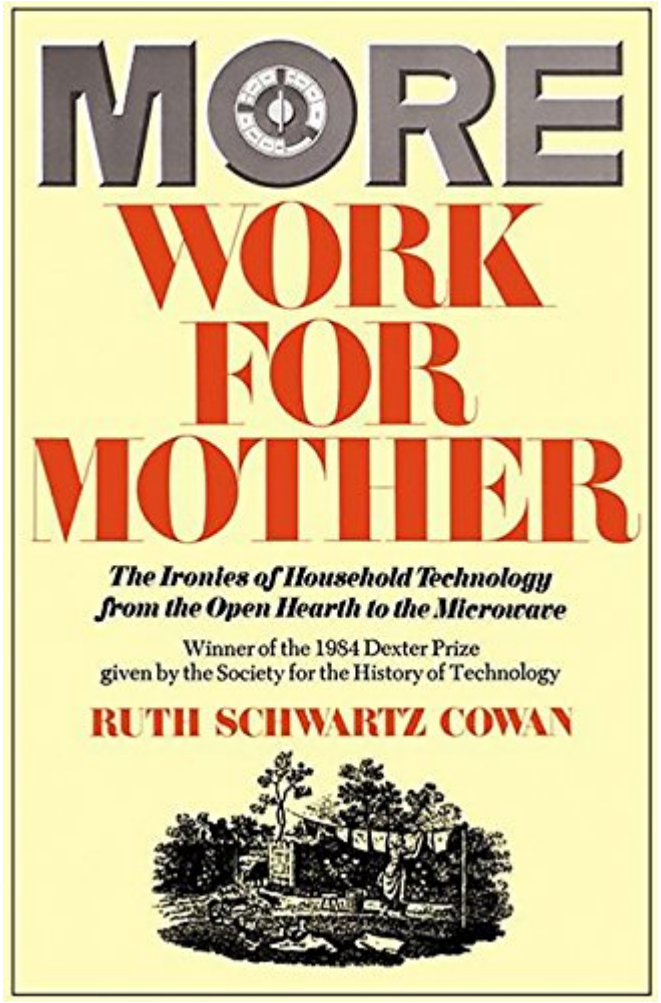
- London's Fleet Street compositors, an exclusively male trade with strong craft traditions of control over the labor process.
- A detailed description of the technological evolution from the Linotype system to electronic photocomposition shows how the design of the new typesetting technology reflected gender issues.
- The new computerized system was designed using the keyboard of a conventional typewriter rather than the compositor's traditional, and very different, keyboard.
- Not inevitable: Electronic circuitry is in fact perfectly capable of producing a Linotype lay on the new-style board.
- In choosing to dispense with the Linotype layout, management were choosing a system that would undermine the skill and power basis of the compositors, and reduce them at a stroke to "mere" typists.
- This would render typists (mainly women) and compositors (men) equal competitors for the new machines; indeed, it would advantage the women typists. The keyboard on the new printing technology was designed with an eye to using the relatively cheap and abundant labor of female typists.



Excerpted from: Wajcman, Judy (1995). “Feminist Theories of Technology.” in Jasanoff, S. et.al. (eds.) *Handbook of Science and Technology Studies*. Thousan Oaks, CA: Sage. pp. 192-93

DOMESTIC TECHNOLOGIES

- Industrial Revolution at home
  - Domestic work neglected even though it is more characteristic of our everyday lives than blue or white collar work
- Details of housework have changed but haven't lessened the labour
- Gendered and often maternalized in the figure of the "housewife"
- Rising expectations from housewives, especially in relation to notions of hygiene and mothering while also displacing domestic help
- Spin-off from military technologies, since no measure of "productivity" in household work
- Centered around individual, private households rather than communal living



ALTERNATIVES

- Changing design of houses and neighborhoods
- Self-cleaning houses (Frances Gabe)
- Humanist technology

CAPITALISM

- Braverman (1974), Labour Process Theory (Labor and Monopoly Capital. Free Press: New York)
  - Critique of "Scientific Management" (Taylor)
  - Management "steals" worker skills
  - Makes work less pleasurable for workers because of loss of control over their skills (through technology)
  - Reducing wages to those of unskilled workers

- This is a gendered process

TECHNOLOGY

Managerial perspective

- Productivity
- Efficiency
- Commitment to the “bottom line”

Labour perspective

- Greater Control and Surveillance
- Deskilling/ Alienation
- Hierarchical

Gender perspective

- Domestic labour is discounted
- Centered around private, individual “housewives” (rather than more “effiecient” ways of organizing domestic work)

TECHNOLOGY EMBEDDED IN PARTICULAR POLITICAL-ECONOMIC SYSTEMS

4IR IN INDIA

- Global narrative: Large-scale automation and unemployment

- How will this intersect with local political, economic, and cultural contexts?

DUAL ECONOMY

- 3IR still unfolding
  - 300 million without electricity, 35% without internet

- Two distinctive features of India's structural transformation post 1990s
  - Disconnect between GDP growth and employment
  - Move from agriculture to service sector economy without much expansion of manufacturing
    - Service sector constitutes ~65% of the GDP but only contributes 25% to employment

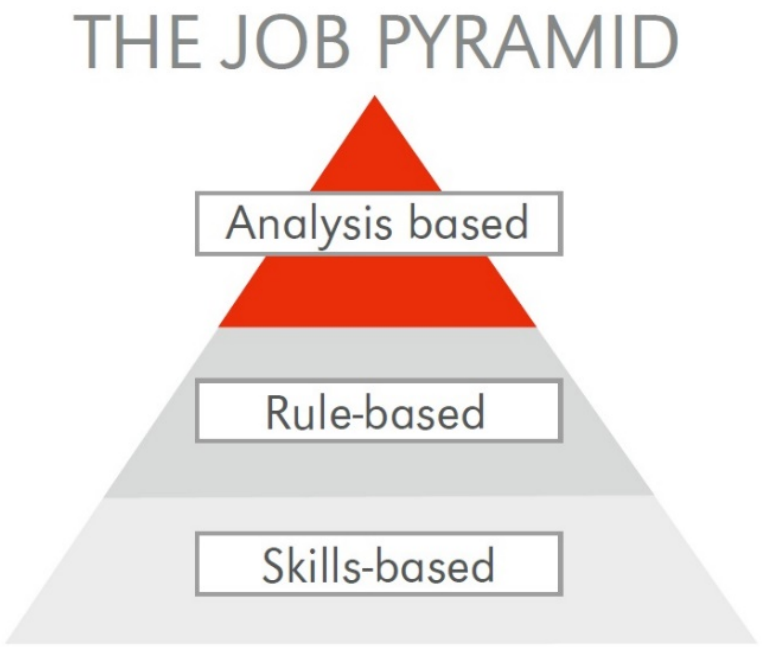
- >80% of India's labour-force works in the *informal* (or unorganized) economy
- <2 mn jobs created annually, >8 mn people join the workforce
- Unlike the rest of the world, women's participation is declining

Source: Tandem Research. 2018. ***Emerging Technologies & the Future of Work in India.*** Goa: Tandem Research.

4IR IN INDIA

- Under such conditions, what is likely to happen to
  - Workforce participation?
  - Employment conditions?
  - Labour inequities?

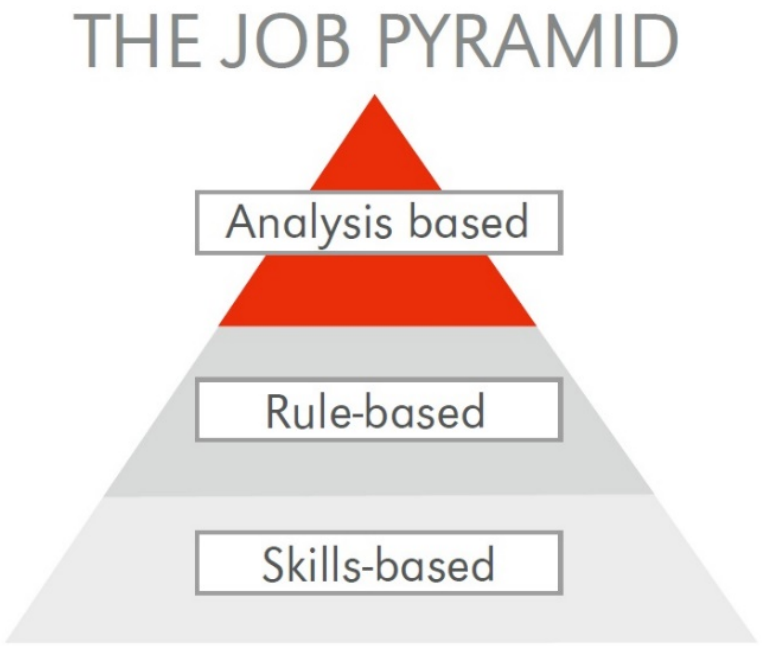
AUTOMATION & DISPLACEMENT



Adapted from FICCI, Future of Jobs and its Implications on Indian Higher Education, The Federation of Indian Chambers of Commerce and Industry, November, 2016

- High automation potential of routine tasks will reduce labor mobility
  - Automation potential vs. Automation adoption
- Adoption in organized manufacturing & services will be in niches
- Construction & agriculture will experience incremental mechanization
- Unorganized sector will benefit from micro-technology
  - E.g. digital banking

AUTOMATION & DISPLACEMENT



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- Hollowing out of the middle (rule-based jobs) rather than overall hollowing out
- Decrease in social mobility

EMPLOYMENT CONDITIONS

- Growth in the "platform economy" will reorganize informality
  - New opportunities for micro-entrepreneurship
  - Need for technical and entrepreneurial/soft-skills

- Increasing contractual work within the organized sector
  - More opportunities for "gig" workers, especially in urban settings
  - Greater formalization of work and employment conditions (but this is reflective of poor working conditions in the informal sector)
  - Rapid changes in tech landscapes will create unpredictability and variability in demands for skills

- Increasing shift from wage employment to self-employment
  - Beneficial to those who have the necessary financial and social capital
  - For others, loss of social protections

INEQUITIES IN LABOR MARKETS

LITERACY LEVELS AS A PERCENTAGE OF POPULATION [139]

MEN	80.89%
WOMEN	64.64 %
SCHEDULED CASTES, MEN	75.17 %
SC, WOMEN	56.46 %
SCHEDULED TRIBES, MEN	68.53 %
ST WOMEN	49.53 %
MUSLIM MEN	62.41 %
MUSLIM WOMEN	51.9%

PERCENTAGE OF PEOPLE BELOW POVERTY LINE [140]

CATEGORY	NATIONAL AVERAGE	SCHEDULED CASTES	SCHEDULED TRIBES	MUSLIM BACKWARD COMMUNITIES
BPL PEOPLE IN URBAN AREAS	13.7 %	21.8 %	27.3 %	26.5 %
BPL PEOPLE IN RURAL AREAS	25.7%	33.8 %	44.8 %	30.8 %

- Gender inequities will persist, even as women avail new opportunities
- Marginalized communities will be further marginalized

THE CHALLENGE

- In the next decade or so, 4IR not disruptive in the same way: no massive unemployment because of automation; effects will be felt in niches
  - Existing work flows and practices will have to be adapted

- The challenge is to find decent work opportunities
  - Growth is some professions: e.g. Cybersecurity, Data Analysis, etc., but available to those with the technical skills
  - Technology trends will intensify macro-trends around informalization
  - Social and political ramifications of having an aspirational youth unable to cross various boundaries: formal/informal, urban/rural, skilled/ unskilled, high-caste/low-caste

PORTFOLIO OF STRATEGIES

- Labor protection strategies
  - New ways of delivering social protection
  - Using digital space as a resource: information sharing, collective bargaining, grievance redressal
- Redistributive strategies
  - Redirecting the benefits of technological growth
    - universal social security, basic income, robot tax, labour subsidies
- Coping strategies
  - Skilling initiative: Digital, Interpersonal, Learnability, …
- Technology strategies
  - Incentivizing, incubating certain technologies while discouraging others
  - Not purely market-based, but have to be directed through innovation etc. policies