

Bridging the Rural-Urban Gap in Digital India Breaking the Language barrier (with AI?)

by Dheeraj M Pai, IIT Madras

India had a digital boom from 2014 onwards

- Cost of Internet access crashed in 2017. Internet usage quadrupled in just 1 year.
- In 2017, 94% of all small bussiness accepted at least one non-traditional method of payment.

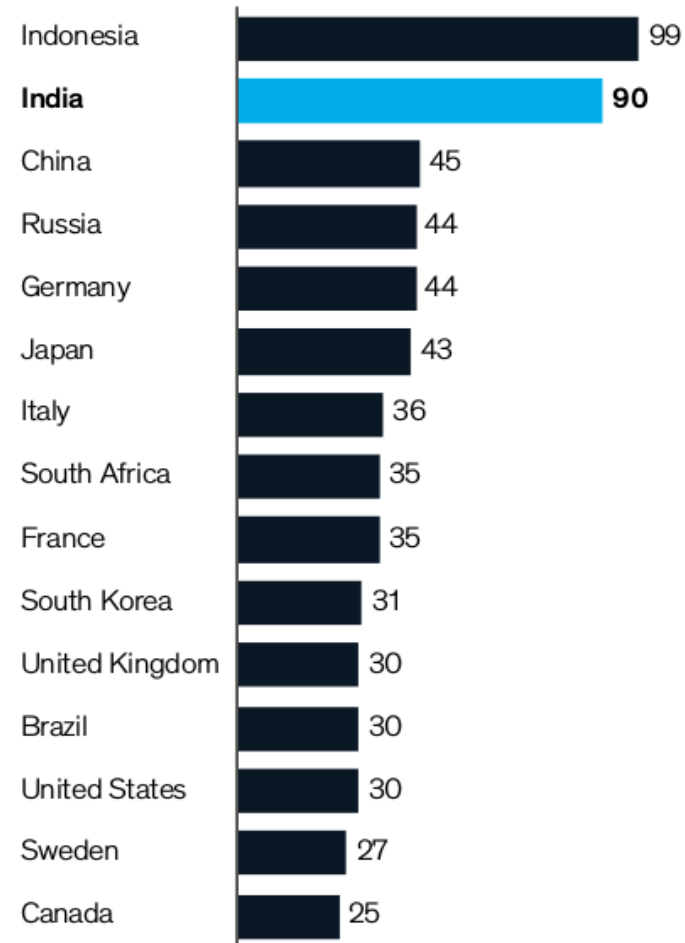
(*According to the report by McKinsey and GOI)

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Growth in Country Digital Adoption Index
% growth, 2014–17



Smartphone usage increased.

Est. 700m smartphone by 2023

India no. 2
globally,
behind China



12.3b

app downloads
in 2018



1.17b

wireless phone
subscribers



560m

internet
subscribers



354m

smartphone
devices



294m

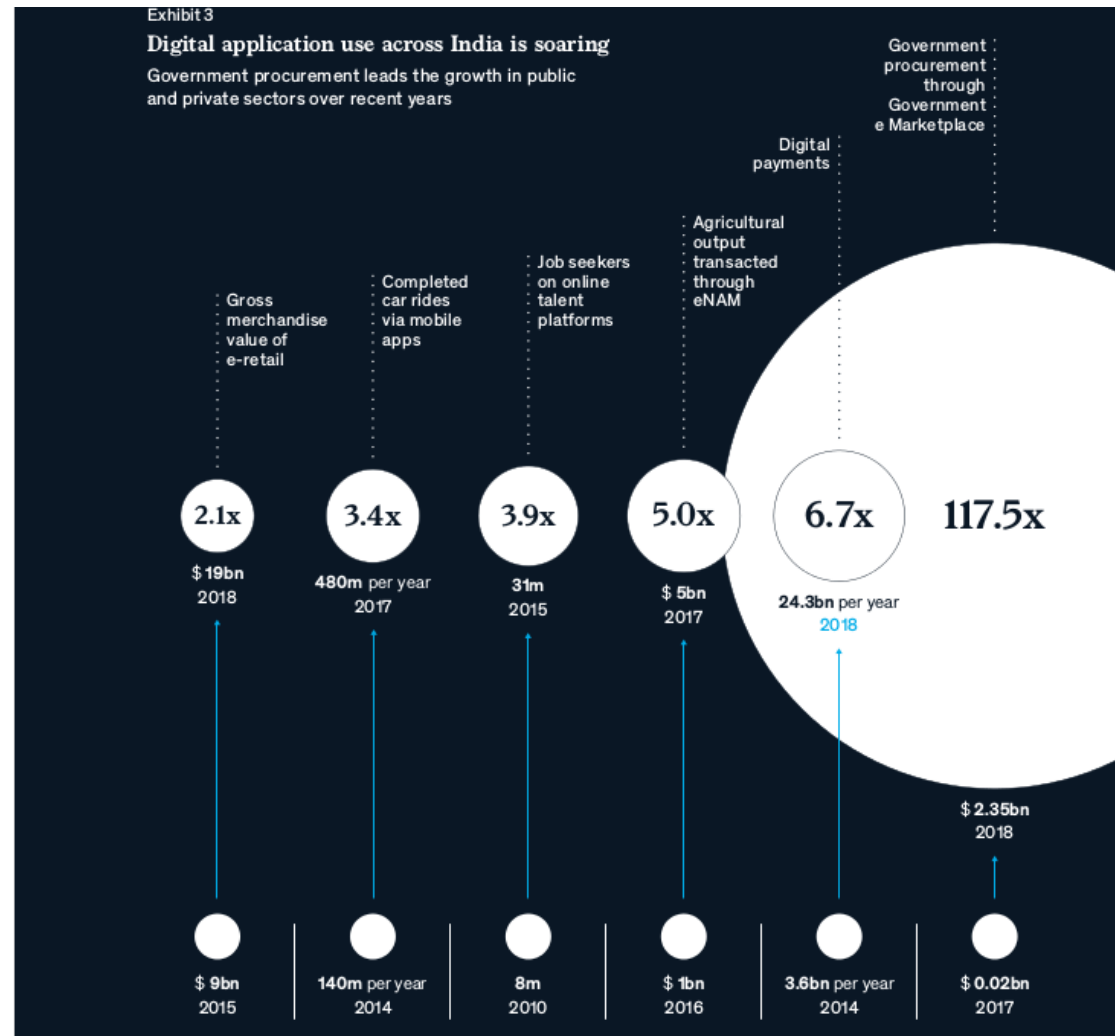
users engaged in
social media

SOURCE: Priori Data, January 2019; Strategy Analytics, 2018; TRAI, September 30, 2018; UIDAI, April 2018; We Are Social, January 2019;
McKinsey Global Institute analysis

India had a digital boom from 2014 onwards

- Mobile App cab rides increased from 140m to 480m (3.4x) from 2014 to 2017
- Digital Transactions increased from \$3.8bn to \$24.8bn(6.7x)

(*Images and data from to the report by McKinsey and GOI)



But how evenly did the boom
distribute?

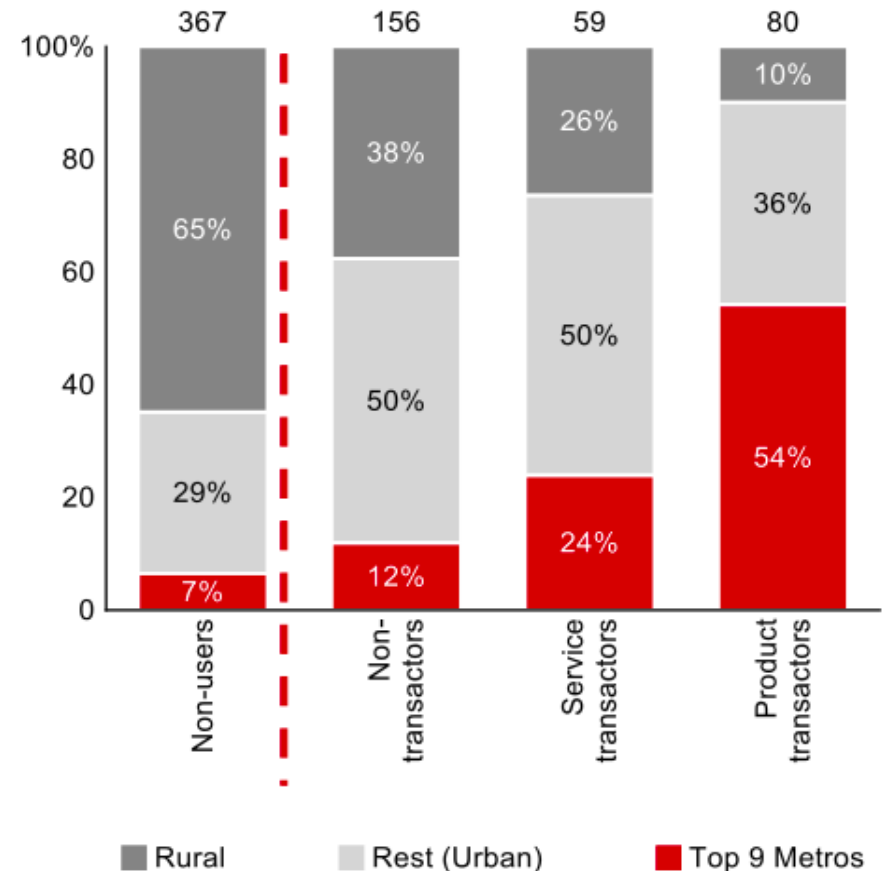
Whom did it benefit the most?

Who were the least benefited?

Digital Boom

- The one who were most benefited were the Urban youth. (age group 18-34 years old)

(*According to the research by Bain & Company and Google)

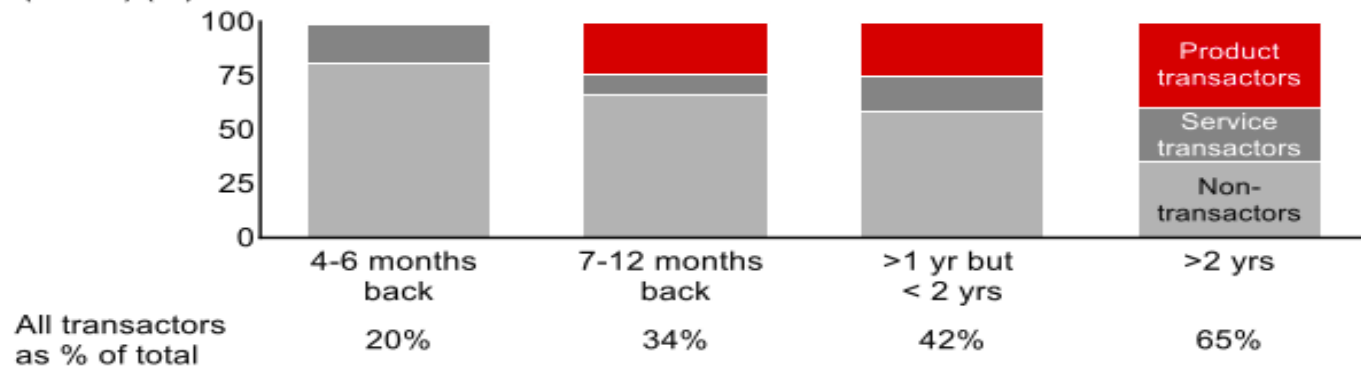


Digital Boom

Journey strongly reflected in urban users (especially metros), but rural users don't transition as well

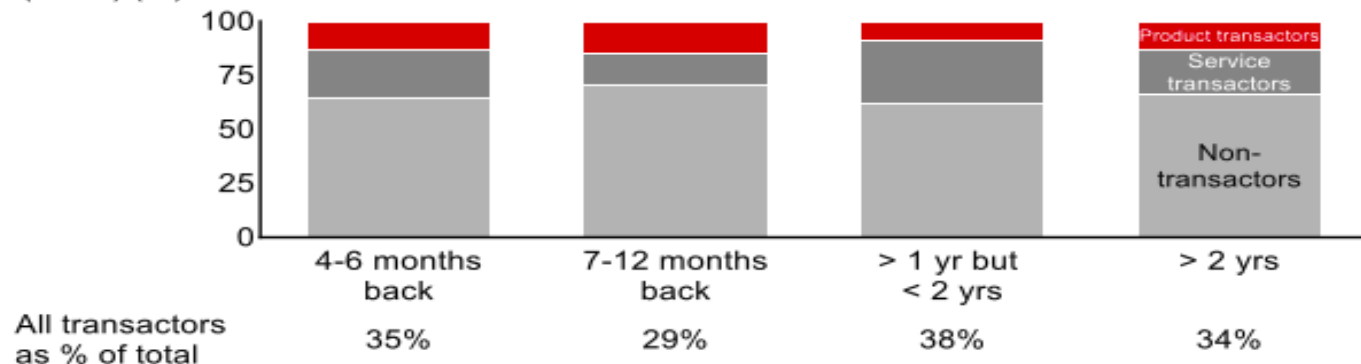
Urban

Percentage of transactors vs Time since started using internet (Urban) (%)



Rural

Percentage of transactors vs Time since started using internet (Rural) (%)



So what prevents the digital boom?

- Inadequate grievance redressal mechanism.(In transactions)
- Lack of local language content.
- Preference of touch and feel.
(both Urban and rural alike)

(*According to the research by Bain & Company and Google, and KPMG report on Indian Language consumptions)

The Case of Local Language Content

- 68 % (248m) prefer local language over English.
- 70% (out of 68%) face challenges in using English keyboards.
- 60% (out of 68%) say limited language support and content to be the **largest barrier**.
- <1% of total websites they visit are in local language.
- 90% - for chat and multimedia content.

(*According to the research by Bain & Company and Google, and KPMG report on Indian Language consumptions)

What is the reason for such a skew?

Wikipedia Articles in

- English : 6 Million
- German : 2,100,000
- French : 2,158,772
- Swedish : 2,369,142
- Kannada : 25,000
- Telugu : 65,048
- Tamil : 91,000

Potential Impact

- More user engagements. Greater E-commerce revenue. More jobs
- Greater knowledge dispersion.(MOOCS, open and free content etc.)
- Better Economy : adds upto 450 Billion USD to the GDP (According to McKinsey and GOI)

Solutions (What can we do?)

- Natural language translations using AI (Ex : Swedish Wikipedia).
- Search Engines optimized for Local languages. (Ex: Yandex and Baidu)

What can we do?

- Create datasets, annotate data.
- Create Indian Language support for Machine Learning Libraries.(spacy.io, StanfordNLP)
- Edit/Translate Wikipedia.

Thank you

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Slides and paper available at dheerajmpai.github.io

Ref:

- McKinsey Global Institute and Government of India – Digital India Report - 2019
- Unlocking Digital For Bharat – Bain & Company, Google
- Indian languages defining India's Internet - KPMG
- India – Trillion dollar digital opportunity – McKinsey and GOI