The Sustainable Development Goals:
The Technology Imperative

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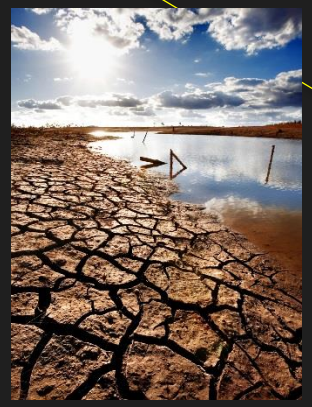
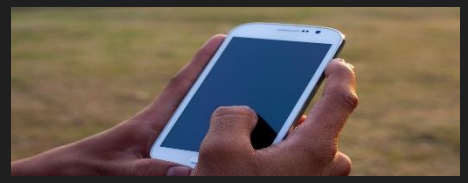
UNCTAD – Trade and Development Board
June 2018

Human rights



Climate change & environmental damage

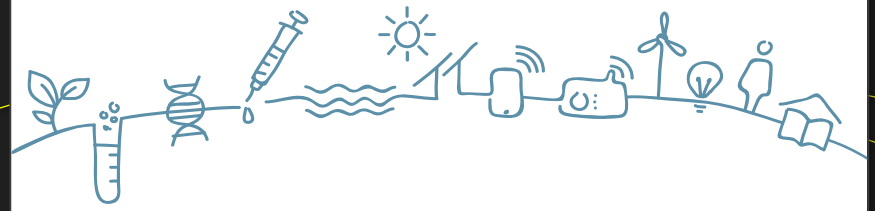
Gender equity



Digital inclusion

50 BREAKTHROUGHS

Critical scientific and technological advances needed for sustainable global development



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Editor I Urvashi J Kumar

2015

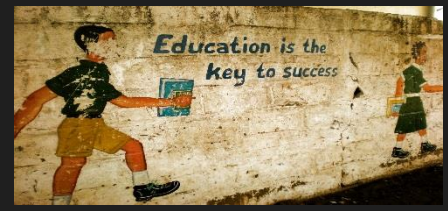
ITT INSTITUTE FOR TRANSFORMATIVE TECHNOLOGIES

Health

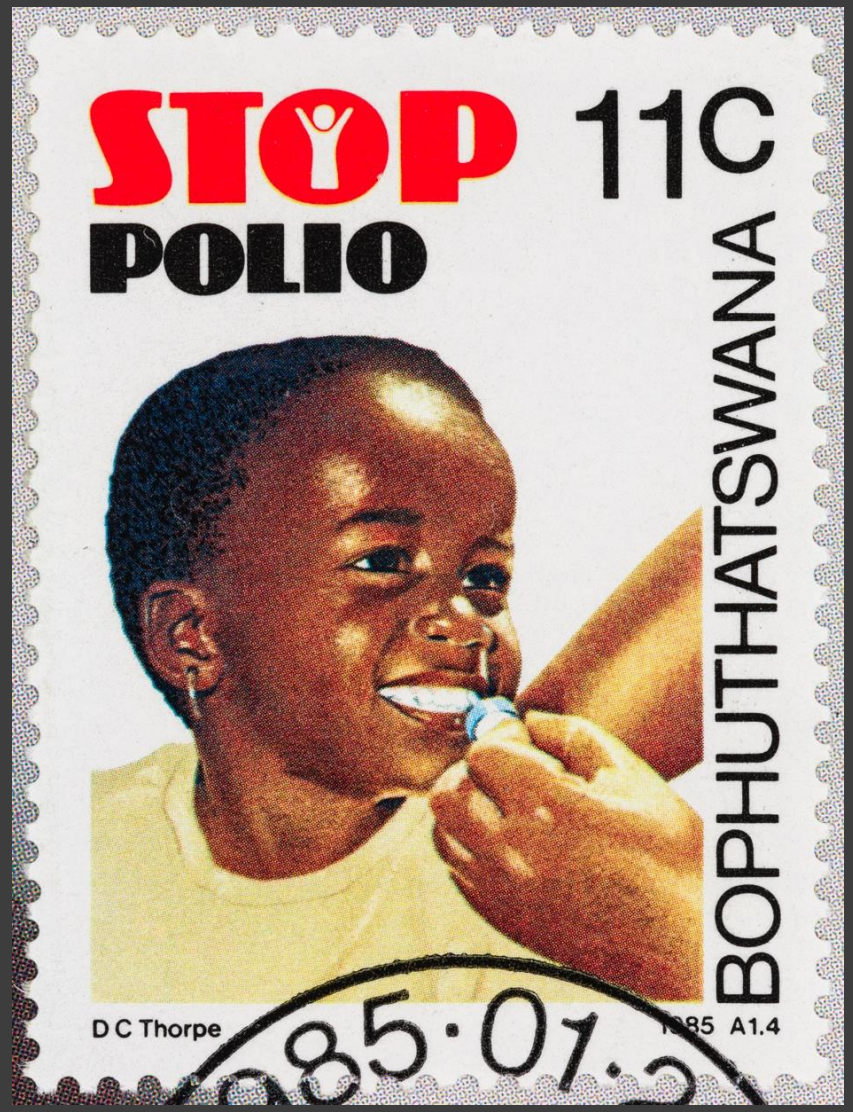
Food security

Water

Electricity



Education


STOP
POLIO
11c
BOPHUTHATSWANA
D C Thorpe
1985 A1.4
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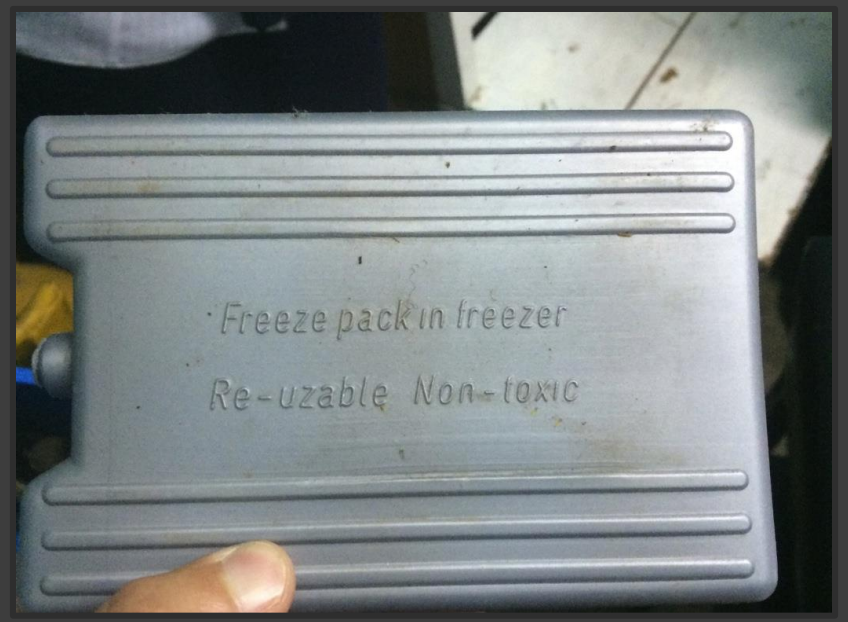

Freeze pack in freezer
Re-uzable Non-toxic


Safe 5L
afety Box
STOP

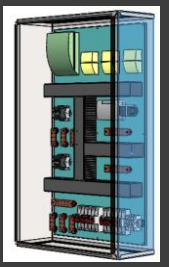

KICK
POLIO

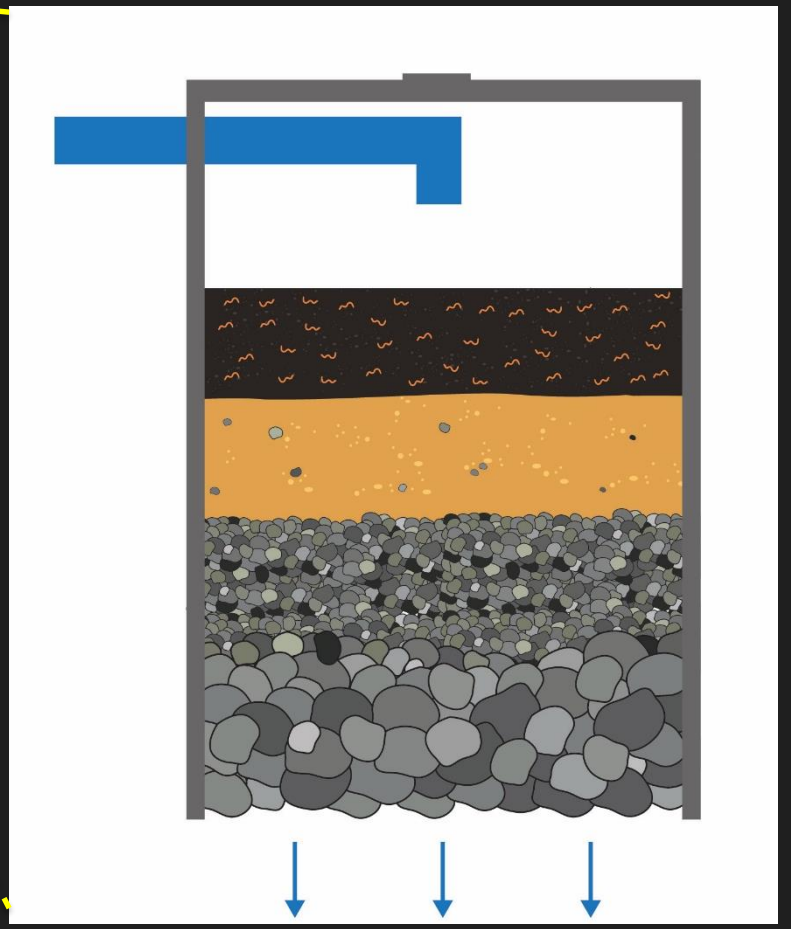

0+
10
20
30
40
50
-10
-20
-30
°C

Health	• Integrated solar-powered ‘clinic-in-a-box’ for rural areas • Point-of-care DNA-based TB diagnostic; effective TB vaccine; improved anti-bacterials
Agriculture & rural development	• Low-cost mechanization: irrigation pumps, well-digging, post-harvest processing • Precision agriculture systems for water, fertilizer, etc. • ‘Utility-in-a-box’ for affordable rural solar mini-grids • Affordable solar-powered refrigerator • Low-cost clean energy automobile for rural households
Education	• ‘Smart’ electronic textbooks
Water & environment	• New method for desalination: low cost, energy-efficient, high salinity • Distributed sensors for environmental toxins • Retrofit automobile exhaust filters • New generation of homes for the urban poor
Women’s equity & safety	• Simple point-of-use DNA-based rape kit • Wearable “SOS” device with geo-location

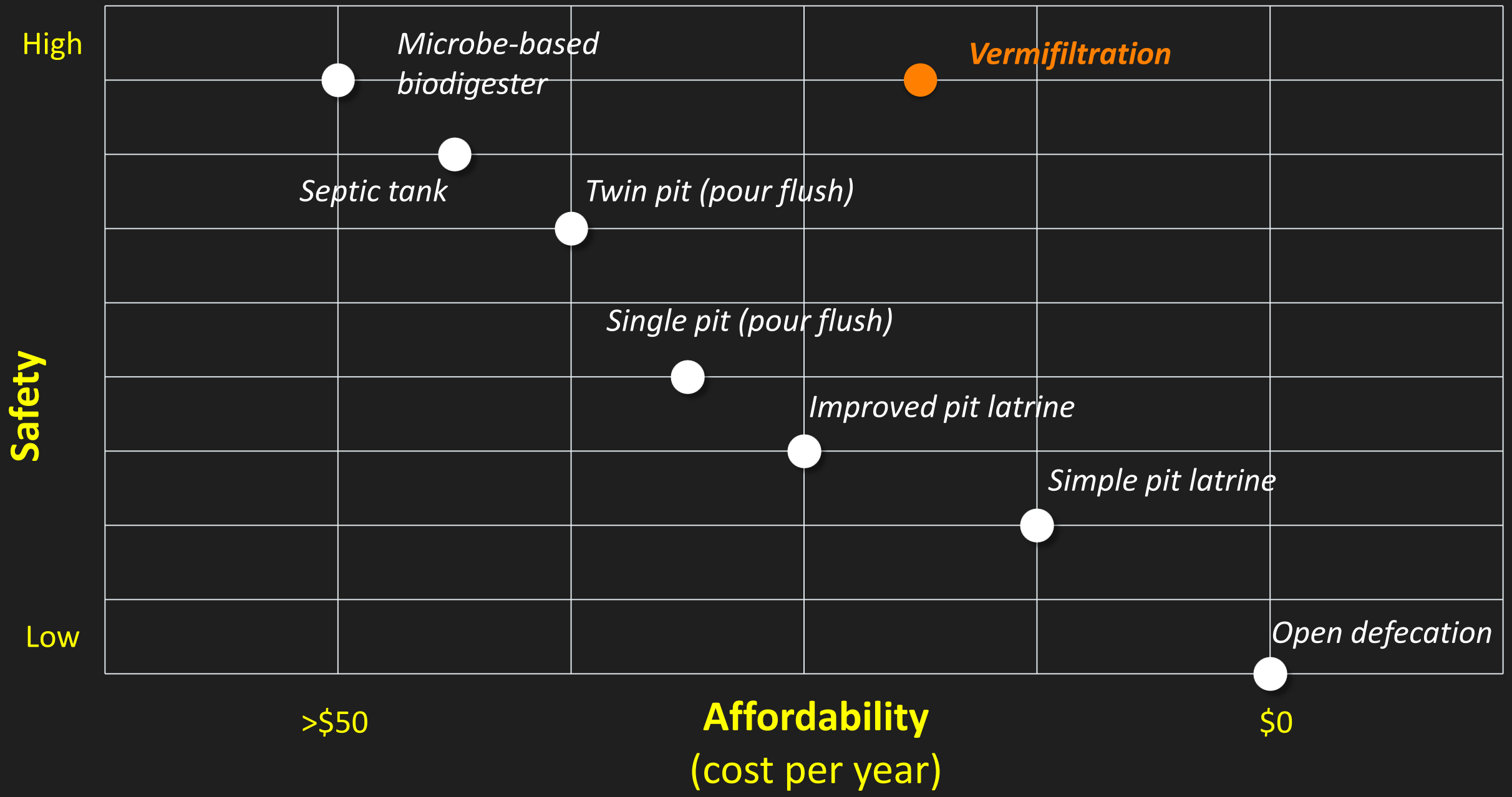

R&D required
US/EU labs
Emerging markets R&D institutions
Emerging markets private sector
Low
Emerging Markets only
Global
Commercial attractiveness

A solar mini-grid system for rural electrification





- 99+% pathogens destroyed
- Build-up time: 8 years
- Normal pour-flush, water-seal toilet
- Showcased by Government of India


High
Low
Safety
Microbe-based biodigester
Vermifiltration
Septic tank
Twin pit (pour flush)
Single pit (pour flush)
Improved pit latrine
Simple pit latrine
Open defecation
>$50
$0
Affordability
(cost per year)


TATA


Godrej


Mahindra

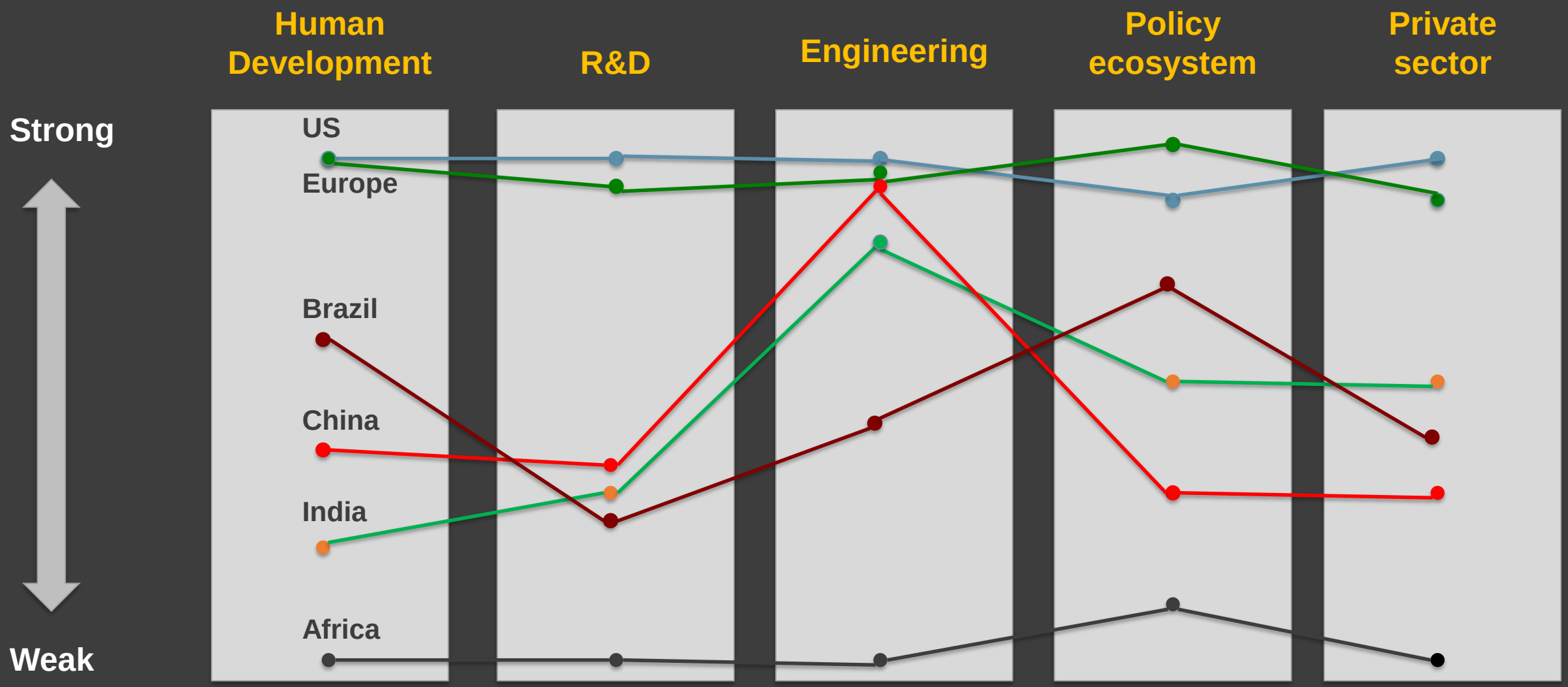

JAIN
Jain Irrigation Systems Ltd.
Small Ideas, Big Revolutions.®


Reliance
Industries Limited

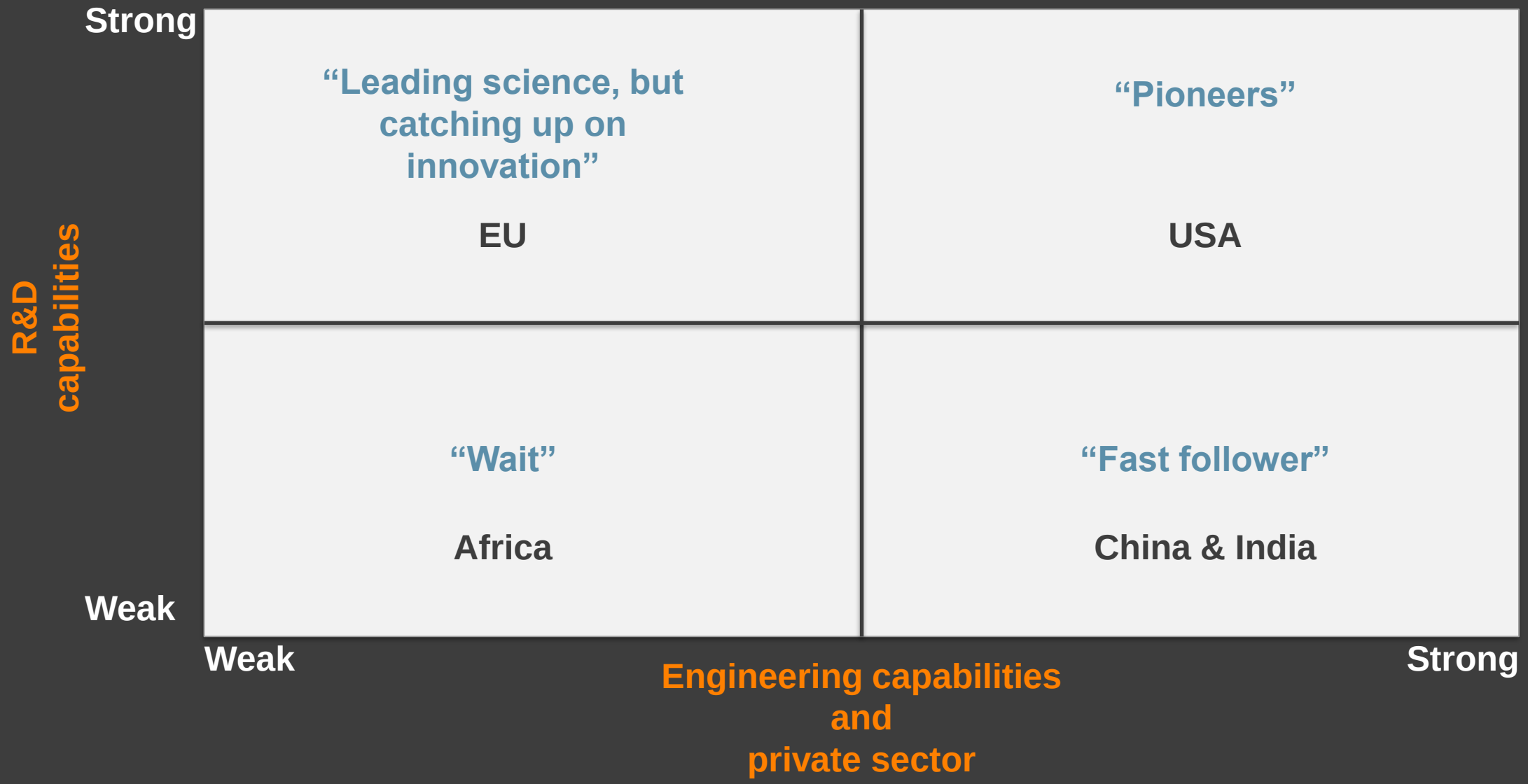

Dabur


The
Nairobi Women's
Hospital
With passion we deliver healthcare

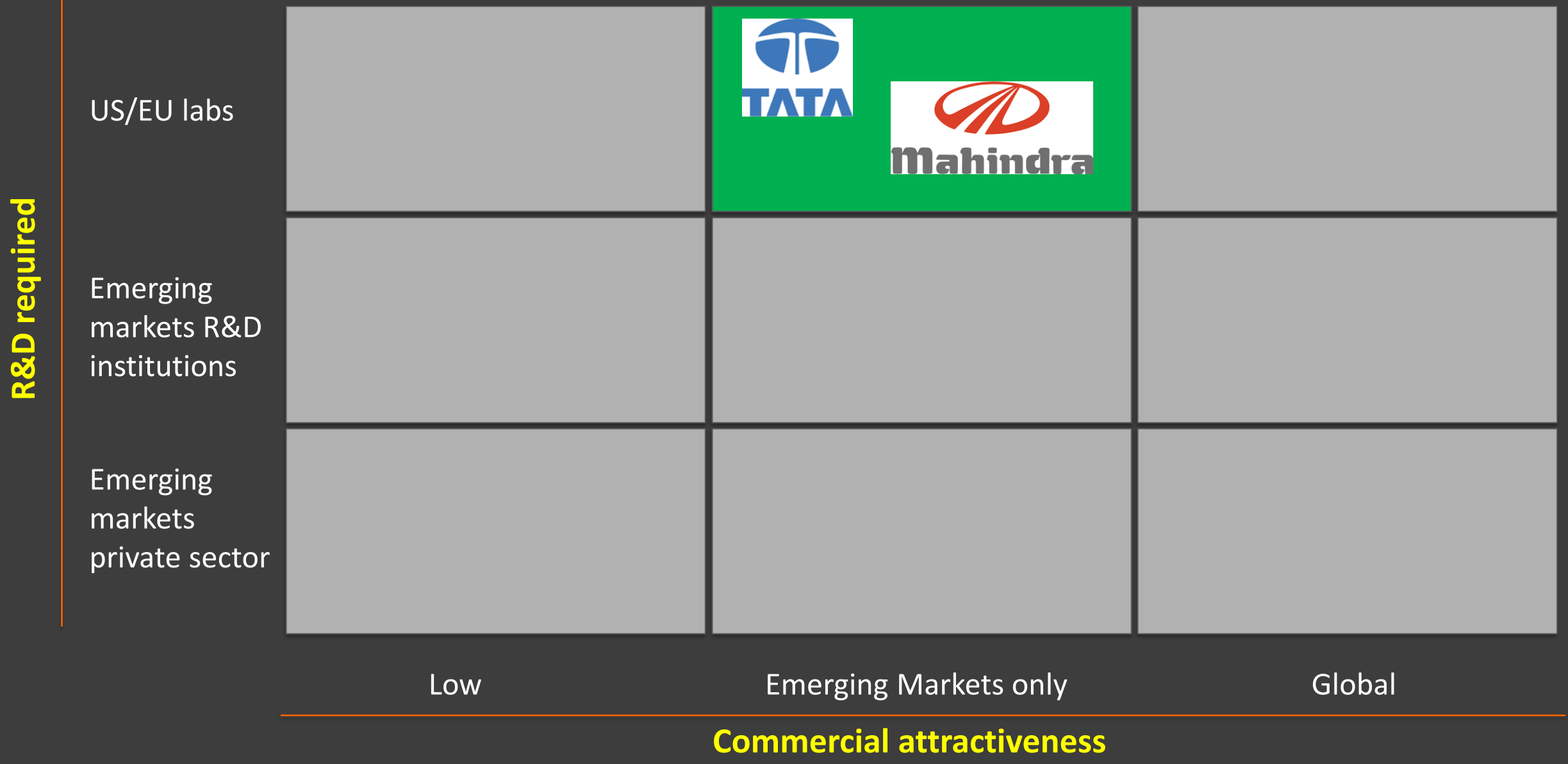
How emerging powers are positioned



Models of technology development and adoption



Policy imperatives for the international community



Policy imperatives for emerging powers