

# Enhancing Effectiveness of Digital Transformation

At IEA NSE Lecture Series at the 103<sup>rd</sup> Annual Conference of Indian Economic Association

05<sup>th</sup> of January, 2022

Venue: Manipal University, Jaipur, Rajasthan

By Manas Paul

Professor & Area Chairperson – Economics, Environment & Policy; IMT Ghaziabad

An unstoppable development with far fetched implications across different domains



TECHNOLOGICAL  
ECONOMY  
POLITICAL  
SOCIAL & CULTURAL  
ETHICAL

# India doesn't want to be left behind.....

- India possesses a “Digital Dream” ..... and with a **Great Intent**.... layered by National Digital Communication Policy 2018
- ...to transform into a **digitally connected society** that enables **seamless access to and use of information resources** that help create a **competitive, innovative and knowledge based society**
- But there are challenges....
- ...most primary being defining a path to realize the dream

# But let's not undermine its potential

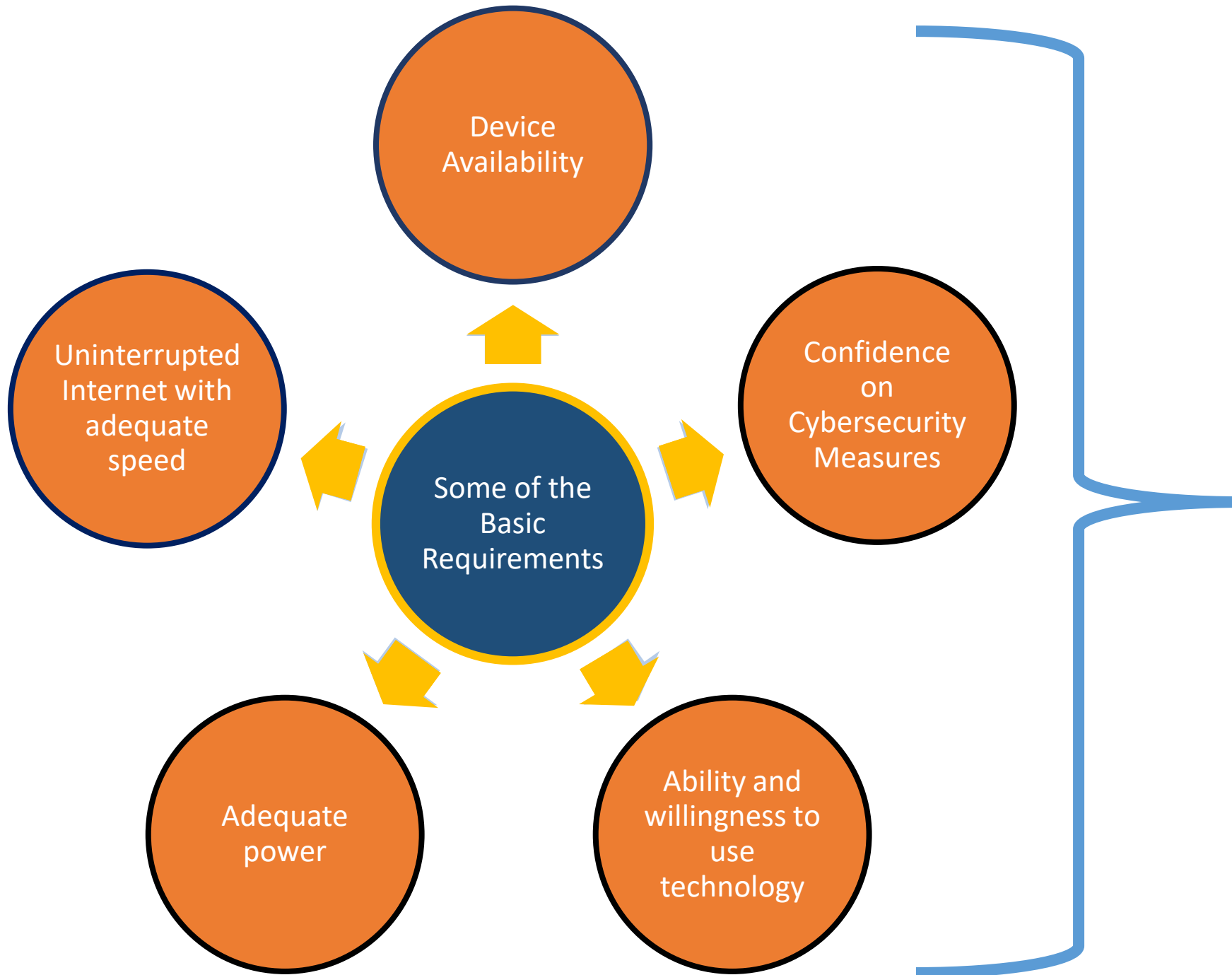
## Unstaffed, digital supermarkets transform rural Sweden

The Lifvs start-up has opened 19 stores across the country, choosing remote places that have lost their local shops



▲ An unstaffed Lifvs supermarket in Sweden. Photograph: Lifvs

- Store opens with a tap in an app in your cell phone
- Stacked with fridges and shelves
- Choose whatever you want scan it's bar code in an app and pay through an app...
- No one to say hi...no opportunity to swap local gossip...
- Customers never seen who is supervising or stocking up supplies...



T  
E  
C  
H  
N  
O  
L  
O  
G  
Y  
  
A  
D  
O  
P  
T  
I  
O  
N

# 03 broad stages of technology adoption

Existence of necessary echo system and hardware

Skill set to use the echo system and hardware for specific purposes

Ability and Willingness to use digital systems even after having the necessary echo system and requisite skills

Proceeding with digital transformation in the absence of any of these risks creation of.....

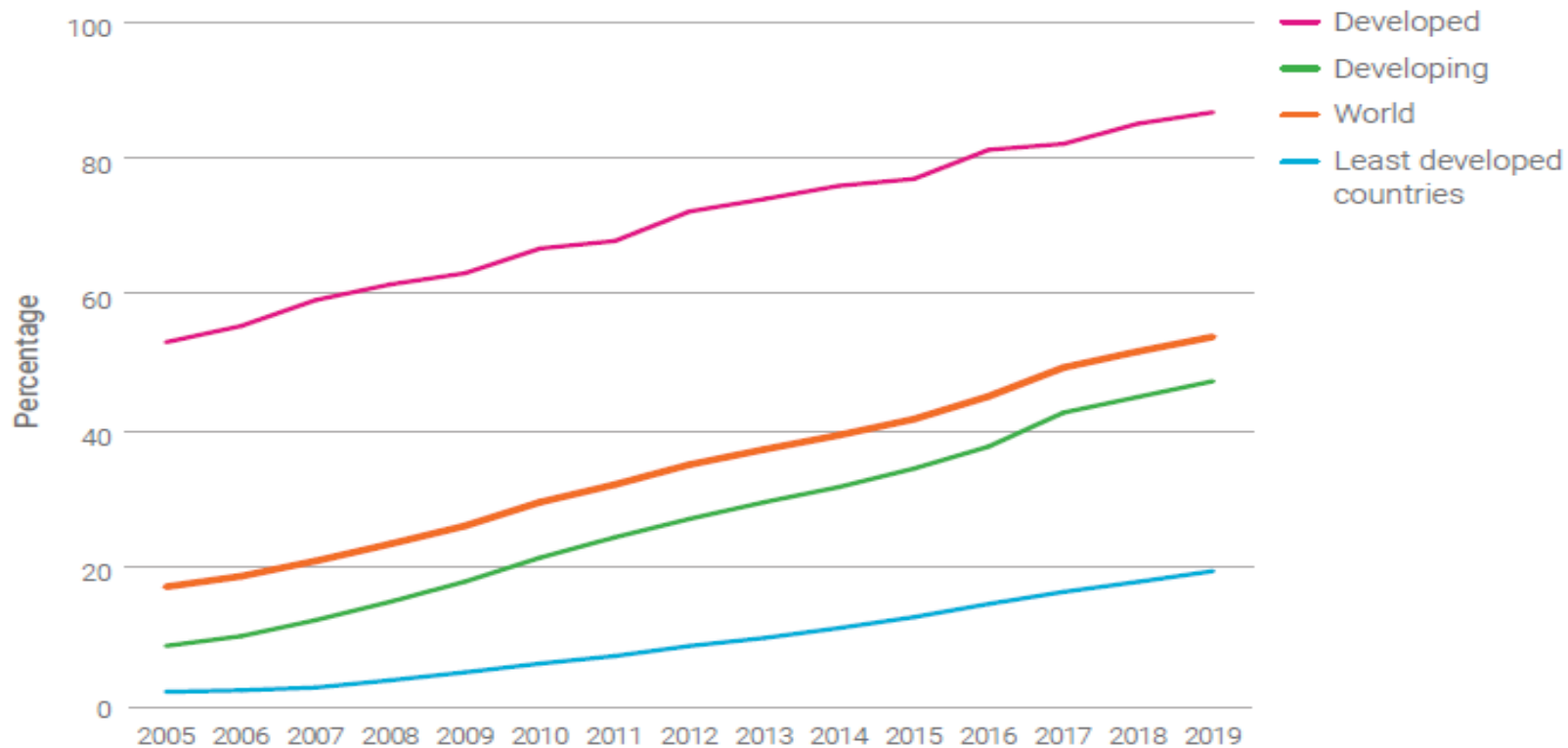
Digital Divide

Digital Marginalization

Prospects for a group of people being at risk of being excluded from participating in the social, economic, political or cultural activities essential to social inclusion - in direct contradiction to the IDEALS of Indian Digital Dream

# Challenge: lagging ICT infrastructure

Percentage of the global population with access to the Internet by country groupings, 2005-2017

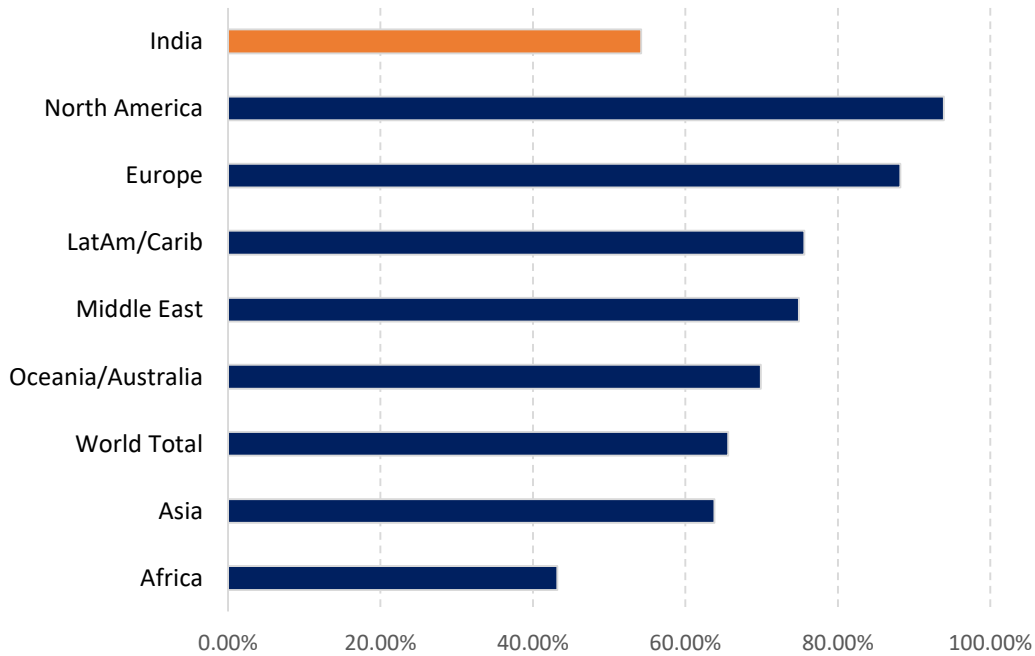


Source: International Telecommunication Union (2019). Key ICT indicators for developed and developing countries and the world (totals and penetration rates). Available from [www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx](http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx). Accessed on 17 December 2019.

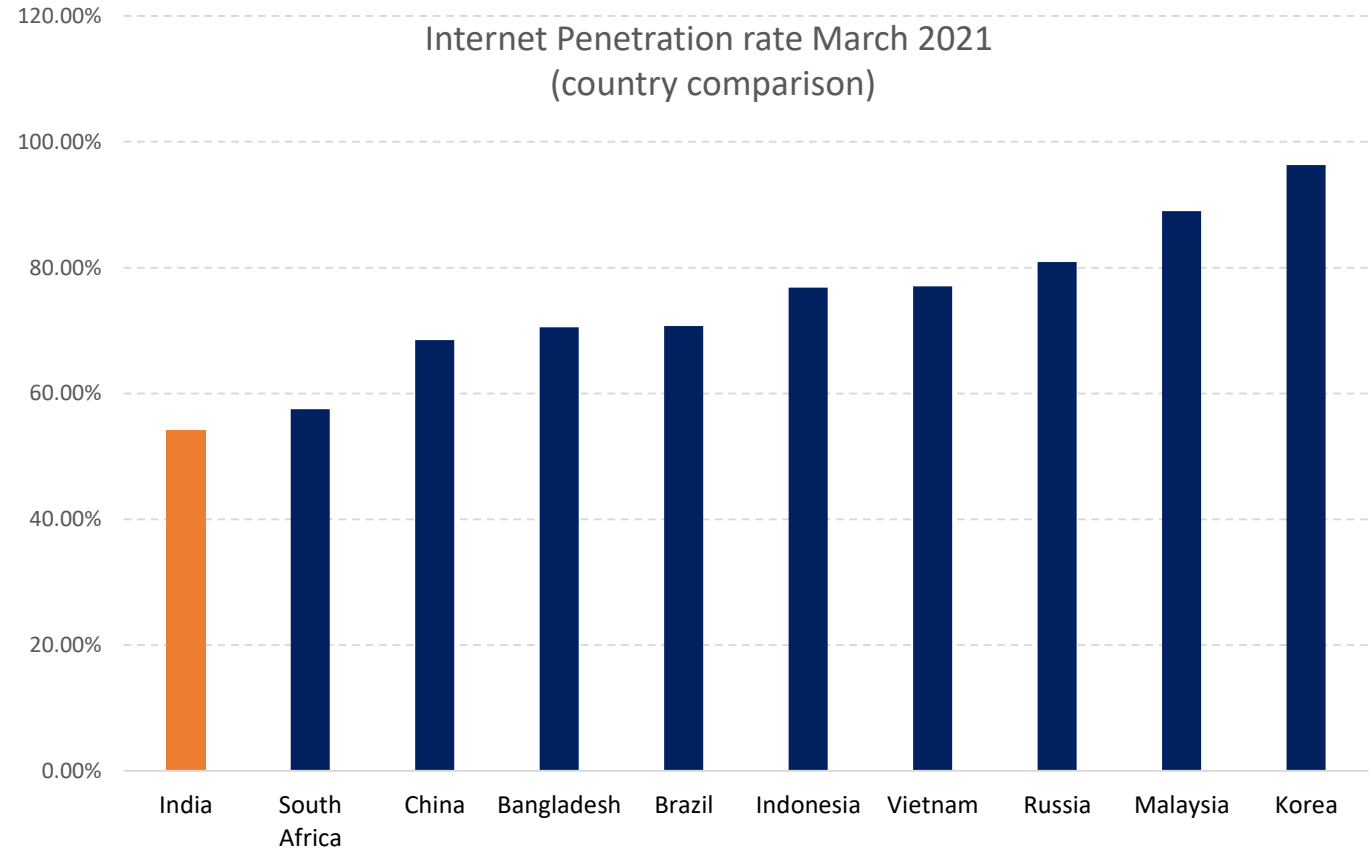
- It is not only internet access but the quality of that access that matters.....
- Besides is the populace skilled and willing enough to adopt and adapt to these changes....

# How do we compare against global peers?

Internet Penetration Rate - March 2021  
(regional comparison)



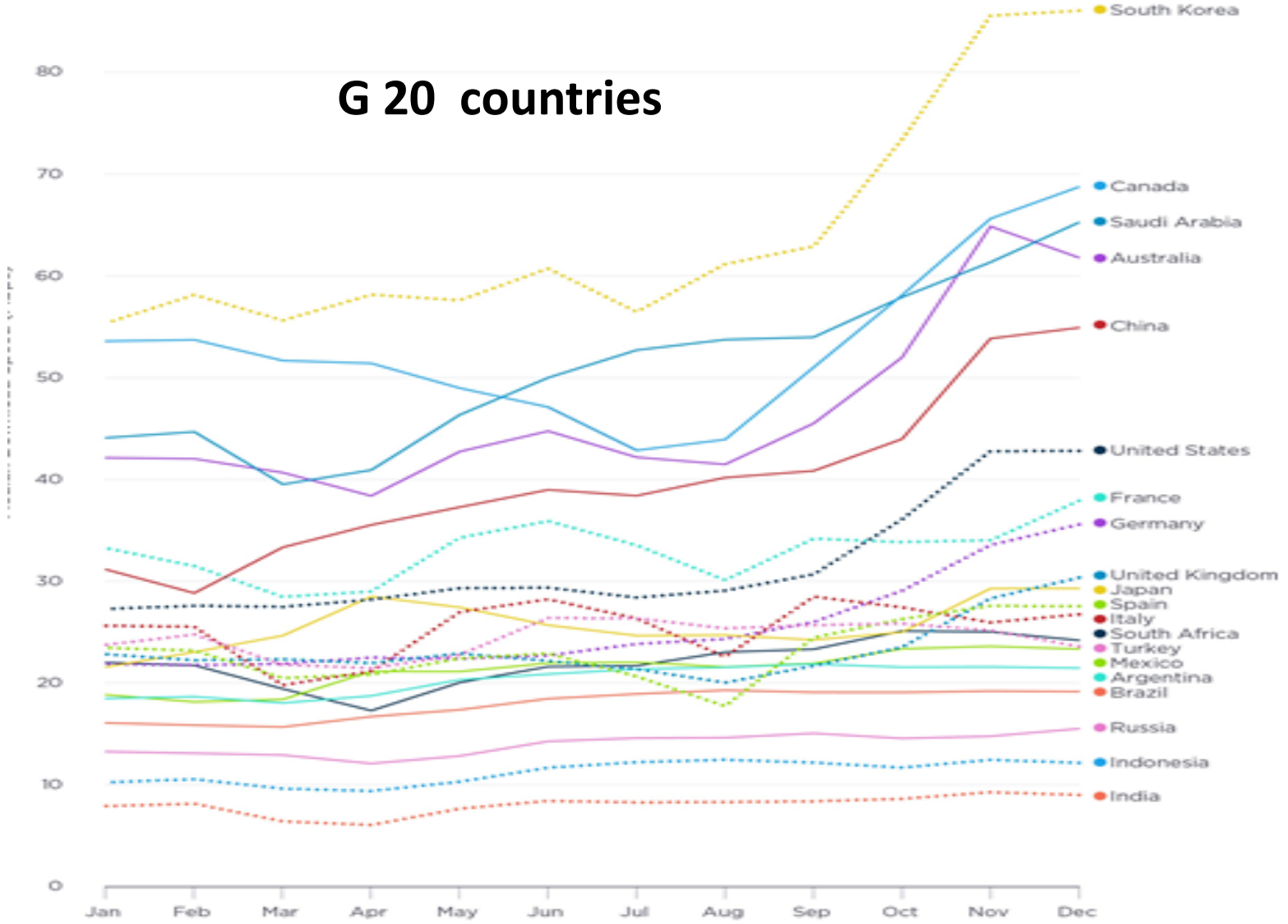
Internet Penetration rate March 2021  
(country comparison)



<https://www.internetworldstats.com/stats3.htm>

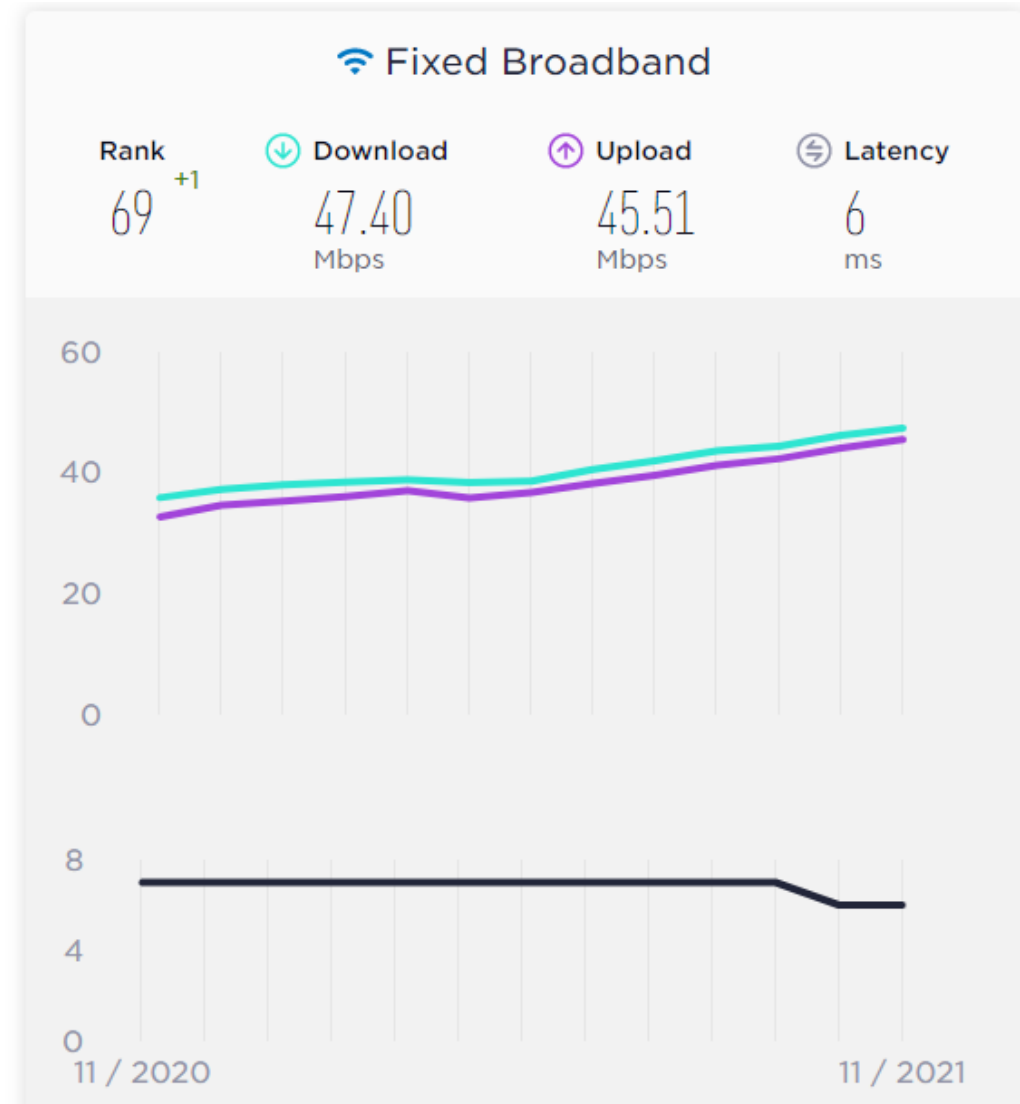
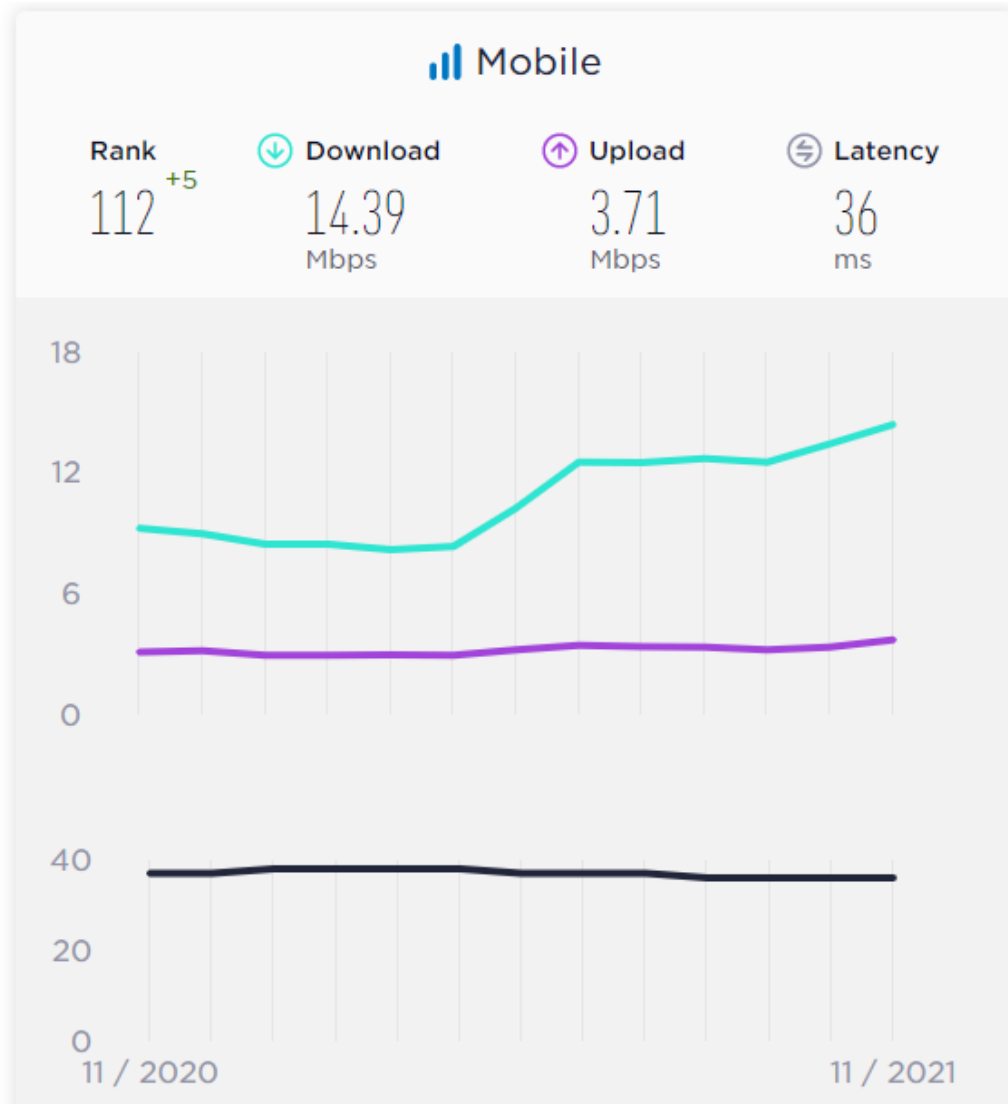


# Mobile Broadband Speed during Pandemic



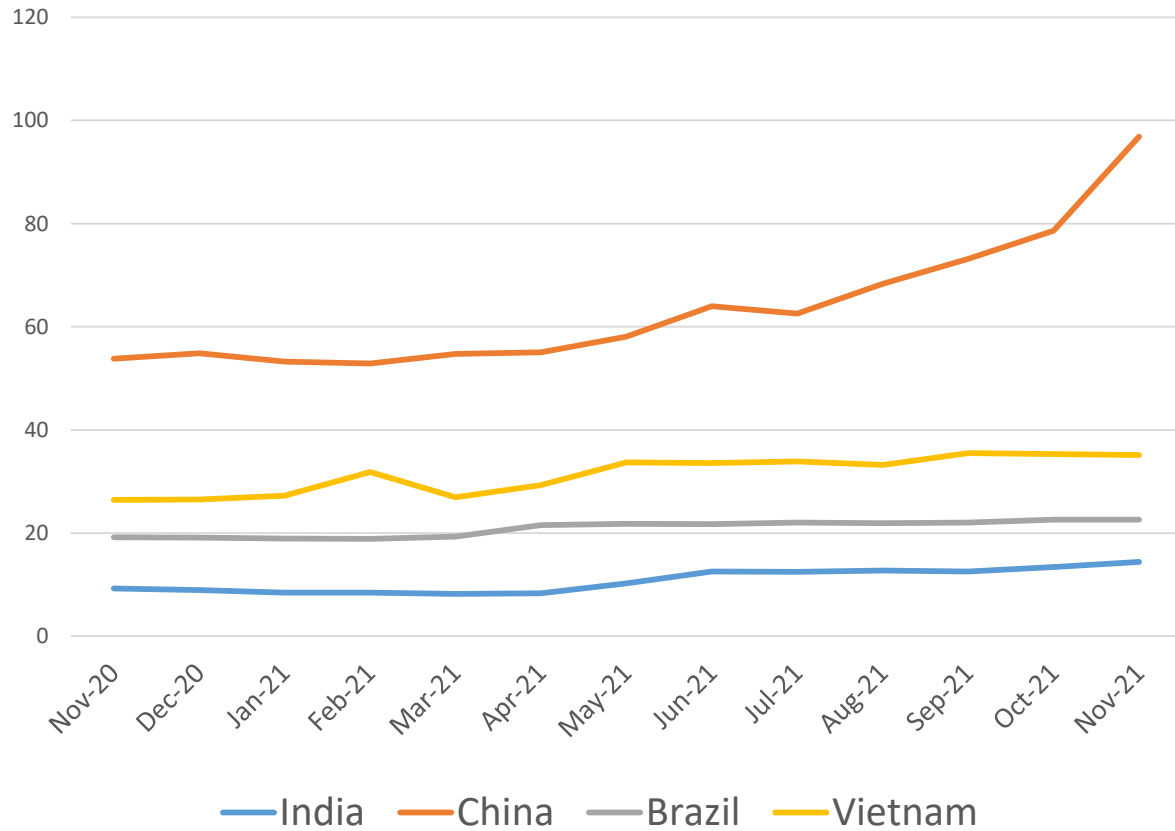
Source: <https://www.speedtest.net/insights/blog/2020-how-the-internet-held-up-coronavirus/>

# Ranking of India's Mobile & Broad Band speed

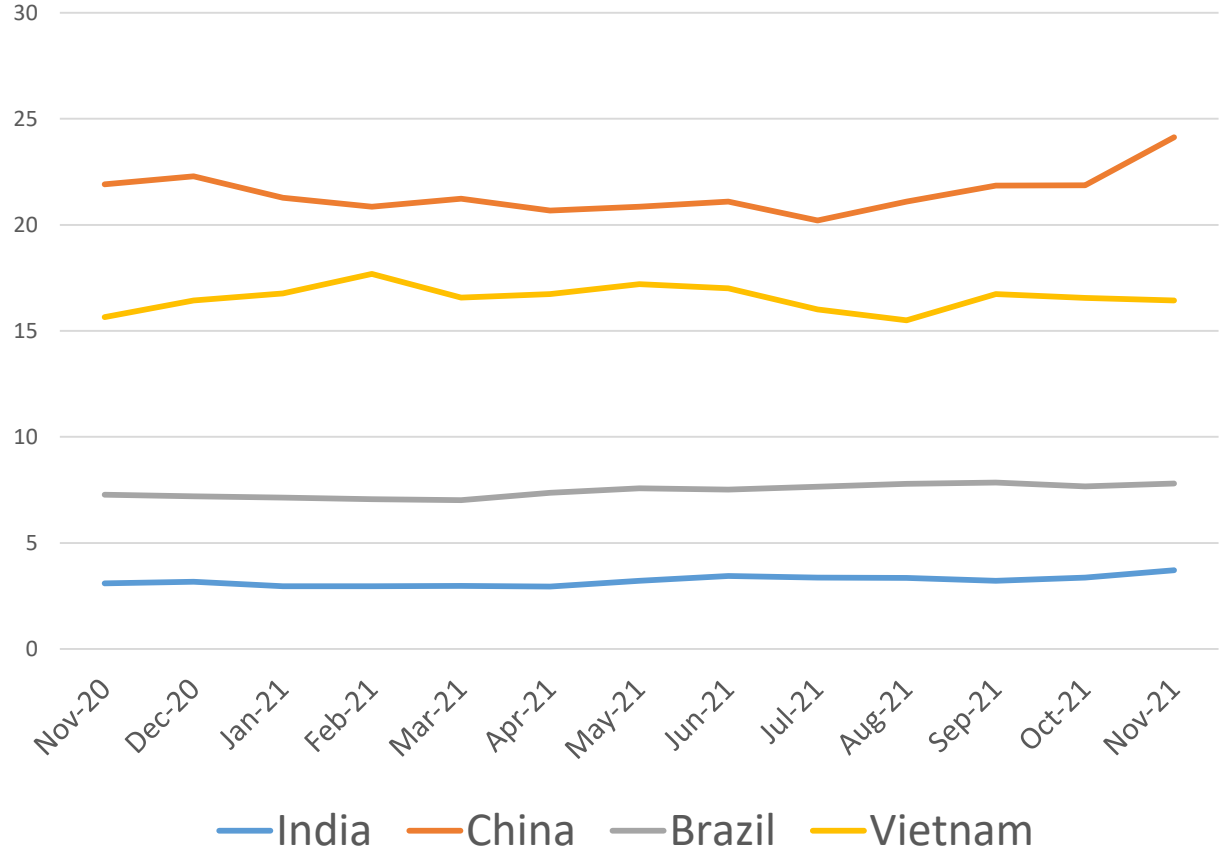


# How do we compare with global median?

Mobile Download Median Speed (Mbps)

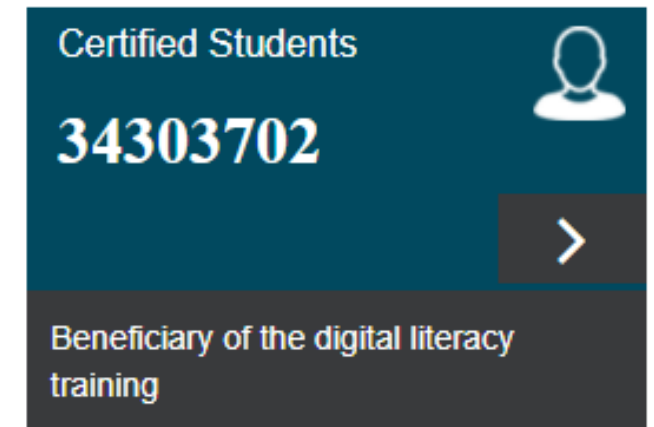
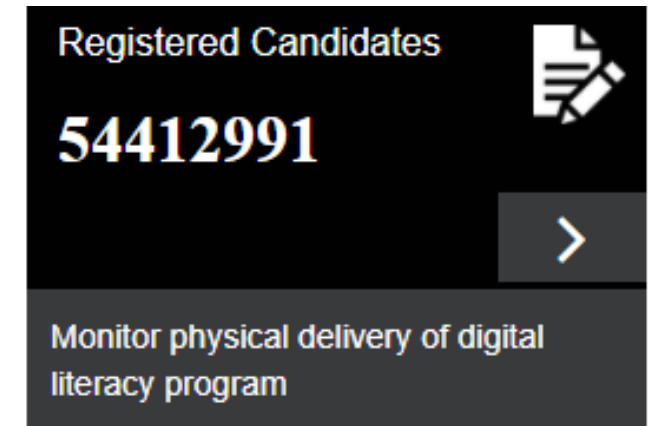
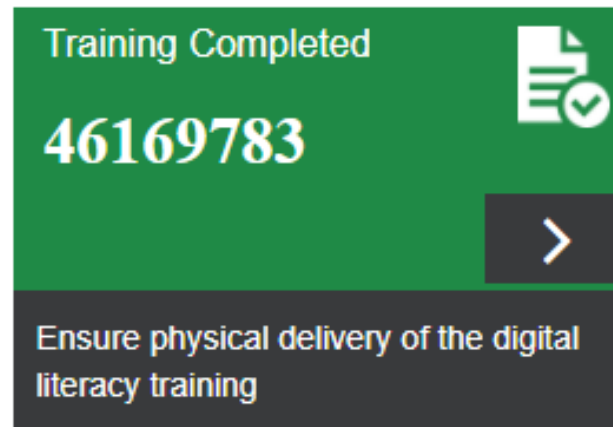
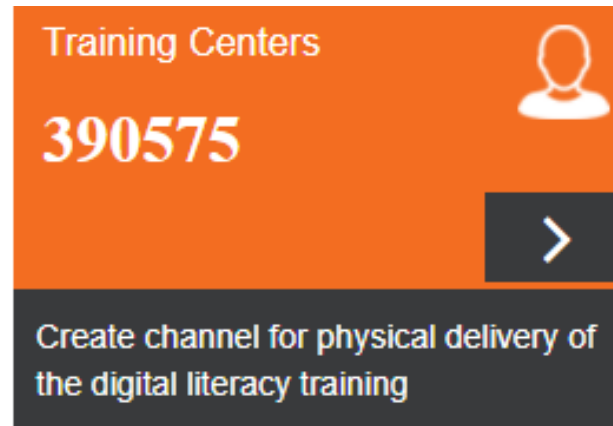


Mobile Upload Median Speed (Mbps)



# Digital literacy

- Pradhan Mantri Gramin Digital Saksharta Abhiyan launched in the first half of 2017 - target of training **60 mn** people **by March 2020**
- ...around **46 mn** have been trained so far
- Total rural Work force is around **349 mn (2001 census)**



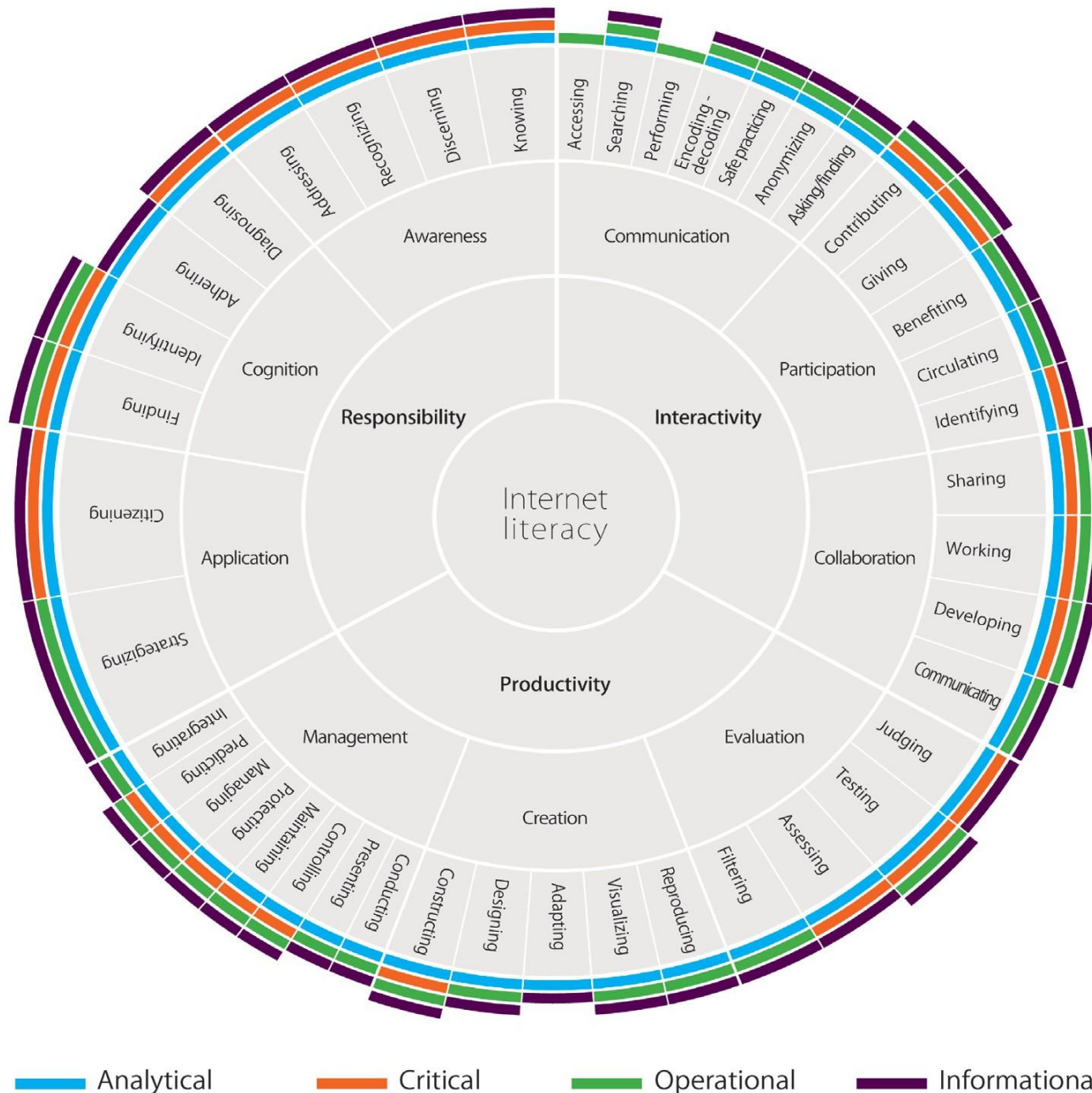
<https://www.pmgdisha.in/>  
Accessed on Dec 31th 2021

# Digital Literacy – Meaning!!!

- PMGDISHA: <https://www.pmgdisha.in/about-pmgdisha/>
  - *“The would empower the citizens in rural areas by training **them to operate computer or digital access devices like (tablets, smartphones etc.),** send and receive e-mails, browse internet, access Government Services, search for information, undertake digital payment etc. and hence enable them to use Information Technology and related applications especially digital payments to actively participate in the process of nation building.”*
- **Literature:** Alfred Thomas Bauer et al “Journal of Cyberspace Studies Vol 2 No 1 Jan 2018”
  - *Digital literacy is the **awareness, attitude and ability to understand and use information** in multiple formats from a wide range of sources when it is presented via computers (Gilster, 1997: 1; Martin & Grudziecki, 2006: 7), **it is more than just the technical ability to operate digital devices properly;** it **comprises a variety of cognitive skills that are utilized in executing tasks** in digital environments (Eshet-Alkali & Amichai-Hamburger, 2004), a person’s ability to perform tasks effectively in a digital environment... Literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments (Jones-Kavalier & Flannigan, 2006).*

# Besides what about internet literacy??

- Simply - a capability constitutive to utilizing the advantages of the Internet
- But, due to the constant changes of digital technologies, what kinds of necessary capabilities are required to gain the advantages?
- ...especially so amidst increased importance of – data economics, privacy and cybersecurity
- Academic representation talks of 03 main components, 09 main categories and 43 subcategories...
- ...all distributed amongst 04 mutually exclusive characteristics – (i) Analytical (ii) Critical (iii) Operational and (iv) Informational
- This aspect needs adequate attention within the digital literacy mission if it has not been implicitly subsumed into it already...



**Responsibility** i.e. knowing how to act appropriately online, involves **awareness and cognition** about the online data or information and Internet processes **and the ability to apply the relevant issues and the strategies** available to support the safe, responsible and ethical use of the Internet.

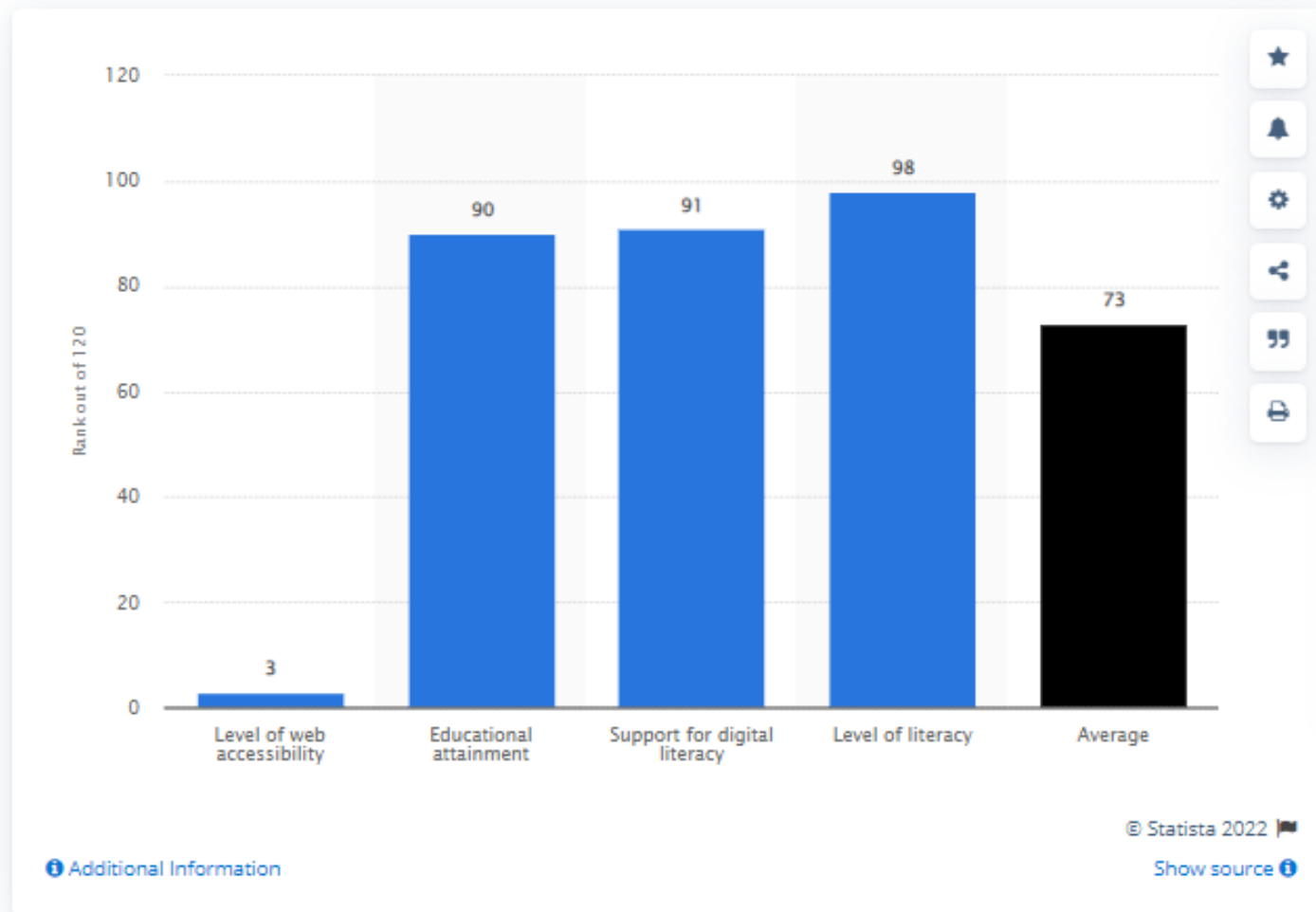
**Productivity** means knowing which operations, tools, and techniques to use and **how to evaluate/ interpret, create, and manage** online information.

**Interactivity** as a component of Internet literacy is relevant to P2P and P2C relations. The main categories of interactivity component are **communication, participation, and collaboration.**

# How do we fare in internet literacy?

## Internet literacy index across India in 2021, by category

(rank out of 120)





# Lack of digital/internet literacy risks ↑ exposure to cybercrimes

HOME » NEWS » INDIA » CYBER CRIMES IN INDIA SPIKED NEARLY NINE TIMES SINCE 2013, UP TOPPED CHART IN 2020: DATA

1-MIN READ

## Cyber Crimes in India Spiked Nearly Nine Times Since 2013, UP Topped Chart in 2020: Data



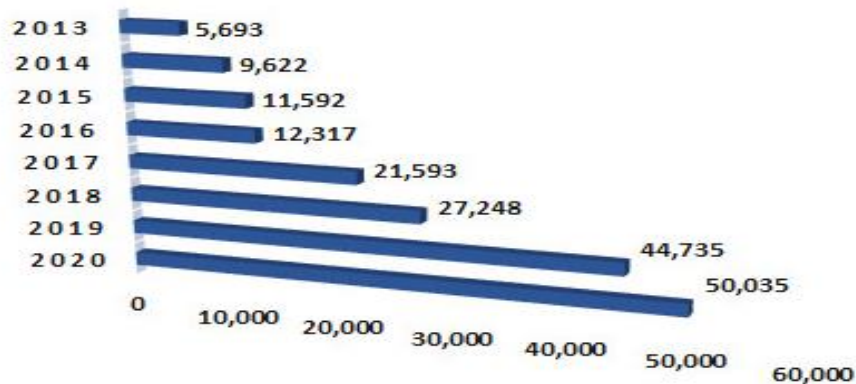
Cyber crimes in India increased to 50,035 during 2020 from 5,693 cases reported in 2013, as per latest 'Crime in India' report.

● CNN-NEWS18 ● NEW DELHI  
● LAST UPDATED: SEPTEMBER 16, 2021, 18:36 IST  
● FOLLOW US ON: [Facebook](#) [Twitter](#) [Instagram](#)  
[Telegram](#) [Google News](#)

NIVEDITA SINGH

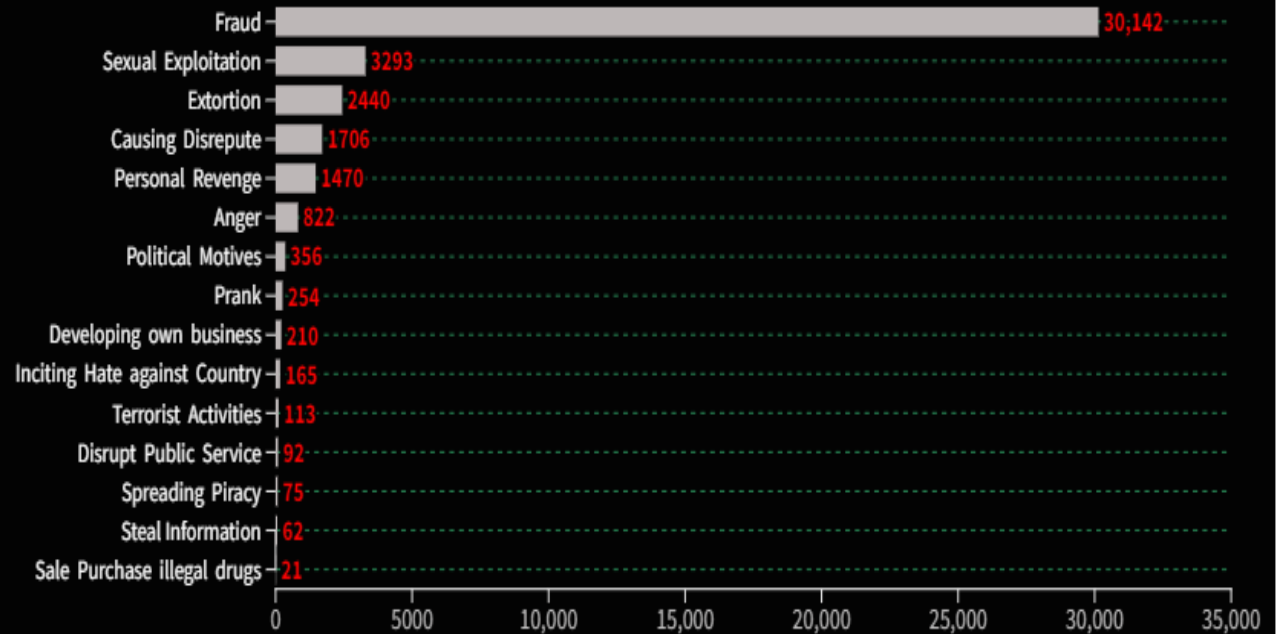
Cyber crimes in India increased to 50,035 during 2020 from 5,693 cases reported in 2013, as per latest 'Crime in India' report. (Image from AFP for representation)

### CYBER CRIME REPORTED IN INDIA



### CYBER CRIME BY MOTIVES IN 2020

Fraud accounts for 60% of the cybercrimes



Source: NCRB

'Other' motives not mentioned: 8,814

# Even Big Corporates in India aren't spared!!!!

**mint**

**India tops the list in ransomware attacks amid digital push**



Covid has created a fertile ground for threat actors to capitalize on security vulnerabilities, but the attacks are growing even after the second year of the pandemic, Goudie said. istock

2 min read . Updated: 08 Dec 2021, 06:12 AM IST

**Abhijit Ahaskar**

Almost half of organizations in India suffered multiple ransomware attacks

Almost half (49%) of organisations suffered multiple ransomware attack, while 76% were hit by at least one ransomware attack in the past 12 months. This is more than any other country.

– *CrowdStrike and market research firm Vanson Bourne report Dec 07<sup>th</sup> 2021*

Average ransom paid by Indian companies was \$2.92 mn while 26% of Indian even paid a ransom of \$05 mn to \$10 mn.

However, 60% of the companies have a comprehensive strategy in place to coordinate a response, while 72% said they have confidence in their IT security, which is the highest globally too

THINK OF RISKS FOR ANY  
ORDINARY UNINFORMED  
INDIAN...in such an environment

# India's socio economic census data (provisional collected over 2011-13)

- Of India's nearly 244 million households, more than 179 million (i.e. in excess of 70% ) are rural
- Of the rural populace 56% do not own land depend on manual labour
- ...besides nearly 107 million rural households (nearly 60%) are what the government terms as "deprived" ....
- ....i.e...they either live in a single room made of mud and straw, have no earning adult male, or no literate adult member....
- Digitalization is likely to be too complicated especially for such **vulnerable groups....without the support** of a dynamic echo system **to make them capable** enough to survive in a digital environment

# Links to the issue of “social justice”

- Refers to **a state of fairness, moderation, and equality** in the distribution of rights and resources in society
- Social Justice recognized as a global issue (United Nations 2006)
- Social justice is a ubiquitous concern in any nation for a functioning and cooperative society (Tyler 2012)
- **Unfortunate manifestation of its absence has been all too frequent globally**...at time as unintended fall out of policies needing interventions
- Its persistence leads to structural inequality that gets systematically embedded into institutions and laws, **limiting access to education, health, housing, and other rights** (Sandel 2020, *The New York Times* 2020a)
- ...directly compromising with the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and the 10<sup>th</sup> SDG goals

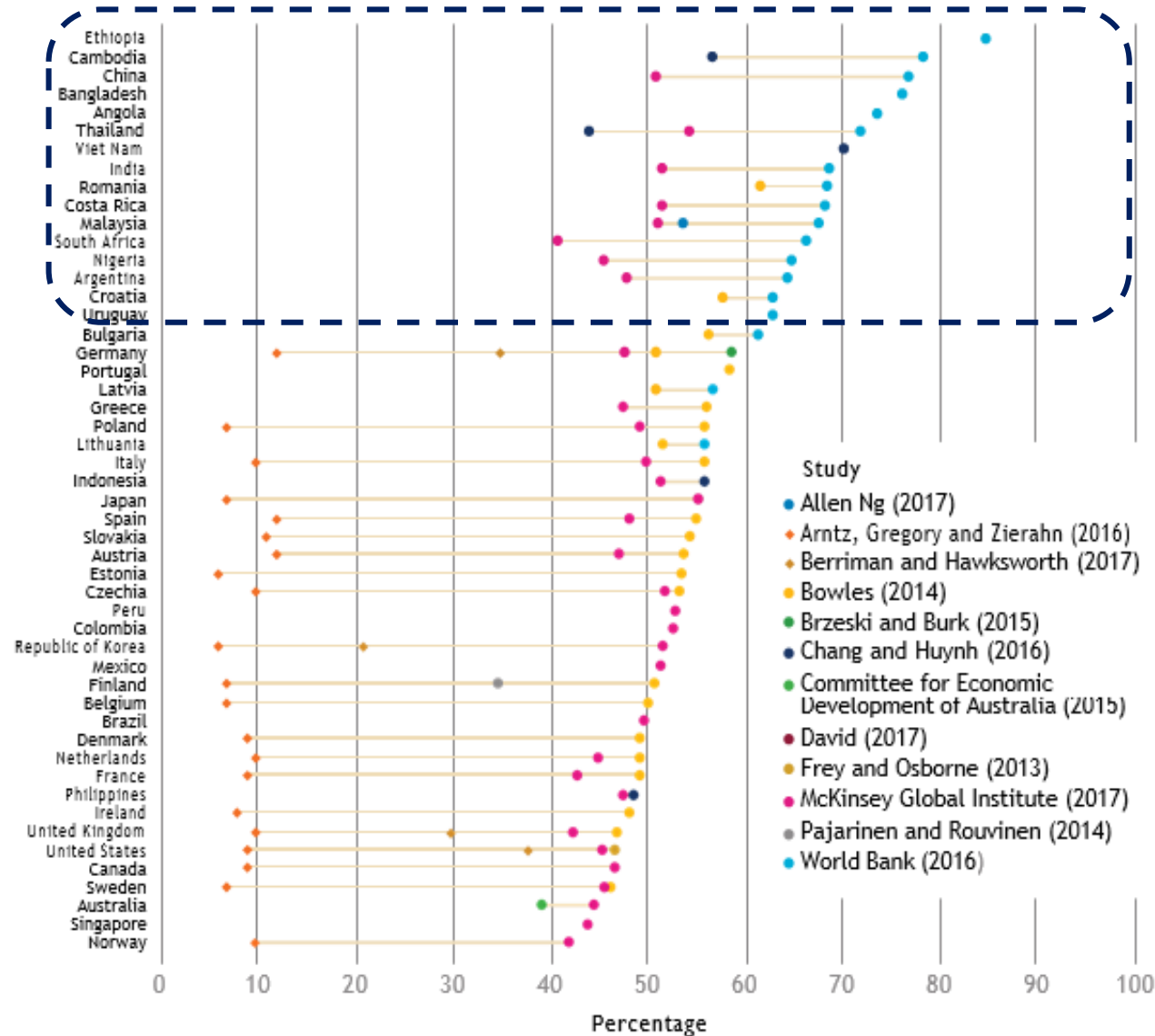
# Technology dependency not to interfere with freedom of functionings of citizens

- **Unavoidable Need** for increased **policy dependence on technology** to address the **challenges of coverage and timeliness** policies/programs
- ...but increased dependence on technology **should not adversely impact current state and activities** (i.e. functioning) of citizens....or...
- ...the **freedom to function** in ways alternative to their current functioning
- Freedom of functioning i.e. “Capabilities” Sen (1974; 1979a; 1979b)
- **Inability of citizen cohorts to function** in ways alternative to their current functioning – **“if imposed by technology”** – can risk their deprivation and marginalization from essential services ↓ing their wellbeing & value of life

# “Digital Only” mode may risk dispossession and ostracisation

- Unavailability of **crucial and necessary services** outside the digital domain risks dispossession and ostracisation...
- ... especially if sections of the society gets **pushed towards digitization irrespective of not being in a position to make a conscious choice** for it....
- ...independent of whether that leads **to denial of some of the necessities that supports the rights to live a healthy and normal life**
- Described as “**Digital Enforcement**” in literature – (Antonio AA & Techatassanasoontorn AA; 2021)
- Imposition of desirable behaviours as defined by dominant actors without internalizing the realities faced by citizens or choices on whom it gets imposed

# Estimates of the share of jobs at risk of being lost to automation as a result of artificial intelligence and advanced technologies, by study



Estimates suggest that many jobs are at risk of disappearing due to automation

Share of jobs at risk especially high in developing countries (the upper part of the figure), ...  
...where the proportion of manufacturing jobs, including tasks that are intensive in routine skills, is high

Source: World Social Report 2020. Calculations based on various studies.

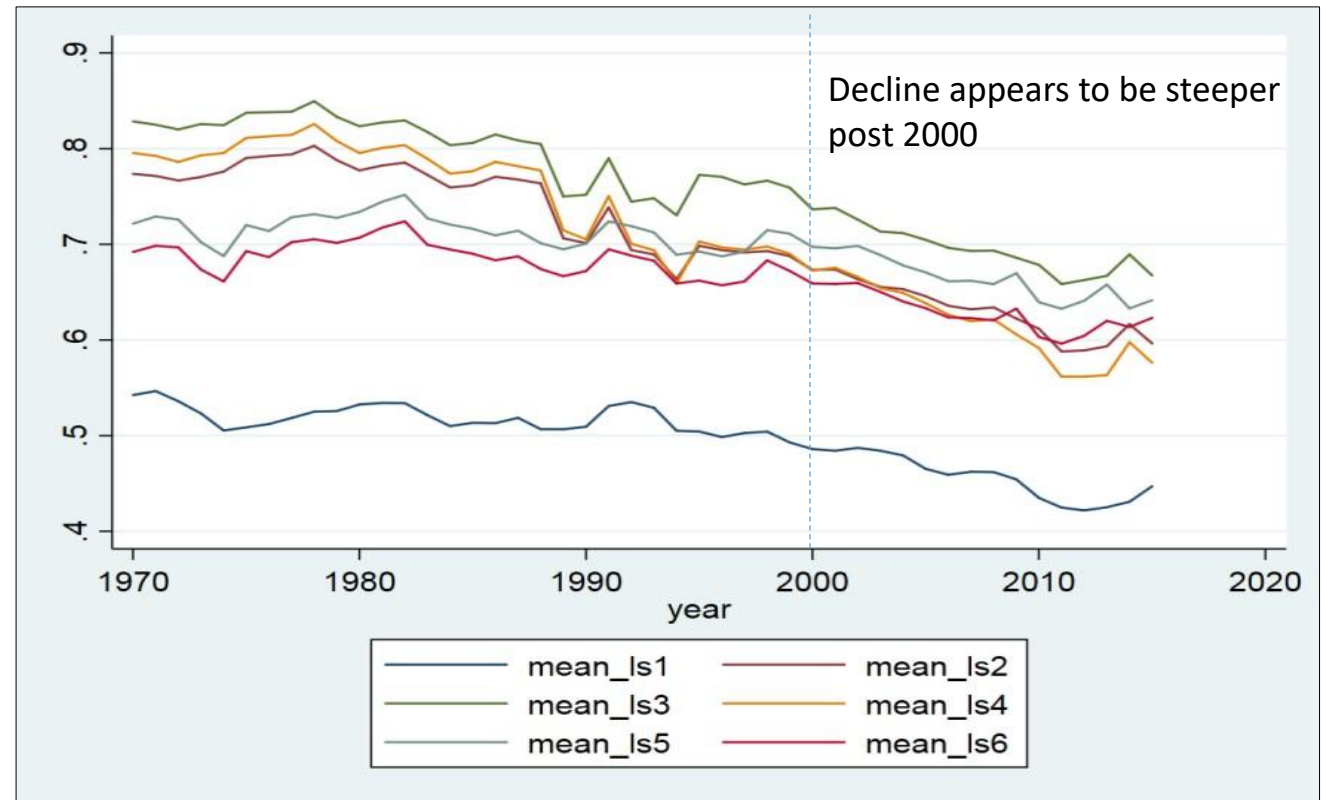
Note: In the key, (T) refers to studies that estimate the effect on jobs using a task methodology. All others rely on a survey that ranks entire jobs at high, middle or low risk of being automated. See Arntz, Gregory and Zierahn (2016) for further explanation.



# Rising inequality: ↓ng labour share

- .....”The fourth industrial revolution has improved productivity in large segments of the economy, but wages have not grown in tandem. In addition, job polarization triggered by technological change has contributed to the rise of wage inequality in many parts of the world” (*World Social Report 2020*)

Global Labor Share in Income (Averages) over Time: Alternative Measures



Marta Guerriero (2019): “THE LABOR SHARE OF INCOME AROUND THE WORLD: EVIDENCE FROM A PANEL DATASET” ADBI Working Paper Series, No.920

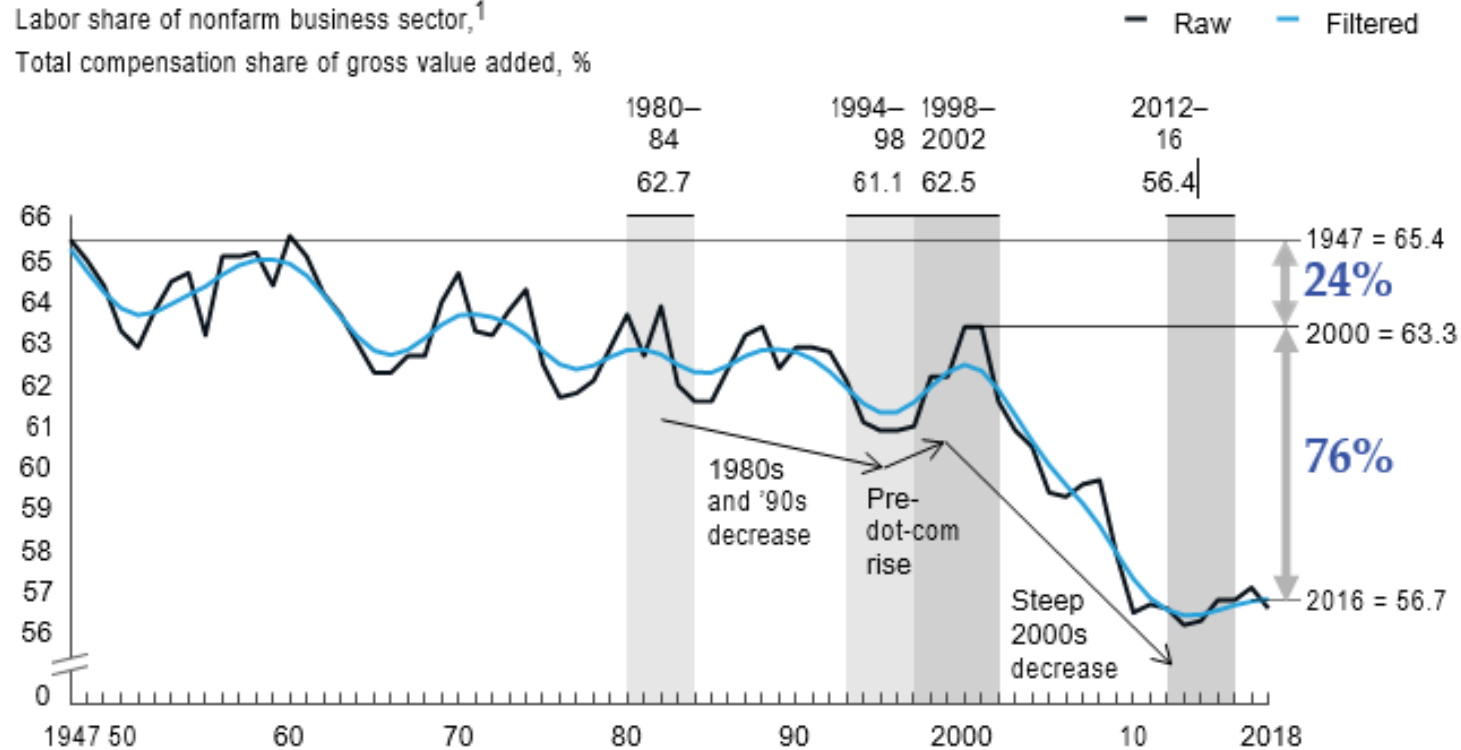
# ...visible more prominently in US data

**Three-fourths of the decrease in labor share in the United States since 1947 has come since 2000.**

The accelerating decline in labor share in the United States

Labor share of nonfarm business sector,<sup>1</sup>

Total compensation share of gross value added, %



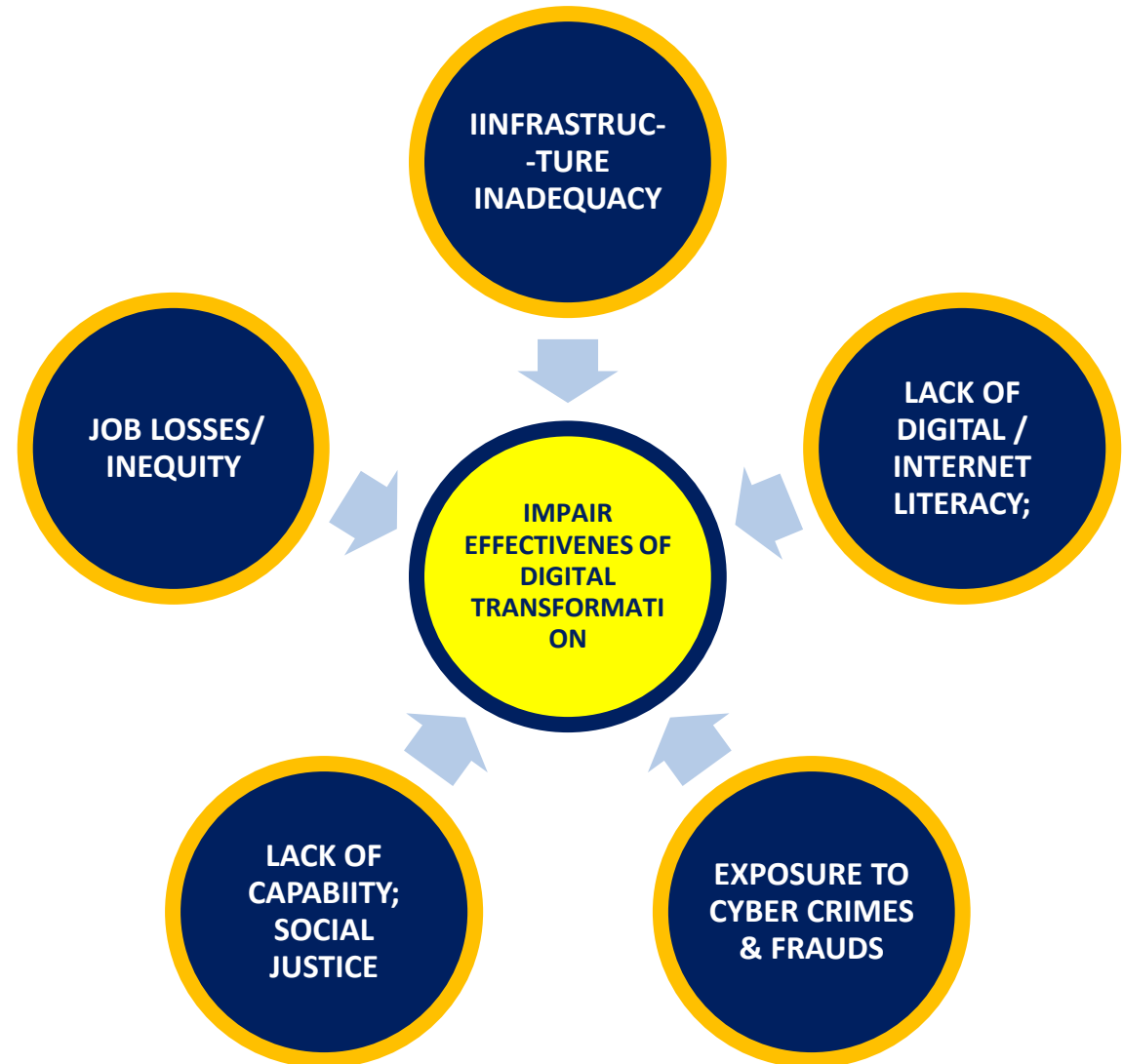
<sup>1</sup> Detrended using Hodrick-Prescott filter (restriction parameter = 6); adjusted for self-employed income (non-farm business sector, 75% of total economy), from Labor Productivity and Costs database, Bureau of Labor Statistics. Source: BLS (March 2019 release); McKinsey Global Institute analysis

# Some other aspects of rising inequality....

- ....” Not only are highly skilled workers benefiting the most from new technologies in many countries, but productivity gains brought about by such technologies are being captured by a small number of dominant companies”  
*(World Social Report 2020)*
- There has been much innovation in financial services based on the new technologies, but much of it has focused on areas such as trading and asset management that primarily benefit the well-off *(Zia Qureshi Brookings Institution)*

So certain issues needs continuous monitoring requiring prospects for policy fine tuning

1. Lacking infrastructure
2. Digital/Internet Literacy
3. Cybersecurity/crimes
4. Addressing capability  
Social Justice
5. Addressing Job  
loss/Inequity



THANKS FOR YOUR TIME &  
PATIENCE!!!