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Next Generation Mobile Network in India and Impact on the Indian Entrepreneurship Eco-System

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The year 2016 was perhaps a watershed in the history of the telecommunications industry in India with the launch of the Reliance Jio. Reported to be the largest ever investment for a single brand in the history of the segment, the Jio launch has set in motion a series of consequences for the Indian corporate and entrepreneurial ecosystem. The Internet which appeared during the last quarter of the 20th century has influenced all parts of our lives in a short time. It gave rise to the existence of the electronic commerce phenomenon also referred as e-commerce as 'commercial transactions conducted electronically on the Internet'(Oxford Dic., 2012). These companies sell products and services directly to consumers via the Internet. On the other hand traditional companies also enhance their marketing strategies to adopt today's requirements and create their own online sales channels and become click-and-mortar companies. This article endeavours to track the changes impacting Indian Entrepreneurship growth in the wake of new developments in technology in the telecom and ecommerce space. E-commerce can been divided into four categories: business to business (B2B), business to consumer (B2C) or consumer to consumer (C2C) or consumer to business (C2B). B2B e-commerce is the electronic support of business transactions between companies and covers a broad spectrum of applications that enable an enterprise or business to form electronic relationships with their distributors, resellers, suppliers, and other partners. Another type of transaction, business to consumer e-commerce activities also known as e-retailing, take place between between organisations and the customers. The boom in entrepreneurship in India is today fuelled by the Internet. Nowadays, mobile devices have become a part of our lives. This trend has brought an opportunity to shop online form via mobile devices, such as smartphones, e-readers, tablets, etc. The numbers demonstrates that 'ecommerce is taking a bigger slice of the overall retail sales pie world wide and is growing far faster than retail sales' (Internet Retailer, 2011).

In India, the Android smartphone ecosystem has thrived more by building a more inclusive platform for low cost mobiles and small entrepreneurs. Though Apple made the Smartphone stylish it was Google's Android that made it accessible to millions. Google is mainly an Internet company that sells online advertising which contributed 90% to Google's total revenues in 2014. The search advertising business continues to be the cash cow for Google, as it contributes more than 80% to Google's total ad revenues(eMarketer, 2012). However, recently Google has been formally charged with monopoly abuse over an alleged effort to crush rivals to its mobile search service and Android smartphone operating system. The European Commissioner for competition, accused Google of pursing "an overall strategy on mobile devices to protect and expand its dominant position in internet search". Except for a regulatory dekko on 'google tax', the authorities in India have not looked closely into this issue.

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I. THE SMARTPHONE REVOLUTION IN INDIA

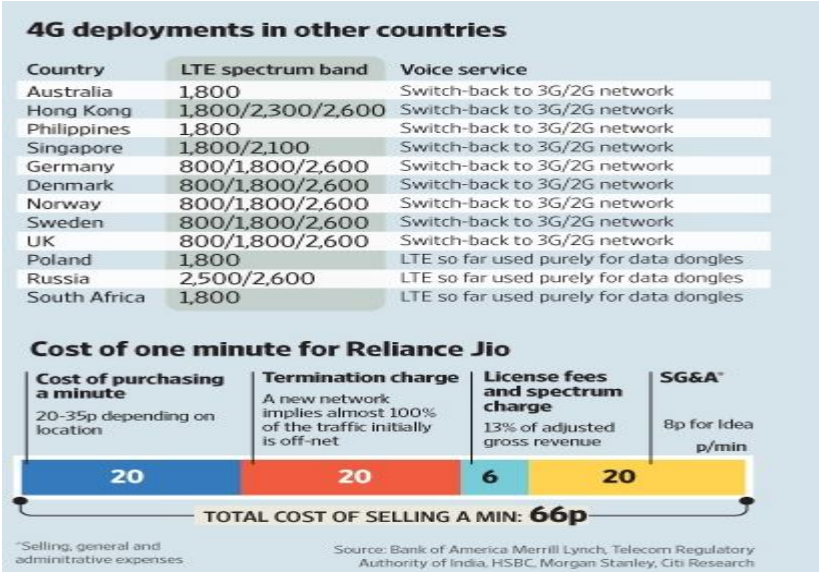
India had 402 million Internet users in December 2015 and its user base increased by 49% compared to 2014. During 2015, 317 million Indian users accessed Internet and mobile was responsible for a big chunk of this growth. The top eight Indian metros are single largest block of users, accounting for 31% of the overall user base. Mumbai and Delhi had the most number of Internet users whereas smaller metros, like Jaipur, Surat, and Lucknow, have seen a growth of 60% in monthly active user base (users who have accessed Internet at least once a month) over last year.

The Jio launch should be looked in the background of faster internet speeds and offerings from the service providers like Airtel, Idea and Vodafone. The Indian consumer has seen the early days of the mobile internet with a basic GPRS connection (2.5G), followed by EDGE (2.75G) and then the 3G offerings available in the market. On slow networks like GPRS/EDGE, consumers could hook on to WAP sites promoting entertainment, news and similar content, but the experience was not rich and engaging for the user. With 3G, many new avenues opened up for consumers to engage with the internet viz. multi-player games, online purchases, buying and selling goods, among many more. There is a growing demand for mobile video content across genres, and this need will only increase with a high-speed data network. Bollywood and regional music and film videos as well as global videos in entertainment. With 4G, the online gaming experience will significantly improve, and this should entice game developers to come out with highly engaging features for consumers.

India has always been a cost-sensitive market, and it is no surprise that some carriers have announced their 4G offerings at 3G rates. With Jio launching free voice calling and low cost Data this should only boom. Carriers understand that content is the key to growth, and it would be natural to expect carriers to come out with special offers around services like streaming, gaming stores, video chat, etc. Essentially, 4G networks are faster because of behind-the-scenes software and hardware improvements, all of which add up to download speeds perhaps 10 times speedier than 3G.

Typically, 4G networks offer faster service and can provide smartphone-sizzling speeds to many users at the same time. Those capabilities open up a new horizon of opportunities for all sorts of novel wireless applications that might simplify our lives, keep us better connected and yes, perhaps even change the way we work and play. Tight now you can use your 3G phone for video calls, YouTube clips and sometimes even streaming live TV. But when network congestion is high, that video stutters, skips and becomes generally unwatchable. 4G will be a lot faster, and those speed increases are necessary. With data traffic expected to explode by 33 times before 2020, older networks will be strained to the breaking point. More and more people using video will bog down networks further.

Businesses now rely on wireless. In fact, 96% of small businesses use wireless devices, and 63 percent say they couldn't survive without their ubiquitous connections. 3G made it a gamble to access files several megabytes in size. With 4G a big part of the mobile office equation is solved. Now, graphics, video clips and presentations loaded with all sorts of multimedia are accessible via a smartphone or tablet. Even at hours when network traffic is exceedingly high, you'll still be able to send and receive data reliably, for pleasure and for less fun activities. To access streaming media like high-quality audio, you need a nearby base station. With 4G, base stations will be more numerous, providing high-speed service to smaller areas.



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II. FOUNDATION FOR ENTREPRENEURIAL ECOSYSTEM

"The Internet of Things," refers to the idea of everyone and everything (from milk cartons to cows) having embedded chips that identify and connect them to the Internet. Your alarm clock, for instance, could become a more intelligent and useful device. Connected to the Internet, it knows when the roads are icy and that you'll need extra time to make the commute, so it wakes you up earlier. It also starts your car to make sure the windows are ice-free in time for your departure. But with everything from cows to milk emitting data at all times, networks will need to accommodate a ceaseless flow of wireless traffic. 3G networks won't be able to handle the burden, but the increased capacity of 4G can. A single 3G base station lets only a few dozen people work at 3G-like speeds. However, 4G networks allow more people -- sometimes hundreds -- to simultaneously access and share a 4G connection[source: Telecoms].

The global race is on to develop 5G, the fifth generation of mobile network which will follow in the footsteps of 4G and 3G(Prof Rahim Tafazolli, UK's 5G Innovation Centre, University of Surrey). The key is the "harmonisation of the radio spectrum" since Data is transmitted via radio waves. The use of these frequency bands is regulated by the International Telecommunications Union (ITU). To pave the way for 5G the ITU is comprehensively restructuring the parts of the radio network used to transmit data, while allowing pre-existing communications, including 4G and 3G, to continue functioning.

India's internet population is growing at 350 million is growing due to mobiles(IAMAI). Over 60% of this is coming from the mobile (Indian Express October 7, 2016). There is no other market in the world where the mobile dominates the Internet as much. Even companies like Flipkart or Zomato would have been much smaller had the mobile Internet boom not happened in India.

After the launch of Jio this can only increased and affordable 4G smartphones have been flooding the Indian market with no significant price differential between 3G and 4G devices at the entry-level range. India is in a unique situation and can become one of the first few countries to move to a 4G + 2G network combination and a shutdown of 3G. Jio promises an LTE network to provide 90% population coverage at launch deploying upto 35 MHz of spectrum.

India has very low penetration of 3G unlike some other markets and a large number of subscribers will move to 4G with their next handset upgrade. Most new customers will enter on 4G, driven by high decibel marketing campaigns of all operators. However, spectrum in India is limited and expensive. The 3G spectrum that operators bought in 2010 is valid till 2030 and can also be used for LTE allowing operators to drive economies of scale through a more simplified network architecture and lower price to customers. Many 3G networks in India could be shutdown and India may be one of the first 2G + 4G market by 2019. This of course has a huge implication for India since existing players need to make LTE central to their plans and ensure the 3G equipment and services can be seamlessly migrated to 4G.

The implications of the Jio entry into low cost 4G space in Smartphones have many implications for entrepreneurship

A. Handset manufacturers have started making mobile phones that are specially designed for use across multiple 4G bands. In fact, RJio has forayed into mobile devices under the Lyf brand and has successfully bundled service offerings with the hardware for its current incumbents.

B. Several companies in India waiting to harness smartphone enabled platforms. Byju is perhaps India's biggest and arguably the most well-known ed-tech company with a strong presence in the Media in the form of promos and advertising. Starting as a small company in Bangalore, Byju's began as an offline test prep provider for CAT, GRE, GMAT, JEE & Med, and the Civil Services exams. It then expanded into coaching for Higher Secondary classes and Byju, a shrewd entrepreneur raised over $40 million in funds from the Manipal Group & Sequoia Capital. The company launched its first application through a mobile platform and currently reaches over 2 million students, all of whom are free users, and are adding nearly 20,000 students every month.

C. It will further fuel India's e-commerce boom which is attracting entrepreneurs and artisans from slums across the country. Even slum dwellers from Delhi, Bengaluru, Haryana and Rajasthan are selling products such as luggage, shoes, accessories, pottery, apparel and jewellery on online marketplaces including Amazon, Paytm, Snapdeal, eBay and Indianroots(ET, R.Maheswari).

D. Amazon has extended its global selling programme to allow Indian SMEs to sell on nine marketplaces including the US, Japan, Canada, France, Germany, Spain, Italy, the UK and Mexico and currently over 6,000 sellers from India have access to this global customer base and can ship their products to 185 countries. Commerce platform Paytm said it will launch a new section on its app and website for Indian-origin products. Apps on the mobile platform are fueling a boom too.

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Mobile Phone* and Smartphone Users in India, 2014-2019**

	2014	2015	2016	2017	2018	2019
Mobile phone users* (millions)	**581.1**	**638.4**	**684.1**	**730.7**	**775.5**	**813.2**
—% of population	47.0%	51.0%	54.0%	57.0%	59.8%	62.0%
—% change	10.7%	9.9%	7.2%	6.8%	6.1%	4.9%
Smartphone users (millions)**	**123.3**	**167.9**	**204.1**	**243.8**	**279.2**	**317.1**
—% of mobile phone users	21.2%	26.3%	29.8%	33.4%	36.0%	39.0%
—% change	62.1%	36.2%	21.5%	19.5%	14.5%	13.6%

*Note: *individuals of any age who own at least one mobile phone and use the phone(s) at least once per month; **individuals of any age who own at least one smartphone and use the smartphone(s) at least once per month*
Source: eMarketer, July 2015

193900 www.eMarketer.com

How does the smartphone ecosystem contribute to entrepreneurship? Some salient factors,

E. Indian mobile users on an average store upto 32 apps on their mobiles which is lower than the world average of 42 apps. This may be due to the fact that most of the new smartphone users in the country use low-end handsets that carry lesser in-built memory(Neeraj, DazeInfo, IAMAI, 2016)

F. While a majority of apps are in the English, Hindi apps contribute to 26% of total downloads(9App). India, with over 350 million mobile internet users(IAMAI Report, 2016) is largely expected to be the next big app market in the world. (BS, Business Standard, 2016). The exploded adoption of smartphones due to declining ASP (Average Selling Price) is resulting in an enormous surge in the number of mobile internet users in India.

G. It is estimated that 71% of the estimated 371 million mobile internet users in India will belong to Urban area. However, the rural area still holds an enormous potential to drive the future growth. As the number of mobile internet users is increasing with each passing year, mobile users in India are becoming more data hungry.

H. With more than 65 % of the population under 35 years of age and a record-breaking growth in smartphone adoption and data services across the country, there has been a rising demand for next-generation services. There is an increasing trajectory of entrepreneurs and new start-ups over the last five years, for all of the key stakeholders in the Indian ecosystem — including government, educational institutions, entrepreneurship support organizations, investors and entrepreneurs

I. Prime Minister Narendra Modi has launched the "Startup India" action plan to provide entrepreneurs with various subsidies, as well as relaxed norms for starting up businesses in India. The government of India's Innovation arm, Niti Aayog — the National Institution for Transforming India — also announced there will be up to $2 million in support for those setting up and

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modernizing existing start-up incubators across the country — as well as to promote entrepreneurship right at the high school level.

Today, India currently has more than 48 million small businesses, double the number of the small companies here in the U.S. (23 million). According to a report by Business Today. Breakdowns among the top industries are Retail (except motor vehicles): 40% Clothing manufacturing: 8.75%, Food & Beverage: 7%, Services: 6.2%, Auto (sales, maintenance, repairs): 3.6%, Furniture: 3.2%. In India, Micro, Small and Medium Enterprises (MSME) contribute nearly 8% of the country's GDP, 45 percent of the manufacturing output, and 40 percent of the country's total exports. Small businesses in India create 1.3 million jobs every year and provide the largest share of employment after agriculture.

With over 4,200 new-age companies, India ranks third after US and UK, among global start-up ecosystems (Nasscom, *Start-up* India: Momentous Rise of the Indian Start-up Ecosystem). India had 3,100 start-ups in 2014 which is expected to grow to 11,500 start-ups in 2020. Microsoft Ventures and Venture Intelligence. Vikash Jain, BCG and Dr Kaustubh Dhargalkar, WIMDDR decoded the reason behind the growth on some salient features like Technology, Risk Management, Social Entrepreneurship, East of Communications, Funds etc. The factors below have thrown up the tectonic changes in Entrepreneurship.

J. Technology has simplified the way business is done. Since, there is no need for conventional retail, or distributors and Entrepreneurs can access the market through the internet. Earlier, entrepreneurs had to seek and convince retailers, distributors, etc to stock the product or service. The entrepreneur is thus not at the mercy of the middle-men and sell directly to customers.

K. In many technology and management schools, there is an increasing percentage of students interested in entrepreneurship. For those who come from sound economic backgrounds, there is no compulsion to earn money immediately after completing their studies enabling risk-taking and helping start-up ecosystems.

L. Similarly, Social entrepreneurship has grown. There are also more avenues to raise funds today like seed funds, angel funds, crowdfunding, VC funding etc. There are a number of colleges and B-School that have centres of innovation, Incubation and Entrepreneurship. In addition to these is a vibrant eco-system which is supportive of entrepreneurship with companies that offer loan office space, furniture etc.

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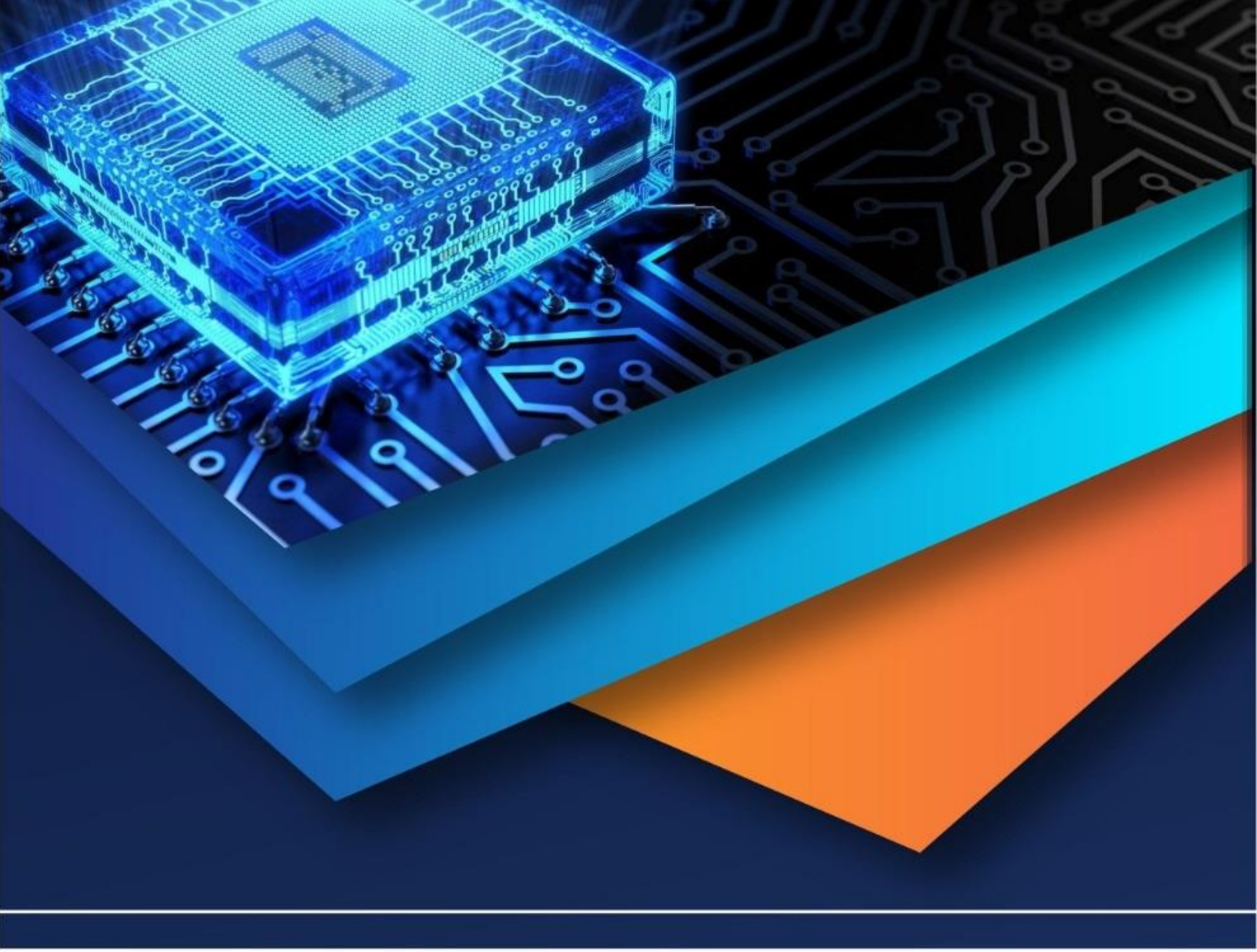

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