THE THEORY OF INEVITABILITY

India Goes Digital - The Second Coming

AVENDUS
Dear Reader,

How's the market? How long will it last? How sustainable are businesses?
We thought of posing these questions right upfront to you, as these phrases have been the most typical conversation starters with both entrepreneurs and investors recently. The past six months have been very unusual for the Indian Digital industry. Most trade pundits predicted doomsday while optimists kept waiting for the next big believer to pump in those billions, however neither of those expected situations has played out. The market remained tense, reminding us of those long drawn test matches on sub-continent pitches.

After more than two years of hyper activity and funding, the industry faced its first round of scepticism this year. The euphoria of international investors writing big cheques had decreased, global majors had established themselves in the local markets and start-ups across the sector began facing the ever so important question on pathways to profitability. Tough markets always cause casualties and distinguish the strong from the weak. The industry had attracted over USD 13 billion of capital in the last two fiscals, the momentum from that helped sustain businesses and business models which would not have lasted under normal market conditions. Investments fell off a cliff between October and December, 2015 formally declaring that “Winter had Come”. In the absence of freely available capital, many shut shop. But the resilient use opportunities such as these to focus on the fundamentals, drop overexuberance around growth, attract quality talent and buckle up for the long haul ahead.

The focus has rapidly shifted to towards unit economics, sustainable growth, rationalized valuation expectations and reducing cash burn. Strategic capital, especially from China, did ease off some bit of pain. After three consecutive quarters of funding de-growth, the markets seem to be making some recovery now, with almost USD 1 Billion of capital flowing in the quarter ending September, 2016 -almost a 2.5x jump over previous quarter. An important trend to note here is that this is sans block-buster Unicorn financings, and mid-market companies are driving a bulk of this growth.

India is an open and discovered opportunity. The last two years had brought about a race for financing and valuation that has worked against driving innovation and monetization. Most companies targeted the same low-hanging consumer pool and used incentivization to build traction instead of building compelling use-cases and driving engagement and loyalty. The rules of the game have changed and local incumbents are up against hyper-competitive and deep pocketed international players. They must out-innovate competition by solving underlying industry level problems. After giving away initial market share, we are now seeing local incumbents fiercely defend and in some cases, expand their share of the consumer's wallet.

Emerging ventures are introspecting on what it will take to build businesses that are solving real problems, have strong moats and can potentially make a strong economic case. With 331 million users online, estimated to more than double in the next 5 years, the Internet economy in India is not demand constrained. In fact, what most Indian start-ups must solve is the problem on the supply side. Traditional sectors of the Indian economy suffer from significant supply gaps – India lacks adequate infrastructure in retail, healthcare, transportation, education and financial services, amongst other crucial sectors.
This report – “The Theory of Inevitability”, explores how technology is disrupting underlying industries and bridging the demand-supply gap by unlocking capacity, adding incremental supply, improving distribution, and facilitating discovery. We delve into how tech-enabled business models across sectors can bring about efficiencies that reduce the capital investment burden that India faces to meet its burgeoning demand. As this plays out, leapfrog across industries is imminent.

With local start-ups leveraging technology to disrupt traditional sectors of the economy and solving for supply constraints, we believe it is inevitable that Indian Internet companies will win big in digital services.
Acknowledgements

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We are grateful to the entrepreneurs, investors and industry professionals who lent their insights that helped enrich the perspectives we have been able to articulate in this report. We would like to thank Shefali Raj for her significant contribution to this initiative and for guiding the team while at Avendus. We also extend our gratitude to Monica Gangoly for her work on designing the report.

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The Theory of Inevitability

Technology rules today’s world

2.6 billion smartphone users globally. 3.2 billion people online. 2.7 trillion hours spent online in 2015¹. Technology’s role in the global landscape cannot be overstated. From smartphones to connected cars, from work to our homes, technology enhances our lives, making the world a smaller place while simultaneously expanding opportunities beyond geographical limitations. The rapid evolution of technology has revolutionized not just developed countries but also emerging markets as diverse as Africa and Asia.

45 years ago, global stock markets were ruled by Auto and Oil majors like General Motors and Exxon Mobil; 25 years ago technology and telecom giants like IBM and Verizon first began to make their presence felt. In the last 5 years, tech has grown to account for over a fifth of the total value of the S&P 500. As the impact of technology spreads across the global economy, it is aggressively becoming the biggest value creator.

INCREASING SHARE OF TECH IN GLOBAL MARKET CAP

A study by Accenture and Oxford Economics estimated that “digital” technologies could add close to USD 1.36 trillion to the global output by 2020, contributing close to 4% of total global GDP². That’s equivalent to the size of the entire economy of South Korea.

That technology will power global value creation and claim a larger share of the global economic output is not even under question anymore. There is an air of inevitability to technology’s march.

The nature of tech is changing to consumer-tech

At the same time, the flavour of technology itself is changing - a change that is evident in the composition of top tech companies. In 1990, the biggest tech company by market cap was IBM. From 2010 onwards that position has been usurped by Apple. Services and hardware contributed over 65% to total tech m-cap in 1990. In 2015, Internet and consumer tech contributed 38% while the share of services was down to 3% and hardware and mobile to 16%.

In the last 5 years the share of Internet and consumer tech has more than doubled. In fact, the share of Internet and consumer tech has been increasing at an accelerating pace, with a growth of over 5x in just 3 years from 2012-15.

INCREASING SHARE OF INTERNET AND CONSUMER TECH IN THE S&P 500 MARKET CAP

Asia's climb in consumer tech

Along with the accelerating growth of consumer tech, another meaningful trend has been its expanding global footprint. Until a few years ago, it seemed inevitable that US based tech giants would dominate all markets – both developed and emerging. Now, with companies like Alibaba, Tencent and Baidu giving Amazon, Google and Facebook stiff competition, that theory is unequivocally challenged.
The Chinese e-commerce market is the largest in the world today, having grown 7.5x (659%) from 2010 to over USD 600 billion in 2015. Many factors have led to e-commerce becoming the default means of consumption in China.

The high level of Internet and mobile penetration were obvious growth drivers. China’s “pan-post-90s” generation (i.e., those born between 1985 and 1999) now accounts for over 50% of the country’s Internet population and have a far greater propensity to spend online. Indigenous companies gained an unsurpassable foothold in the market, benefiting from the gated nature of the economy, and invested heavily in creating seamless purchase, payment and delivery experience.

Source: CB Insights Deal data – Q1 2009 to Q1 2016

Source: China Iresearch, CNNIC
While China's overall economy appears to be slowing, the online economy hints at a different growth story. China’s growing tech-savvy middle class is expected to continue to propel retail demand forward for at least another decade.

The stupendous rise of ecommerce in China has been inspirational for many countries including India. However, India is possibly a more challenging market than China, with a poorer population, lower digital penetration and literacy, and weaker infrastructure. At the same time, the opportunity to cater to a market of 1.3 billion people is undeniably attractive. Especially at a time when global economic growth is steadily slowing down, the Indian economy is an outlier growing at 7.5%¹ per annum. Even as local consumer-tech companies such as Flipkart and Snapdeal compete for the consumer, the market is also attractive for foreign companies like Amazon and Alibaba, given the long-term growth potential.

'What', about India makes it such an attractive market? The answer lies in a combination of factors – micro and macro, socio-economic and demographic, that are coming together to give the economy the special ability to leapfrog to the next stage of development.
The 'Leapfrog' Effect

As tech continues its march globally, it is also beginning to play a greater role in the Indian economy. India's growth story has long been embedded in the strides taken by its service sector, particularly Information Technology Services. The strong foundation of the IT sector has provided a great launch pad for tech to grow and flourish over the last seven years.

SERVICES AND IT CONTRIBUTION TO INDIAN ECONOMY\(^6\)

The expansion of the Internet economy from IT to consumer tech and e-commerce has been on the back of strong Internet and mobile infrastructure and adoption. A young India, with greater than a third of its population in the age group of 15 to 34, enabled with digital infrastructure (estimated 330 million+ Internet users) and supported by rising disposable income of an expanding middle class, is arguably the most attractive market in the world. Consumers desire greater variety in everything from apparel to real estate and even means of payment.

\(^{6}\) Bloomberg data  \(^{7}\) Census 2011
INDIA IS HOME TO THE SECOND LARGEST INTERNET COMMUNITY IN THE WORLD (INTERNET USERS IN Mn - 2015)

Source: TRAI, Euromonitor, Internet stats Live

DIGITAL INDIA IS RAPIDLY EXPANDING TO INCLUDE ALMOST HALF THE POPULATION BY 2020 (INTERNET USERS IN Mn)

Source: TRAI, Avendus estimates

YOUNG INDIAN CONSUMERS ARE INCREASINGLY ADOPTING SMART PHONES (Mn USERS)

Source: TRAI, Avendus estimates

TO BROWSE SOCIAL MEDIA...

Source: Company Management, comScore, publicly available information.

... AND ALSO TO PURCHASE GOODS AND SERVICES ONLINE (MOBILE AS % OF TOTAL E-COM SALES IN 2015)

The Perfect Storm: Rising demand meets constrained supply

Even as demand accelerates, the jury is out on the ability of the supply side to deliver to higher consumer expectations. India suffers from visible supply constraints in numerous sectors – health, education, retail, power, manufacturing, connectivity and other infrastructure. These challenges are old, but this is the time for new solutions.

A recent estimate put India’s spending goal on roads, ports, power and other infrastructure between 2012 and 2017 at USD 1 trillion⁸. It further estimated that this investment would require a debt of USD 750 billion⁹. To put things in perspective, the debt required in itself is double the size of the Singapore economy and five times the existing advances of bank loans to infrastructure projects.

There are no easy alternatives to large parts of this investment in critical infrastructure. However, the added burden of developing important sectors like education, healthcare, and communication amongst others may well prove to be too much and will constrain growth in these sectors.

INDIA LAGS BEHIND GLOBAL COUNTERPARTS ON VARIOUS INFRASTRUCTURE RELATED METRICS

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<tr>
<th></th>
<th>US</th>
<th>China</th>
<th>India</th>
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<tbody>
<tr>
<td>Hospital Beds per 1000 persons</td>
<td>2.9</td>
<td>3.8</td>
<td>0.7</td>
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<tr>
<td>$364 Bn Investment required in Hospital Infrastructure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Teacher Ratio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>China</td>
<td>India</td>
<td></td>
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<tr>
<td>14</td>
<td>17</td>
<td>32</td>
<td></td>
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<tr>
<td>$267 Bn Investment required in Education Infrastructure</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>% with Account at a Financial Institution</td>
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<tr>
<td>US</td>
<td>China</td>
<td>India</td>
<td></td>
</tr>
<tr>
<td>94%</td>
<td>79%</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Hotel Rooms per 1000 persons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>China</td>
<td>India</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>$108 Bn Investment required in banking and payment infrastructure</td>
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Can technology plug the gaps in infrastructure and reduce the burden of required capital?

It is simply inevitable that India will have to rely on technology to play a crucial supplementary role in plugging the gaps by increasing access, improving efficiencies and lowering costs.

The world is abuzz with news on the potential impact of some recent technological advancements – in construction, drones are expected to be used to survey land for building sites, measure building progress, facilitate comparison with plans, produce 3D renderings of sites etc. In urban transportation, self-driving cars are expected to transform commuting, optimise under-utilized car capacity, free up driving time and even cause a drop in car ownership. In the tourism and hotel industry, aggregation of alternative accommodation and home stays, which can now be booked easily on one’s smartphones, has exponentially increased available capacity.

As a result, the world of tomorrow might witness quicker turnarounds on infrastructure projects, reduced pressure on urban traffic and reduced need to develop public-transport facilities like trains, subways, etc.; and reduced investment in building hotels to cater to booming tourism. What is common in each of these cases is how technology creates this impact – it is through better utilization of available resources, greater efficiencies, the ability to increase scale manifold at much lower than traditional costs.

Closer to home as well, many examples of tech enablement leading to increased efficiencies are playing out. One very visible illustration of this is how online cab aggregators are changing the commute landscape in the country.

Online Cab Aggregation: Changing the way India commutes

For most regular commuters in urban cities in India, intra-city travel habits have undergone a drastic change in the last two years, with online cab aggregators having completely changed the way cabs are booked. What started as a market for ‘frequent airport travellers’ catered to by radio taxi operators like Meru, has transformed into an app-only, on-demand cab booking industry led by Ola and Uber.

The rise of online cab-aggregators has been meteoric. Ola Cabs has an estimated fleet of 400,000 cabs, catering to over 1 million+ booking requests a day. Less than a year and a half ago, the company employed only 18,000 cabs. Uber, while present in lesser geographies in India (27 cities vs Ola’s 130+) claims to have a network of 250,000 cabs. In the race to win market share, cab aggregators have offered consumers a wide variety of offerings in services, pricing and payment methods, ensuring that Indians are increasingly “app-addicted” when it comes to hailing cabs.

This change initiated by online cab aggregators can have a massive impact on traditional transportation requirements and investment needed in public transport. In estimating the market size for online taxi aggregation, we concluded that each cab employed by online
aggregators delivers around 200 rides per month, more than double the number that they
did in 2014. In doing so, they have absorbed commuters that were using public transport
including trains, buses and autos/cabs and those who were planning to buy their first /
second car till just a couple of years ago. The affordability of services ensured by market
leaders has helped attract a very large customer base.

On the demand side, the cab aggregation industry will continue to see its customer base
expand exponentially in the coming years, due to generation of network effects within the
ecosystem. These network effects are already in motion, and will continue to compound
over the next few years –

• **Pick-up time:** As the market expands and more commuters book cabs online,
supplemented by more cabs being employed to cater to expanding demand, pick-up
times will fall. Shorter pick up times mean more reliability and more potential use-cases.
The more people use cabs, the better their service is likely to be

• **Coverage density:** As the number of cabs deployed per city grows to cater to
burgeoning demand, the density of coverage increases, once again leading to better
reliability and hence better service, which should in turn lead to even more demand

• **Utilization:** As demand increases, it betters capacity utilization for cab drivers, as they
find more rides easily. This will increase the number of paid rides per hour for drivers.
Increased utilization should allow greater revenue for drivers, even if cab aggregators
lower or stick to current prices. This ensures better availability of cabs for customers at
low rates – leading to greater demand

Many informal studies are already providing evidence that it may be cheaper to commute
by Ola/Uber than to own a personal car today. Add this to increasing parking woes,
pollution control restrictions on driving and increasing traffic, a new segment of customers
who currently commute using personal vehicles may also get added to the aggregators’
market. Further, by allowing ride-sharing, aggregators provide even greater cost-savings to
commuters. A back-of-the-envelope estimate shows that for those commuting to work 5
times a week, travelling by Ola/Uber shared cabs could save up to INR 13,000 per annum12.

Our conversations with cab aggregators have indicated that a key limiting factor they
identify to the growth of the sector is the supply of drivers. They have invested in providing
drivers with stable streams of income and higher earnings per month than most
comparable jobs, making driving for taxi aggregators an increasingly attractive profession.
In addition, this job gives the opportunity of asset creation, since most drivers get
ownership of cars post three to five years. We also think that as more and more educated
youth enter the job market and stigma towards social status of being a driver diminishes
(case in point is UBER’s latest ad campaigns), the quality of supply is likely to improve
ensuring a better and better service leading to a virtuous cycle of expansion of the market.
DRIVING FOR TAXI AGGREGATORS PRESENTS AN ATTRACTIVE OPPORTUNITY AGAINST COMPARABLE JOBS

In a country where the government is estimating an annual capital outlay in excess of USD 18 billion towards road transport, this change being brought about by taxi aggregators can have a significant impact. While it is difficult to estimate what percentage of public transport ridership can move to cabs, supply constraints eased by online cab aggregators cannot be doubted.

Yet another story of tech-enabled efficiencies is visible in the hotel/accommodation sector

INDIA CURRENTLY FACES CHRONIC UNDER-SUPPLY OF TRAVEL-ACCOMMODATION INFRASTRUCTURE COMPARED TO GLOBAL PEERS ....

Source: Euromonitor, India Tourism Statistics 2014 - Incredible India Report
Contributing USD 136 billion to the Indian GDP\(^1\), the tourism industry is a key growth driver of the economy. Receiving 5.5 million foreign tourists in the period of Jan to Aug 2016\(^2\) and an estimated 2.2 billion overnight stays per annum from domestic travellers\(^3\), the sector is witnessing burgeoning demand. At the same time, India severely lags behind comparable economies on hotel room inventory. Business models like Airbnb globally and Oyo Rooms, Fabhotels, Treebo and Stayzilla in India have attempted to solve supply constraints in the sector innovatively, by unlocking unbranded and alternative home stay options. By solving the problem of lack of room/service standardisation and quality assurance, these companies are shifting unbranded rooms to structured category.

**Is this phenomenon of leapfrogging restricted to a few sectors only?**

We are of the opinion that it is not. In fact, we believe that similar principles can be applied to other sectors.

A good example is consumer retail. At only 8% organised retail, India stands far behind China (20%), Thailand (40%) and UK (46%). The industry, heavily dominated by groceries, thrives on a vast and chaotic network of small Mom and Pop/kirana stores or unstructured markets. While many reasons have contributed to retail growing in this haphazard manner in India, an important one is the severe lack of modern retail space. Per capita retail space in India is just 2 sq. feet as compared with 23 sq. feet for UK and 47 for US. As a result, of 14 million shops in India, less than four percent are larger than 500 sq feet. In most metropolitan centres this scarce retail space is predictably expensive. Consequently, the introduction of online marketplaces that aggregate micro-sellers providing scale to suppliers and access to consumers has been a revolutionary success.

**SUPPLY CONSTRAINTS IN INDIAN RETAIL**

<table>
<thead>
<tr>
<th>Country</th>
<th>Retail Space per capita (sq ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>46.6</td>
</tr>
<tr>
<td>UK</td>
<td>23</td>
</tr>
<tr>
<td>Canada</td>
<td>13</td>
</tr>
<tr>
<td>Australia</td>
<td>6.5</td>
</tr>
<tr>
<td>India</td>
<td>2</td>
</tr>
<tr>
<td>Mexico</td>
<td>1.5</td>
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</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Organised Retail Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>48%</td>
</tr>
<tr>
<td>Thailand</td>
<td>40%</td>
</tr>
<tr>
<td>China</td>
<td>20%</td>
</tr>
<tr>
<td>India</td>
<td>8%</td>
</tr>
</tbody>
</table>

**Retail Space Investment needed in India**

- **$40 Bn**: India’s unorganised retail market
- **30 Bn sq. ft.**: Sq. ft. space needed to convert unorganised market into modern trade
- **$115 Bn**: Cost of renting of commercial property

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\(^1\) IBEF - Tourism and Hospitality Industry in India estimate for FY16, [http://www.ibef.org/industry/tourism-hospitality-india.aspx](http://www.ibef.org/industry/tourism-hospitality-india.aspx)


\(^3\) Avendus estimates – December 2015
E-commerce has enabled leapfrogging in retail to meet massive consumer demand. With annual gross sales of USD 4.5 billion in 2015, Flipkart’s GMV was 2.7 times that of Big Bazaar’s 280 stores combined.

Something similar is likely to happen in all sectors that are supply constrained and fraught with severe supply side inefficiencies. In education, we estimate that India needs 6 million extra seats and 9,000 new colleges by 2020 to provide seats for increasing enrolments in higher education. Almost 50% of graduates are not considered employable in any sector according to industry standards of employability. In this case, a shift towards online delivery of content can lead to decreased costs and revolutionized teaching techniques, through which education can be made universally available at a fraction of the cost of delivery through traditional means.

Yet another great example where the efficiency brought about by digital has already started to show is in delivery of financial services. India has lagged behind most countries on banking access, usage and penetration metrics, with almost half of the population having had no access to basic bank accounts until very recently. Indian customers have traditionally mistrusted electronic transactions, and while the tally stands at 646 million debit and 24 million credit cards, a large part of these are inactive or dormant in usage.

However, change is underway; the Indian formal financial services sector has expanded to include 240 million previously unbanked individuals in the last two years, and is on the cusp of including an equal number in the next few, as a part of the Pradhan Mantri Jan Dhan Yojna. What has been interesting to note, is the stress on use of digital in distribution of financial services both, by the government and the Reserve Bank. Whether it is in the mandatory distribution of Rupay cards (190 million cards have been distributed since the inception of the scheme in August 2015) or in the licensing of the soon-to-launch Payments Banks (banks to serve payments and savings needs of households and small businesses by leveraging digital infrastructure), the focus on proliferation of digital banking and payments is evident.

The momentum is building with the issuing-side challenges being slowly taken care of by banks and mobile wallet players. The growth of electronic payments has simultaneously been spurred by the meteoric rise in use of smart phones, and growing trust in electronic payments.
The ‘Leapfrog’ Effect

One of the bigger challenges has been lack of payment acceptance infrastructure, with only 1.3 million POS terminals, which cover less than 4% of organised merchants. In this regard too, the launch of a United Payments Interface can change the game by allowing any smartphone to become a payments accepting terminal. We believe that with these solutions, pieces of the puzzle are coming together to bring payments in India to an inflection point, and propelling it towards the next phase of explosive growth.

Source: RBI DBIE

In healthcare, India needs an estimated USD 364 billion investment in hospital and other medical infrastructure. Tech start-ups engaged in aggregation of healthcare professionals, home health services or e-pharmacies have begun to bring efficiency and convenience to consumers, democratising high-standard healthcare services and improving access, bettering efficiency of doctors, reducing visits and decreasing costs. Technology will continue to bring significant upsides through tele-medicine, virtual healthcare services, and computer based diagnostics systems.

It is true that digital holds no magical solutions, and there is no denying that India requires investment in better physical infrastructure. However, we believe that an investment in digital infrastructure is the only antidote to bridging the gap that exists between the burgeoning consumer demand and severely constrained supply constraints that exist today.

South Korea is the perfect role model for Digital India

Experts have often predicted that India can aspire towards a revolution similar to the Chinese consumer tech boom. Another Asian rising power, South Korea is a text-book example of a country that leveraged digital to leapfrog. Having been a third world country until not so long ago (South Korea’s per capita GDP was less than Ghana’s in 1965), the government of South Korea invested heavily in building Internet broadband infrastructure in the early 90s. So great was their ambition to globalise the Korean brand, and their belief that Internet was the only means to spread the Korean culture worldwide, the government

Source: RBI DBIE

<table>
<thead>
<tr>
<th>Number of POS terminals</th>
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<tbody>
<tr>
<td>Mar-12: 660,920</td>
</tr>
<tr>
<td>Mar-13: 854,290</td>
</tr>
<tr>
<td>Mar-14: 1,065,984</td>
</tr>
<tr>
<td>Mar-15: 1,126,735</td>
</tr>
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<td>Feb-16: 1,363,344</td>
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<table>
<thead>
<tr>
<th>Number of Credit Cards (Mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar-11: 18</td>
</tr>
<tr>
<td>Mar-12: 18</td>
</tr>
<tr>
<td>Mar-13: 20</td>
</tr>
<tr>
<td>Mar-14: 19</td>
</tr>
<tr>
<td>Mar-15: 21</td>
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<tr>
<td>Feb-16: 24</td>
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<table>
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<tr>
<th>Number of Debit Cards (Mn)</th>
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<tr>
<td>Mar-11: 228</td>
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<tr>
<td>Mar-12: 275</td>
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<tr>
<td>Mar-13: 331</td>
</tr>
<tr>
<td>Mar-14: 394</td>
</tr>
<tr>
<td>Mar-15: 553</td>
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<tr>
<td>Feb-16: 658</td>
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subsidised Internet for the poor, elderly and disabled. In addition to building Internet infrastructure, South Korea’s government also poured large amounts of money into local start-ups. Complimenting this came the growth the private companies like Samsung and Hyundai, leading to an overall boom in the economy. It is significant to note that South Korea’s Internet economy contributes 8% to GDP, behind only the UK.

We believe the same opportunity exists for India as its chalks its development path going forward.
How Large is the Internet Opportunity?

In less than a decade since its commencement, the Internet economy in India has witnessed dramatic changes. What started as a revolution in online travel followed by e-commerce between 2005 and 2012, is now throbbing with new buzzwords – hyperlocal, shared-economy, on-demand and bots. There is no doubt India is in the most exciting phase of its online revolution. Capital worth USD 7.6 billion was invested in Indian start-ups the period between 1st April 2015 to 31st March 2016 (FY16), represented 45% of the cumulative funding that has gone into the sector in the last 6 years. 2015 also saw the launch of 1,200 new start-ups.

$17 Bn OF FUNDING HAS GONE INTO THE INDIA INTERNET SECTOR IN LAST 6 YEARS

The recent downturn in funding activity has caught the attention of the world, with many wondering whether it implies the end of the good days for Indian consumer tech. We view this dip in investing as a necessary shift in focus from ‘growth at any cost’ to ‘building strong fundamentals and efficient unit economics’. The capital is directed towards players who have established leadership, are capital efficient and have strong unit economics and growth.
With 331 million users currently online, estimated to more than double in the next 5 years, the Internet economy in India is not demand constrained – in fact it is likely to benefit not only from increased frequency of purchasing by existing consumers, but also from additional users with entirely new demographic traits and behaviour patterns for whom new brands and habits can be created.

The growth of the Internet sector is sensitive to some external developments; in particular, access to cheap and high quality telecom connectivity across the country. Telecom connectivity in India has scaled rapidly in terms of the number of wireless connections, spreading to remote corners of the country. While the reach of telecom in itself is commendable, it is fair to say that the quality of connectivity is, at best, patchy, even in large metropolitan centres. This inconsistency in quality of data is a deterrent to transacting online, since it makes the online shopping experience time-taking, inconvenient and prone to transaction drops.
However, much is being done by the government as well as the private sector to improve the current situation. On one hand, the ambitious Digital India scheme promises to provide WiFi connectivity to 2,500 cities and towns across the country by 2018. Additionally, private telecom companies like Reliance Jio investing more than USD 23 billion to provide access to mobile internet services to 90% of India’s population by March 2017. Similarly, Vodafone plans to invest USD 7 billion to buy more spectrum, expand infrastructure and improve service quality in India.

If these investments bear fruit in a time-bound manner, India will see significant improvement in data quality at rates that are lower than most economies. We believe that this improvement has the potential to not only cause massive increase in data usage but also to improve the user experience significantly, which will drive the growth of the sector.

What does this mean for the market? We believe that the market opportunity is greatly diversifying.

So far, e-tail has been the highest recipient of funding and generator of Gross Merchandise Value (GMV). In the next five years we believe that the impact of tech, in the form of disruption from business models such as digital aggregation, transactions, or listings, will be felt across sectors – new and traditional. This disruption is already beginning to be seen in sectors such as Financial Services and Logistics that are crucial growth drivers of the economy, and is emerging in other significant sectors such as Education and Healthcare.

Source: GSMA 2013

Source: Economist - 2013
E-tailing was the most popular funding destination, however FinTech and Transport is attracting significant interest.

E-commerce has received 50% of the funding so far. T&T remains 2nd largest due to cabs becoming important vs. 1st phase of T&T that focussed on OTAs. But others like FinTech and Digital Content are seeing more interest.

Source: CB Insights, VCCEdge, Venture Intelligence, Avendus estimates.

In the appendix to this prologue we have attempted to estimate the contribution and growth of some of the larger sub-sectors of the Consumer Internet industry, by sizing market opportunity today and over the next five years.

We will attempt to conduct an in-depth analysis of each of these sectors – and we are beginning this series with studying the Logistics industry – one of the highest contributors to India’s GDP. Logistics has seen dramatic tech-led innovations in recent years in India, having been the fundamental building block for growth of e-commerce. Our analysis of the emerging logistics-tech industry can be found in our Report: “Logistics-tech – Re-architecting the nervous system of the economy”.
E-TAIL

Unique Internet Users (Mn)

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>331</td>
<td>723</td>
</tr>
</tbody>
</table>

2.2x

Unique Online Shoppers (Mn)

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45</td>
<td>259</td>
</tr>
</tbody>
</table>

5.8x

Shoppers

Market Size - CY15

45 Mn

Market Size - CY20

259 Mn

Online spend

1.8x

Online grocery market

+ 0.05% online penetration

$12 Bn

Online penetration

+ 0.3% online penetration

$95 Bn

ONLINE TRAVEL – BUS MARKET

Daily Bus Services

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28,000</td>
<td>49,346</td>
</tr>
</tbody>
</table>

2.2x

Average seats per bus

40

Average occupancy

80%

Volume of tickets sold (Mn)

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>327 Mn</td>
<td>576 Mn</td>
</tr>
</tbody>
</table>

1.8x

Tickets

Market Size - CY15

327 Mn

Market Size - CY20

576 Mn

Average seat fare

$10

Online penetration

9%

$294 Mn

$14

35%

$2,829 Mn

* Bus industry traditional growth at 10-12%
ONLINE TAXI AGGREGATION MARKET

Addressable Cabs for Aggregators (Mn)

<table>
<thead>
<tr>
<th>Year</th>
<th>Unique Smartphone Users</th>
<th>Addressable Cabs for Aggregators</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15</td>
<td>103</td>
<td>1,305</td>
</tr>
<tr>
<td>CY20</td>
<td>12x</td>
<td>56%</td>
</tr>
</tbody>
</table>

# of Trips per Cab per Month

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>CY20</td>
<td>213</td>
<td></td>
</tr>
</tbody>
</table>

Average Earnings per Trip

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>CY20</td>
<td>4.6</td>
<td></td>
</tr>
</tbody>
</table>

Online Market Size - CY15 = $540 Mn

Online Market Size - CY20 = $15.4 Bn

TRAVEL - ACCOMMODATION

Room Nights Occupied (Mn)

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15</td>
<td>586</td>
<td></td>
</tr>
<tr>
<td>CY20</td>
<td>974</td>
<td></td>
</tr>
</tbody>
</table>

Average Room Rate (USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>CY20</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

Gross Booking Value (USD Bn)

<table>
<thead>
<tr>
<th>Year</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>CY20</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

GBV

<table>
<thead>
<tr>
<th>Market Size</th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15</td>
<td>15 Bn</td>
<td>5.5%</td>
</tr>
<tr>
<td>CY20</td>
<td>32 Bn</td>
<td>21.5%</td>
</tr>
</tbody>
</table>
## CONTENT – ONLINE MUSIC

### Unique Smartphone Users (Mn)

- CY15: 168 Mn
- CY20: 664 Mn
- Growth: 4x

### Unique 3G Users (Mn)

- CY15: 126 Mn
- CY20: 597 Mn
- Growth: 5x

### Music Streaming MAUs (Mn)

- CY15: 27 Mn
- CY20: 273 Mn
- Growth: 15x

### Market Size - CY15

- 27 Mn MAUs
- ARPU*: $0.2
- Market Size: $6 Mn

### Market Size - CY20

- 273 Mn MAUs
- ARPU*: $2
- Market Size: $514 Mn

* Blended APRU for advertising and subscription revenue

---

## FINTECH – SHORT TERM LENDING UNDERLYING MARKET SIZE

### Total Micro SMEs (Mn)

- CY15: 24.8 Mn
- CY20: 31.7 Mn

### Addressable SMEs (Mn)

- CY15: 10.9 Mn
- CY20: 13.8 Mn

### % self / unfinanced

- CY15: 72%
- CY20: 60%

### % requiring ST Debt

- CY15: 28%
- CY20: 40%

### Micro Ent.s

- Market Size - CY15: 10.9 Mn
- Average Loan Size: $7.7 K
- Market Size: $83 Bn

- Market Size - CY20: 10.9 Mn
- Average Loan Size: $13.8 K
- Market Size: $136 Bn
FINTECH – PAYMENTS

Total Payments (USD Bn)

Online Payments (USD Bn)

Payment Opportunity (USD Mn)

<table>
<thead>
<tr>
<th></th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>45</td>
<td>185</td>
</tr>
<tr>
<td>Online</td>
<td>17</td>
<td>111</td>
</tr>
<tr>
<td>Opportunity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Online payments include e-tail, e-travel, cab agg, online gaming, local services, recharges

FINTECH – DIGITAL DISTRIBUTION OF CREDIT CARDS

Credit Cards Sold (USD Mn)

Total Market Size (USD Mn)

Digital Market Size (USD Mn)

<table>
<thead>
<tr>
<th></th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td>2.4</td>
<td>4.8</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>149</td>
</tr>
<tr>
<td>Digital</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revenue per CC sold: INR 2,000 (constant)

FINTECH – DIGITAL DISTRIBUTION OF LOANS (home, auto, educational, personal)

Total Loan Market Size (USD Bn)

Commission Market Size (USD Mn)

Digital Market Size (USD Mn)

<table>
<thead>
<tr>
<th></th>
<th>CY15</th>
<th>CY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>97</td>
<td>135</td>
</tr>
<tr>
<td>Commission</td>
<td>953</td>
<td>1,917</td>
</tr>
<tr>
<td>Digital</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Commission rate assumed at 1.4% (constant)
**FINTECH – DIGITAL DISTRIBUTION OF B2C INSURANCE**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15: 14</td>
<td>CY15: 0.4%</td>
<td>CY15: 56</td>
</tr>
<tr>
<td>CY20: 18</td>
<td>CY20: 3%</td>
<td>CY20: 540</td>
</tr>
</tbody>
</table>

**FINTECH – DIGITAL DISTRIBUTION OF MUTUAL FUNDS**

<table>
<thead>
<tr>
<th>AUM (USD Bn)</th>
<th>Commission Market Size (USD Mn)</th>
<th>Digital market size (USD Mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15: 185</td>
<td>CY15: 2.8%</td>
<td>CY15: 10%</td>
</tr>
<tr>
<td>CY20: 276</td>
<td>CY20: 2.7%</td>
<td>CY20: 25%</td>
</tr>
</tbody>
</table>

**ENTERTAINMENT – ONLINE MOVIE TICKETING**

<table>
<thead>
<tr>
<th>Volume of tickets sold (Mn)</th>
<th>Ticket Sales (USD Mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY15: 1,808</td>
<td>CY15: 1,851</td>
</tr>
<tr>
<td>CY20: 2,167</td>
<td>CY20: 2,959</td>
</tr>
</tbody>
</table>

- **Movie Ticketing Market Size**
  - Online Market Size - CY15: $1.9 Bn
  - Online Market Size - CY20: $3 Bn

- **Penetration of Online Ticketing Players**
  - Online Market Size - CY15: 16%
  - Online Market Size - CY20: 70%

- **Online Ticketing Market Size**
  - Online Market Size - CY15: $300 Mn
  - Online Market Size - CY20: $2 Bn
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Our offices

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