Workshop on Smart Grid Technologies and Implications for Inclusive Development in Sri Lanka

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Session 8: The smart grid, the smart workforce & capacity development -- meeting the challenges

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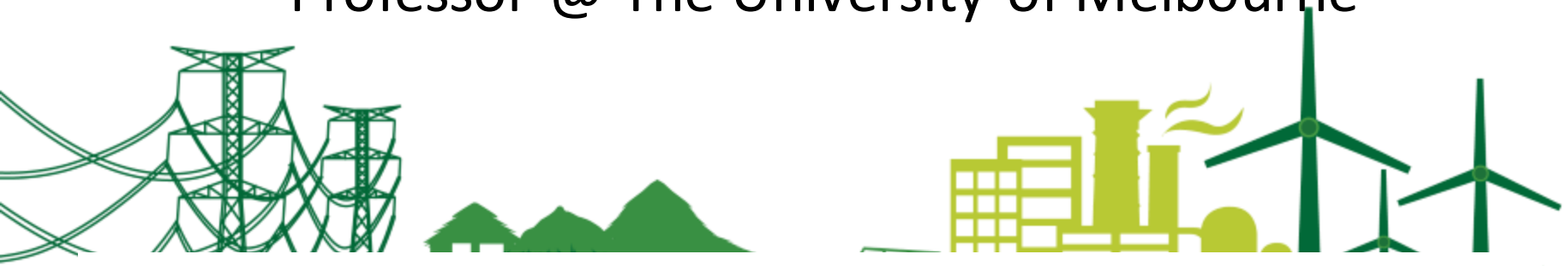


The future grid's skill challenges

- The electricity grid is increasing in complexity
  - **Future: More spatial diversity in generation & demand**
    Classic: Demand only is distributed
  - **Future: More variety in demand and supply classes**
    Classic: household, commercial, industrial, thermal power
  - **Future: More time uncertainty in supply**
    Classic: continuous, dispatched power generation

To serve this we need

a) better trained and more diversity in skills

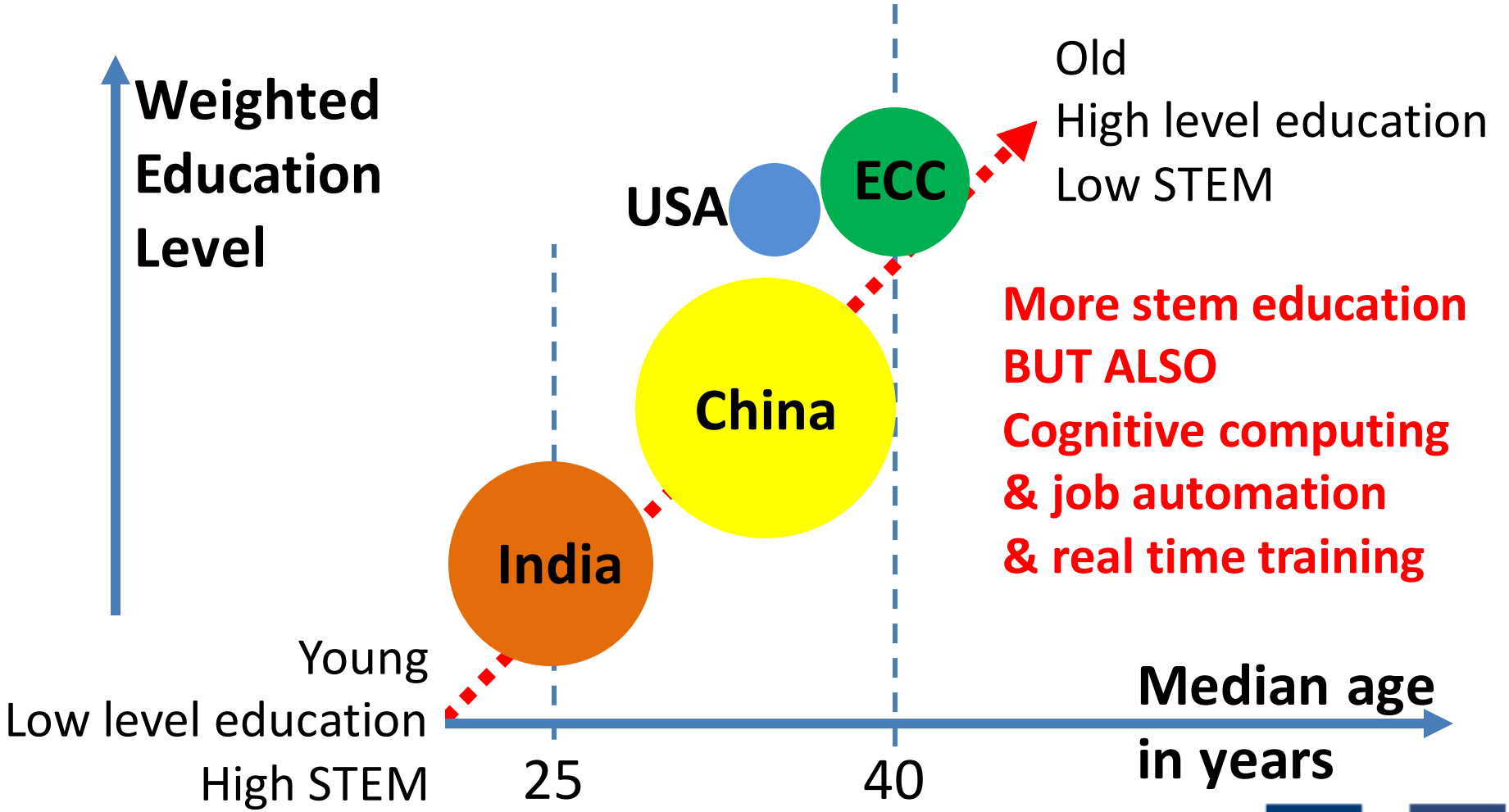
b) New management, regulation, governance

Future skills & work force changes

- A new workforce across management, engineers to maintenance and sales agents e.g.
  - **Network design** requires a new engineering approach & power engineering courses are being re-written (**MSE**)
  - **Maintenance & recycling** (distributed, smaller scale, different life cycle, some of which is unknown)
  - **Regulator, market, operator, aggregator** (more diversity, more dynamics, higher complexity, more complex scenarios)

- **More and better trained people that are more effective, and with greater interpersonal skills *or AI assisted skills***

Labour market, median age, education level



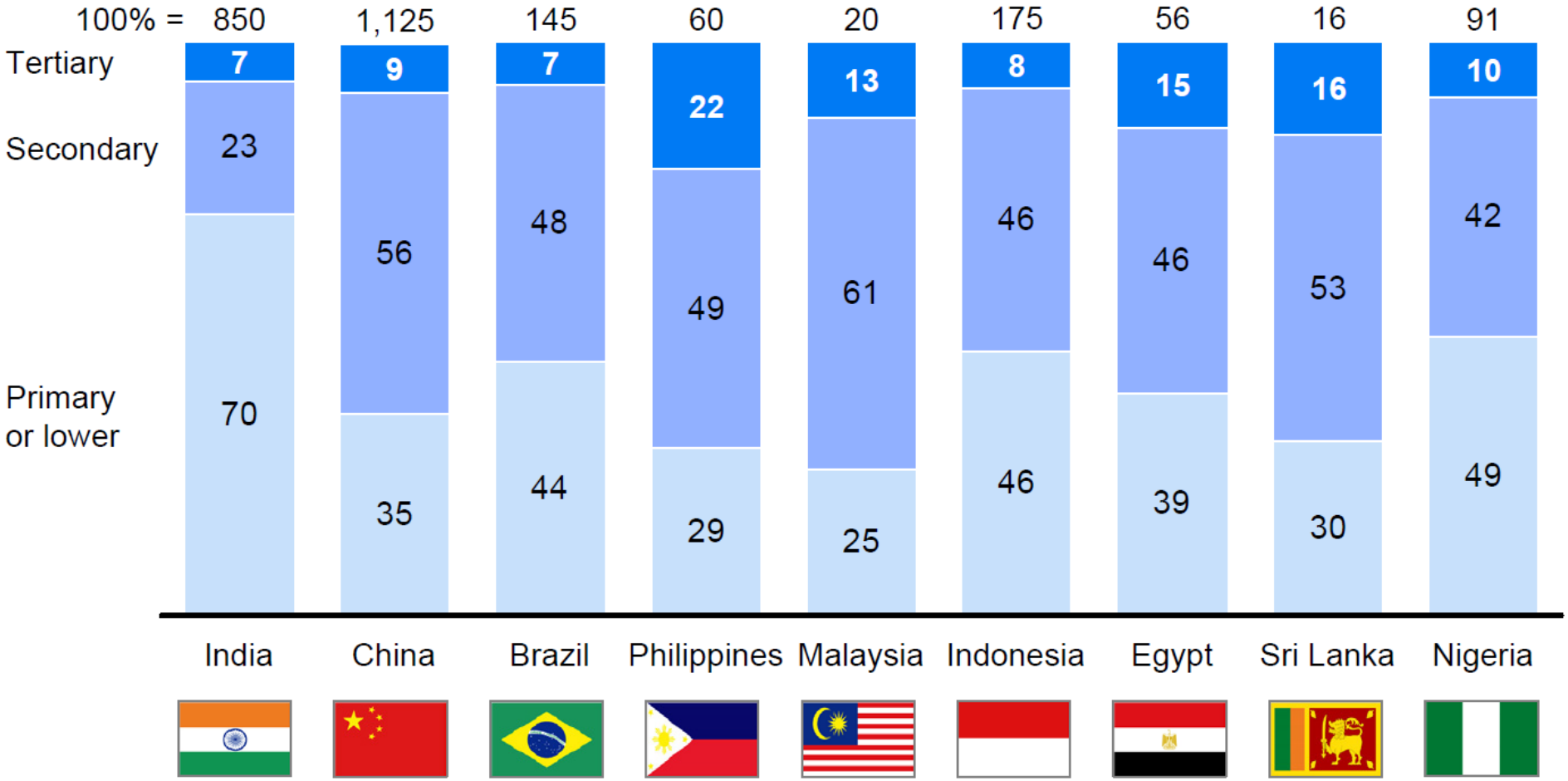
Derived from McKinsey's

India has significantly more workers with only primary schooling or less and far fewer with secondary education than other developing economies

Educational attainment, 2010

% of working age population; million people

Gender issues are hidden here



NOTE: Numbers may not sum due to rounding.

SOURCE: United Nations Population Division (2010 revision); IIASA; ILO; local statistics for India and China; McKinsey Global Institute analysis

Gender diversity?

- STEM skills are in high demand and demand will grow with "complexity of engineering" (= decentralized, distributed, networked, uncertainty) **CANNOT LEAVE ANYONE BEHIND**

- 84% of STEM bachelor students in advanced economies are male AND 12% reduction in women participating in STEM since 1991
- Only 10% of patents have female inventors listed
- 40% more patents from gender diverse teams than single gender teams (for same effort)
- 40% more citations per patent from gender diverse compared to single gender authored patents
- **Brazil** is the country with the best STEM gender balanced workforce
- **In engineering & design gender diversity leads to more wholistic solutions with less bias**