RESEARCH PAPERS

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Indira Management Review (IMR)

(Bi-annual International Research and Academic Journal)

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Indira Management Review (IMR)
(Bi-annual International Research and Academic Journal)

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Chief Editor's Desk

Indira Management Review (IMR) is an international biannual peer reviewed journal published by Indira school of Business studies (ISBS). Management education forms the hallmark of the business school and research is one of the pillars centring around the context which evolves management thinking on newer developments in India and the Globe. IMR encourages new ideas and perspectives on existing research. Manuscripts that are suitable for publication in IMR cover domains such as business strategy and policy, IT sourcing, entrepreneurship, human resource management, financial management, organizational behaviour, organizational theory, marketing and research.

Some excerpts from the current publications are presented to you:

Digital Disruptions in Engineering and Manufacturing Industry is presented very aptly as the 'digital' wave of 'disruption' has changed the global 'engineering' and 'manufacturing' landscape and radical impact is seen in the overall business scenario. Digitization of *Pune Mahanagar Parivahan Mahamandal Ltd.* has been showcased by the author in real time gain for commuters and improved the reliability and user-base resulting in ease of traffic congestion and associated benefits. Another relevant perspective is provided with research and reviews from the top international policy makers in the recent past showcasing how economic reforms unleashed by India would boost growth and accelerate its Global Economic Alliances. Another author's contention is worth viewing about Global Entrepreneurship Monitor, stating how Indian economy is factor driven economy and reforms put in place in this direction would yield impressive growth for the nation. Digitization is reiterated again by portraying how robots and automation obeying the masters sitting in different continent will drive the man-less factories, employees riding self-contained driverless automobiles becoming a reality thus confirming how the digital twins, the continuing convergence of the real and the virtual worlds will be the main driver of innovation and change in all sectors of our economy.

Relevance of consumers in the digital age is strengthened by stating how adopting unique approaches for enterprise level value stream mapping in organizations can drive customers and map the business processes accordingly to satisfy its stakeholders. The pace, at which digital innovations have expanded, has put established organizations at jeopardy. In the automobile industry, digitalization brings new players, shifting the technological spotlight from traditional to IT, enabling consumers to educate themselves in connectivity mobility, and converting them to ever more valuable source of information.

Thus IMR hopes that with presented publications, readers will foresee improvement need as universal and yet recognize that areas of focus are critical in this approach. The key to reaching and sustaining world leading competitiveness is not a series of randomly selected events, it is a vision of the future state of processes and a strategic plan for making that vision a reality.

Dr. R. Bhargava
Director, Indira School of Business Studies, Pune

From the Desk of Executive Editor

IMR is published twice in a year in December & July. Both print and online versions are available for review. The journal invites articles with a focus on different management issues pertinent to the Indian economy & corporate sector. Articles dealing with international issues are also welcome. IMR attaches significant importance to issues like ethics, values & governance. Consequently we encourage papers in the areas with a concurrent focus on management issues. IMR also publishes one or more book reviews, articles & case studies.

The journal is targeted at industry participants & practitioners, academicians, research scholars who are our prime audience. The articles and papers published would thus aim to meet the needs of this primary segment.

All the research based articles are subject to blind review process as determined by the editorial team. We would like to congratulate our contributing authors for showcasing their research acumen by contributing diverse research articles to our journal. We hope to get incessant support in the form of best research articles from our readers.

I must give special thanks to Chief Editor Dr. Renu Bhargava, who had the vision to embark on this project. Her ability to draw together diverse talents and resources and her confidence that we could actually bring this journal to fruition is the mark of a true leader. I would also be remiss without acknowledging the contributions of our authors, whose contributions have made this issue a reality.

We invite all the authors and their professional colleagues to submit their research papers, articles, case studies, & book reviews for publication in our forthcoming issue i.e. Vol. XI | Issue II| December 2017 as per the "Scope and Guidelines to Authors" given at the end of this issue. Any comments and observations for the improvement of the journal are most welcome.

We wish all readers meaningful and quality time while going through the journal.

Dr. Suvarna Deshpande
Executive Editor
Indira Management Review
Bi-annual, International Research & Academic Journal

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Article

Digital Disruptions in Engineering and Manufacturing Industry

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Abstract: This paper holds that, as the 'digital' wave of 'disruption' has changed the global 'engineering' and 'manufacturing' landscape, radical impact is seen in the overall business scenario. There are opportunities to be grabbed as the old guard gives way to the new guard, cracks developed in the traditional channels paving ways to the smart players to make their footprint. Need is to evolve with the changed strategies to ride the wave in search of transformation and opportunities with it based on the backbone of a strong strategy backing the technologies to make this happen. There will be a need of trained manpower along the way, inquisitive minds, good mentors to meet the challenges. Collaborative partnerships, sharing of data, data lakes and bridges of connectivity, mobility, Internet of Things and Big Data Analytics will be the terms seen floating around. Agile methods will be used to farm this data with the cloud security and ethical behaviour as a social norm personifying a global citizen. Digital Design Houses, Digital Manufacturing, Digital Services and Digital Distributions are the newer pastures for the business houses in the near future. Robots and automation obeying the masters sitting in different continent driving the man-less factories, employees riding in their self-contained driverless automobiles would soon be a reality. Digital Twins --the continuing convergence of the real and the virtual worlds will be the main driver of innovation and change in all sectors of our economy. This article discusses the impact, challenges and opportunities of digitization and concludes with examples of recommended actions to meet the objectives.

Keywords: Digitalization, Disruption, Engineering and Manufacturing Industry

Introduction

Taking advantage of the opportunities to make changes to the business in terms of Products, the processes to build those products and the overall business model by converting analogue information to the digital information with the help of various innovative strategies and technologies available in the market can be defined as 'Digitization'. The current trend and belief makes it pertinent to note that digitization is seen as a panacea to correct many wrongs in the existing businesses to drive home the advantages of cost benefits/revenue generation, efficiencies and productivity with a large improvement in quality. Experts have started calling this as a new mantra for growth, reliability and cost saving up to 25% compared to their conventional peers in the same industry—due to automation that comes with it. This was termed as IT overhead during the bygone era, and was looked down upon as the whim of the management. However, the game plan has changed in the recent times and has led more credence to the claims that IT has been making for years on the benefits of the digitization, though the terminology for the change may have been very different. Interestingly, the companies that are leading the charge for making the strategic infrastructure for the digitizing and shifting the trend globally is mere 6% -8% of the entire industry. These are the Amazon's, the Apple's, the Facebook's, Twitter's and the Oracle's

of the world we are talking about. They are the high-tech trailblazers who are the trendsetters causing enormous disruptions in the marketplace and have made the industries such as Automotive, Pharmaceuticals, Traditional Manufacturing, Retail, Banking and many others change the way they have been traditionally doing their business. It will be interesting journey to see how the transformative companies navigate this disruptive era successfully and the adamant aka inflexible ones bite the dust. Digitization, they say, is at the inflection point where the business and technologies work together in unison. The trends in the past suggest that the Engineering industry, especially the Mechanical and Manufacturing are close followers of the high tech companies mentioned above. The cycle of the change used to be a lag of 7–10 years and it was an accepted norm. However, with this disruption, the gap has closed and the players are switching roles as well. The service providers have rolled up sleeves and are seeking the market pie that used to be the traditional players' market. That has made the conventional players sit up, take notice and act to meet this disruption with a knee jerk action in some cases. Nevertheless, the ecosystem is changing and the world is taking notice of this digital disruption.
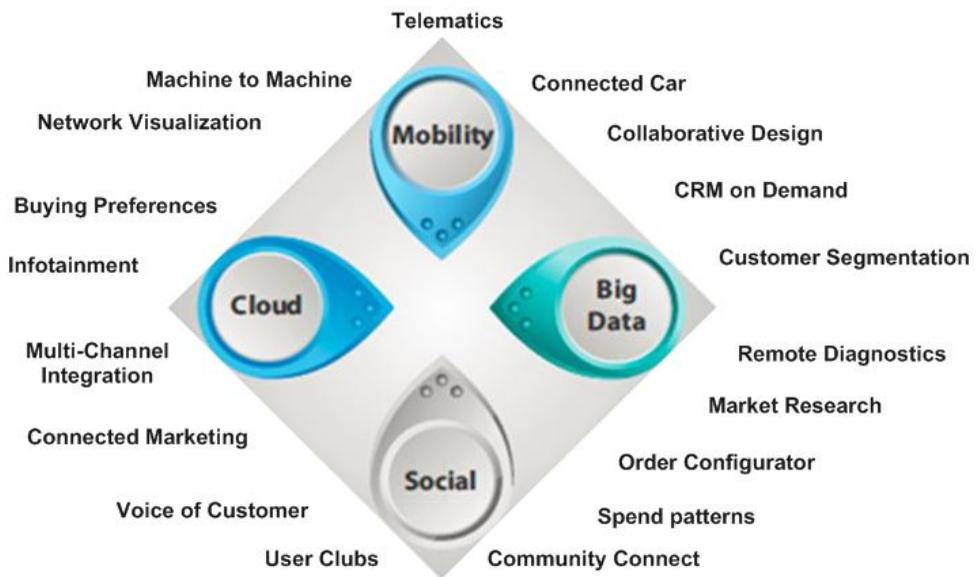
Fig. 1: Digital Wave

The cutting edge technologies, as depicted above, have provided the momentum for a fresh digital wave. The current wave of digital disruption-led commercialism is an outcome of the influence of mingling technologies such as big data, high performance computing cloud, mobility, and social media. This has enabled engineering industries to seek new business models and contrasting opportunities, both on the manufacturing side as well as the consumer engagement side of the business.

Literature Review

'How close is the revolution to our factory doors, and where I should make investments in infrastructure, cyber security, and partnerships?' is the question Brian Hartmann, consultant in McKinsey's Detroit office, is asking. This is the representative question that the manufacturers are seeking answers from the manufacturing gurus of the world. With the advent of the Big Data Analytics, the Internet of Things and the expert advice that the software makers and the consulting companies are offering, it has become prudent of the traditional production shops to look at the existing workflows and the amount of data that is generated in their factories. Can this data be collected, farmed with the latest technologies, analyzed to the good effect and used for the overall improvements the author is talking about. Author points out the dangers lurking around if the players do not change and use this wave of innovation to their own benefits. Adapt to the change or fall aside that is clear by the day.

Chet Namboodri, in his Cisco blog, takes a holistic approach in explaining the connectivity that is impacting the production shops. Predicting that 40% of the players would be impacted, the ones who are ready to change would be hugely benefitted in the next 5 years to come. Going digital is not a option but it is an opportunity to lead the market- that is the message Chet gives and rightly so. Connected shops add more power, control, convenience to the management.

Adrian Bridgwater in *Forbes* mentions 7 steps towards the digitalization and he takes us through the journey of industrialization. The core of this revolution is Artificial Intelligence, augmented reality and new neural networks. Experimentation, funding, Data Lake, strategy, role definition, operations and culture are the building blocks of this disruption. Though the article is short, it gives us a flavour of the different jargons like IoT (Internet of Things), Data Analytics, ERP (Enterprise Resource Planning), EAM(Enterprise Asset Management) that are used by various experts in this transformation process.

Product Lifecycle Management (PLM) is the area that is not left untouched as well due to this disruption. IBM Data Analytics blogger Oleg Shilovitsky takes a holistic view of the emerging trends in the PLM world. He talks about the connecting devices and its impact on expanding the PLM to the non-traditional areas. The traditional domain that the PLM has been talked in the recent past has been focused on the Computer Aided Design, Engineering and Manufacturing (CAD/CAE/CAM). The future of PLM will be based on big data, messaging and mobility; Internet of Things; and the explosive growth of electronics and software in manufacturing. That is a loud message for the design and manufacturers of the world. Maintenance, Repair and Overhaul (MRO), requirements management, product performance monitoring are some of the expanded areas that PLM is capturing the imagination. A switch from traditional workflows to the interactive user experiences is the new mantra in this age of digital disruption is the takeaway here. The picture below demonstrates the entire engineering cycle that Digital PLM as epicenter envisions driving the manufacturing, retail, suppliers, customers and others via cloud, mobility, connectivity and social media.
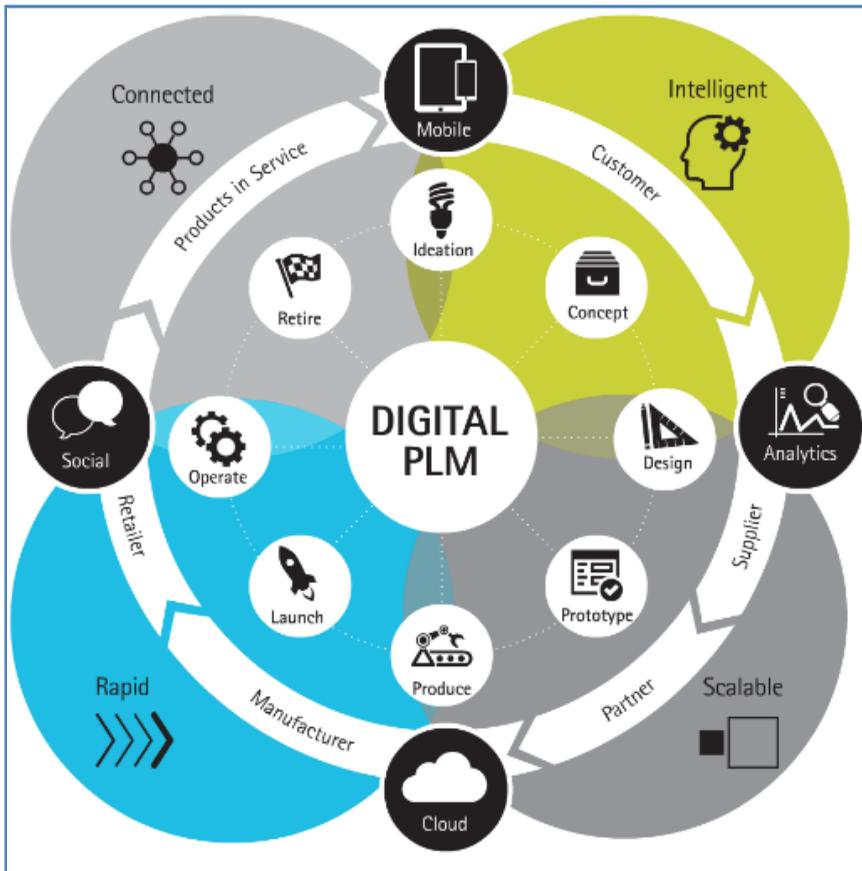
Fig. 2

Picture Courtesy: Accenture Consulting.

Objectives

The businesses around the world are always on the lookout for the ways to streamline their processes. It would be prudent to delve at the various objectives that compelled the industry to drive digitalization:

- *Improved Efficiencies*: There were instances where the old guard used to claim caveman knowledge as the sledge hammer or arm twister. This has been the story of ages that is proving out to be not that relevant anymore. Yes, the older techniques are definitely wanted, but the smart intelligent technologies that are evolving will soon make that redundant. Artificial Intelligence had proved that in a sense, but with the advent of the digital smartness, it has helped drive efficiencies in the system that is proving out day in, day out in the practical world out there. The virtual reality has improved so much over

the years, making the requirement to build physical prototypes in the automotive manufacturing world almost a wasteful milestone that can be completely eliminated. There are universities in UK that have active labs to manage the smart factories. The pilots being undertaken are the attempt to control the overall processing and day-to-day operations from remote places. This is achieved for improved piece flow and output due to the closeness to planned process.

The image below demonstrates a sample smart factory showing the various improved production efficiencies and warehouse management accuracy.
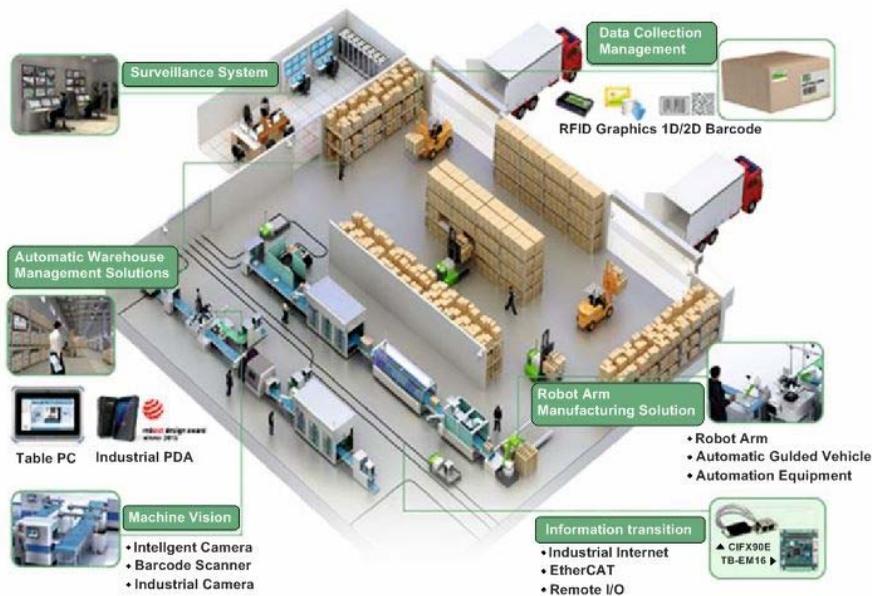
Fig. 3

Image Courtesy: IEI Smart Factory Solution Industry 4.0

- *Trailblazers*: That is what Angela Arhendts, the then CEO of Burberry used as objective to turnaround the stagnant fashion brand from traditional, also ran, enterprise to a savvy business. The objective she used was to break ground and create something nobody has tried before in this fashion industry as disruptive force. The objective was set to shake up the conventional thinking and challenge the digital minds by starting a real-time online business catalogue for the users to interact with the featured online inventory. Internet was the medium that was used to shake the market then, but the underlying principle was the innovation using digitalization. Another giant biting the dust in 2013 due to lack of clear objective coupled with lack of courage using the technology was DVD chain Blockbuster. Netflix had a clear strategy of renting DVDs online coupled with streaming.

Later, with the advent of the broadband, backed by a strong objective, it killed the brick and mortar DVD rental stores completely. Ford has been trailblazer in the field of digital manufacturing, pushing the technology far to realize the benefits of the revolution. The area of traditional and conventional manufacturing has been replaced by the vision of digital factories, smart objects, standardized plant layouts in 3D, Reverse engineered point cloud data that ushers in global plants and the plant runoffs using the live videos from the plant leading to reduced product launch. These are some of the objectives that were envisioned by the Alan Mullaly and Mark Fields of the automotive world.

- **Outstanding Customer Service**: Listening to the customer via feedback seems a very trivial step in the business. Do this at your own peril though. Online feedback has been used by a few meticulous companies to the hilt. Case in point is zappos.com online portal company which Amazon is undertaking now. There is this special case of going to any extent to make the customer happy. This company used to take customer to even competition site if it could not satisfy the customers' requirement at that instant. The return customers grew exponentially due to the transparency and the happy customer service. The customer calls were seen as the marketing opportunities and special emphasis was made when the customer service was hired in. Legend is that the agents were paid $2000 to quit as a test of enthusiasm. Another example is the PLM industry software distribution which has improvised so much making good inroads on the distribution. The entire cycle of software distribution is made online and even cloud based. This has added large efficiencies in the system eliminating the overall media requirements such as DVDs, USB drives and such. Few other examples are that of Onstar like service that automotive industry has seen that has the users getting help for the directions, to maintenance and service requests captured with online app that is tied to the automobiles that send request to the dealerships and the useful reminders to the users. Predictive and reactive maintenance using the digitalization in the area of Oil and Gas has been touted as one of the huge cost saver where the pipe leaks are the norm of the days and millions of barrels are wasted in this issue. Adding the big data analytics angle in the smart pipelines that can capture the volume data and the predictive model of input outputs at various terminals makes it easy to track the leakage and in effect plug it as well.

- **Market Leadership**: The sudden rise of the Google and Tesla in the automotive field is a major disruption that is seen recently. This has been the representative example of usage of the IT driving the innovation that has led the companies to look for disruptions such as driverless automobiles and the non-conventional vehicles. Similarly, the advent of apps such as WhatsApp that started as the simple chat application grew its customer database multifold and took the giants like Google and Facebook by surprise due to the customer base and its overall popularity. Eventually, it was bought out by Facebook management

to make it win-win for both the companies. Leadership in the shared ownership business by the likes of Uber is a legendary story. The objectives set were to capture the domain that is saturated by the established players like Toyota, Honda, GM, Ford and Hyndai. It was not an easy objective to envision and the implementation plans very tough, but the digitalization paved the way.

Research Methodology

Interactive Response Techniques, Surveys and Networking for recent years on this topic were used to good effect for the research.

- The samples used were primarily the participants during the conferences, seminars, meets and the connections made over the years working for various giants such as Boeing, Electrolux, Siemens IT, Ford to name a few. The samples chosen were randomized based on the verticals and the area of function. Attempts were made to take a cross-section of experiences at various levels of the organizations from suppliers, IT vendors, and internal businesses such as Supply Chain, Finance Accounting, IT, Manufacturing, Production, Quality, Marketing and many other functions.

- Study material used was prominently from the leaders in the digital revolution such as Siemens, IBM, Oracle, Capgemini, Google, Autodesk and other small and large players in this domain. These giants have employed an army of market research experts who share immense knowledge in the form of presentations, forums, blogs, flyers, and primary and secondary surveys.

- There are various executive summaries and various reports that were made as a part of presentations, summary reports and deductions made, based on the research done to evaluate the impact of the digitalization on the businesses in the various industries. Roadmaps to present the futuristic vision based on the deductions of the studies made applicable to the current automotive, aerospace, consumer goods and product life cycle related Information Technology business was the basis of the research paper.

- Various factors studying the impact of digitalization on the above mentioned businesses were concluded based on the methodologies mentioned above with various parameters such as return on investment, innovation impact on the competition, profitability due to the disruption, advantage due to the innovation and being first in the game, risks involved and opportunity cost were the few researched.

- Descriptive and inferential statistics clubbed with some of the univariate analysis was used to understand the trend of the disruptions in question. The descriptive statistics allow the audience to understand the basic feature of data to the audience.

Data Analysis

Process digitalization in future is seen as the force to accelerate and convert the big data analytics and overall industry models that the engineering business has been following. Based on the research done at various suppliers, clients, peers and the internal business has revealed that nearly one-third of the sample that was interviewed over the course of one and-a-half year from the 200 plus executives in the US market, 15 from Germany, 20 from UK and 30 from India mentioned improvement in the reliability, dependability and the mute question of the usefulness of the Information Technology in the overall engineering business.

The respondents attributed the return on investments being realized finally by the organizations due to the seamless processes that are achieved due to the evolved processes, standardization that is forcing the costs down enabling the faster product launches and squeezed global releases. Tighter and easier integrations across the organizations are relevant to all this and the technologies that are discussed in this paper and more are seen as major contributors and prime movers towards the disruptions.

Synergies were the theme of many discussions which were held via surveys and forums. Transactional relationships have turned into interactional. Some call that as concurrent engineering where the production teams are able to work from day one of the programme launches straight away with the design engineering and purchase teams. The tighter integrations allow everyone to be on the same page, without having to throw over the wall attitude. More meaningful work interactions save a lot of time and dollars, not forgetting high moral.

Outsourcing was one of the other topics that were asked to comment upon when the efficiencies are discussed with the cost and quality of the data. The technology barriers were pointed out as the major bottlenecks while sending the data back and forth across the continents. With the advent of the cloud-based computing and replication easiness across the globe, round-the-clock operations at lightning speeds are a reality. However, the advent of 3D Printing or additive manufacturing as it is called is taunted as a technology that may eliminate the low cost labour advantages given as a reason for outsourcing. Some of the 3D-printing consultants pointed out that the ability of the 3D printers have grown immensely and the programmed robots on the digitalized offline programmed plants are able to assemble these parts at a lower costs. This may push the businesses to *restore* the work that is currently outsourced. As the political tone in the recent elections got heated up, efforts to move the jobs back in the country as seen in US, more governments may be inclined to support their own economy to demonstrate their nationalism.

Customer service was one of the objectives that were listed in our research. Engineering industry is driven towards the connected devices and mobility. Remote monitoring of connected devices offers a new growth path for customer services as well as improved, efficient and effective maintenance approaches. Majority of the sample to the range of $3/4^{th}$ of the population agreed that this will enhance the brand image in general, adding repeat business. Consumer products customers and peers reviewed were a bit lower percentage to the tune of half of the population as

usually the aerospace, automotive and the heavy equipments industries lead the way for the consumer goods to catch up later. Participants were of the opinion that corrective or preventive maintenance model which is termed as traditional maintenance model is inefficient and expensive model. That will go away with the smarter tools and evolved technologies to be replaced by predictive maintenance. Service organizations will need to start to contend with the chance presented from data analytics and remote monitoring to improve maintenance processes. This campaign will require fresh data analytic proficiencies within the service organization that are currently lacking.
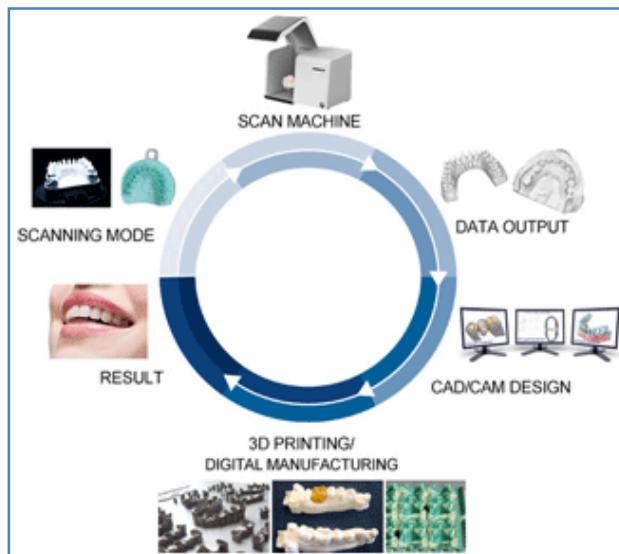
Fig. 4

Picture Courtesy: *Shining 3D*, depicts the sample workflow of the product that can be manufactured quickly at a reasonable cost.

Trailblazer and ground breaking traits have been appreciated by the respondents immensely. Almost 85% participants thought that this is the way to gain the larger footprint to make the market rock. Innovation is the key and the IT would be playing a major role in formulating these strategies. Majority of the samples interviewed were aware of what the self- driving cars, non-conventional technologies and mobility was; 30% relayed examples of use of big data that can be used to bring the cost of car insurance down when they are on the hunt. The points that are supposed to be added for safe driving transforming in reduced cost of driving can be automatically applied if this technology can be seamlessly incorporated in the product; half of the of the participants wanted to make the consumer goods industry move faster to take orders from remote place so that the time they reach home, cooking robots are ready with the dinner and the self-programmed equipments are completed with the clean house. This is no more a wish list but some of the things are already happening, cited by many participants. However, one-fourth of the

participants warned of the system getting hacked just as with any computerized equipment. Data security while sharing the data seems to be another important aspect that has come to the front. Market leadership was seen as the offshoot of the trailblazer behaviour and Apple evolution in the smart phone market was known to majority of the sample.

Digital factory seemed close to the heart of the sample. The fully-automated plants and self-running operations add a lot of glamour for sure. Majority of the participants had seen the robotics demonstrations during the auto shows and many tradeshows. However, the details were missing as to how this was planned. As many automotive businesses are in the process of starting technology centres in the Silicon Valley close to the digital developers, the grapevine has truly reached the audience. At least three-fourth of the audience have seen the usage of the digitalization on the shop-floor, manufacturing offices and the design centres. The advantages and the future impact seemed to be well known as well. Picture below depicts the usage of technology to build digital plants before the products are manufactured on the floor.
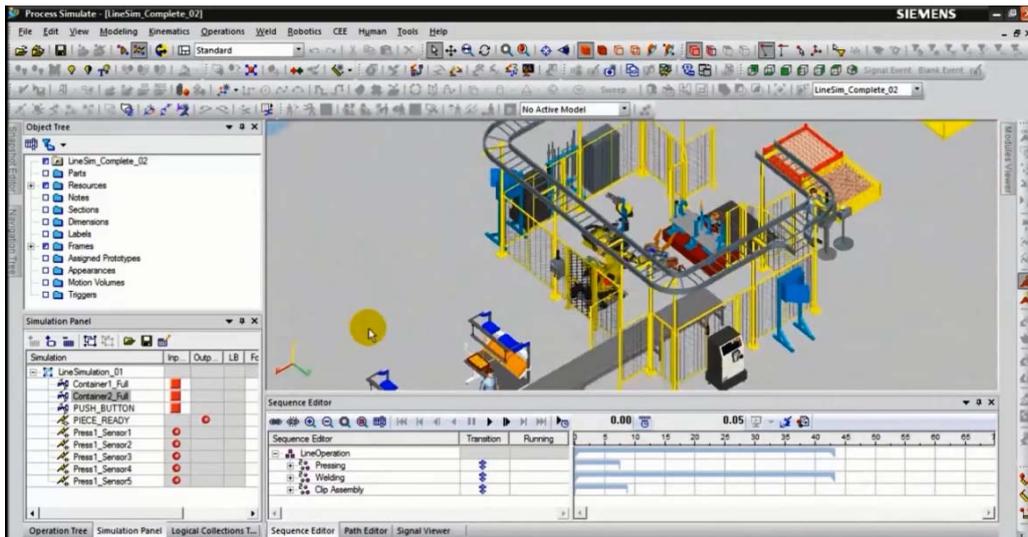
Fig. 5

The service department's comments and feedback revealed that 65% of the complaints were about staff behaviour and competency, compared to just 35% about the quality or reliability of products, functionality solutions and services provided. Expanding the scope of service means that the customers want the service, purchase, inventory management and sales to act in unison to provide single point solution reducing customer hassles. Product dealerships are seeing this pattern of self-service kiosks which still has relevance along with the face-to-face sales. Survey participants did not completely rubbished the brick-and-mortar showrooms, but customized likes of consumers based on the big data analysis would be preferred mode of encounter with the sales representative.

Limitations/ Scope for Future Work

It is always easy to get blind sighted by looking at the rosy picture that is being painted by the disruption. If we do the checks and balances, it is seen that there are dangers and pitfalls that we need to be aware of. The experts and the samples we examined were of the opinion that an analytical and neutral mindset is needed to clearly understand the caveats so that those can be overcome by use of commonsense and some development efforts. Here are a few of them listed below

- *Data Security*: The idea of big data which is so crucial to the success of the digitalization in the engineering and manufacturing industry, hinges on the data being collected. Many challenges have been faced as it is when there are questions being asked that are used to track the user preferences. There is a very thin line between being inquisitive and breaching one's personal space. Just imagine what would be the situation when your household is robbed; or even worse, when your bank password is hacked. Here, we are talking of handing the entire life span data to the unknown hands. There are demands of firewalls and audits on the cloud security. Satisfying the scared minds is a challenge while digitalization bandwagon keeps marching.

- *Experience cannot be Replaced*: Change overnight is not possible. However, there needs to be a phased out approach to completely get rid of the traditional systems. The older systems have their own benefits and to leverage some of those, it needs to be a smoother transition, though the word disruption suggests otherwise.

- *Assumptions*: The boundary conditions and the scenarios that are worked out in the virtual environment created is more or less a cookie cutter environment based on the various subject matters who have guided to create that digital domain. However, sometimes that may not be sufficient and there are times when on-the-feet things need to be done to make the system work. If this is not paid attention to, it would yield wrong results.

- *Fear of Job Loss*: Rapid automation makes people wary of the sudden vacuum that is created. Imagine entire shop floor being robotized and the digitalization takes over the automated factory that is managed remotely. It all sounds perfect except the people who made that happen get laid off the next few months. Similar waves have happened before and each time there has been solutions that are customized to that situation. It is always better to be prepared for these scenarios.

- *Training Quality*: Sudden surge in the demand for the niche skill-set may cause shortage of trained manpower in specialized areas. It is always good idea to be prepared for these contingencies.

- *Good Support Staff*: What if the driverless cars refuse to stop in chaotic conditions? What if it gets hacked? What if there are lockdowns in the robotized shops that are

beyond human repair? Lots of hypothesis; but are we geared up for the worst scenarios? That is the question, average minds will be curious to know.

- *What Happens to the Older Generations*: Are they outdated? Will the new wave wipe out the older generation and make it useless if they are not ready to change guard. There would be much legality involved that needs answers.

- *Environmental Issues*: Due to the heavy digitalization, are there any side effects to the planet? Are there any climate issues that may pop up due to the excessive use of power to keep this running? Food for thought!

Conclusion

Forward looking companies are developing plans and strategies to confront the challenges of digital interventions by jumping to the interactive relationship with their interfaces. That could be a supplier, real customer or collaborative partner. They are seeking the interfacing parties to submerge and participate concurrently in the development, design, manufacturing and market process. The end-to-end involvement of all concerned parties would enhance the level of service and accountability. To become a significant player and succeed in the digitalization disruption, embracing innovation and finding brand new engagement models along with business models is much needed. Smartness to look forward for the new waves of the disruptions and riding the waves to the benefits breaking the traditional walls of strategies would be the norm of the coming future. Need of the hour is to gather the smart minds together and strategize to align the social commerce, connectivity and thwart commoditization. This requires a proactive leadership and a clear mind. Leaders may, or may not, be tech savvy; however, they need to understand the outcome of the crossing of technology and the business. Vision of business transformation due to the digitalization would be really essential. Change predicted could to be very fast and intense and the path could be long.

Based on the research it can be concluded that:

- Businesses are ready with digital technology vision but implementation challenges are still pending.

- Players are for innovation, but data security concerns are for real.

- Due to the power of digitalization, there is diminishing power of experience and traditional thinking and more thrust for results using the disruption. It is hard to hide behind the traditional norms.

- Users are attracted to the softness of the technologies and the coolness behind it. Agreement with the sample on the improved customer experience and its inherent business benefits.

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Digitization of Pune Mahanagar Parivahan Mahamandal Ltd. (PMPML): DAMINI—A Real-time Bus Tracking App for the Commuters

Dr. Meena Goyal

Professor, Indira School of Business Studies

Abstract: Transportation is one of the basic needs like food, clothing and shelter. In upcoming metropolitan cities like Pune, the need of an efficient public transport system cannot be ignored. Such metropolitan cities face various problems related to road transport. This research paper presents a simple and effective solution for these problems, using the BRTS in Pune–Rainbow BRTS as an example. Digitization of information in real time for commuters can tremendously improve the reliability and expand the user-base thereby easing traffic congestion and provide all the associated benefits. The mobile app is named as 'Damini' which will give the real time information of the bus. The financial and technical aspects of the app were studied with the help of 'Mitroz Technologies' and Financial consultants MSL Corporate Advisory.

Keywords: Digitization of PMPML, Bus Tracking App for the Commuters

Introduction

Transportation is one of the basic necessities of life, just like food, clothing, shelter and education. We have come a long way from traditional means of surface transport like walking, palanquins, hand-pulled rickshaws, bullock carts and horse carriages, bicycles etc. to cars, buses, trains and metros.

While some of us are privileged enough to use our personal mode of transport for travel, a major fraction of our country uses the public transportation system to commute. Public transport is of utmost importance in a country like India, which is densely populated and with low per capita income.

Since commuter rail services are available only in the very few metropolitan cities of Mumbai, Delhi, Chennai, Kolkata, Bengaluru, Hyderabad and Pune, the public primarily uses road transport for commutation. Buses comprise over 90% of public transport in Indian cities, and serve as a cheap and convenient mode of transport for all classes of society. Services are mostly run by state or local government-owned transport corporations.

The growing population, and especially the exploding urban population, needs an ever-increasing fleet of vehicles to manage travel to work, school, shopping or elsewhere. The development of roadways while commendable, cannot keep up with the exponential growth as we will soon run out of space within the cities and towns to build additional roads. Moving in the right direction, government state transport corporations have introduced various facilities like low-floor buses for the disabled and air-conditioned buses to attract private car owners to help decongest roads. Mumbai introduced air conditioned buses in 1998. Bangalore was the first city in

India to introduce Volvo B7RLE intra-city buses in India in January 2005. Bengaluru is the first Indian city to have an air-conditioned bus stop, located near Cubbon Park. It was built by Airtel. The city of Chennai houses one of Asia's largest bus terminus, the Chennai Mofussil Bus Terminus.[1]

Bus Rapid Transit Systems (BRTS), although quite recent, exist in several cities including Pune, Ahmedabad, Jaipur, Rajkot, Surat, Bhopal and Indore.

Nevertheless, private mode of transport (cars and motorcycles) is still widely used by a considerable chunk of commuters. Everyone is aware of the nightmarish traffic blocks everywhere. A side-effect of such high volumes of vehicles on roads is the severe traffic congestions, pollution, health burden and lost productivity. If public transport is available, why is there a consistent increase in such private mode of transport? A key reason why people often prefer their own vehicle to commute is the poor reliability and lack of awareness of using public transport systems.

We will present in this research paper a simple and effective solution using the BRTS in Pune–Rainbow BRTS as an example. Digitization of information in real-time for commuters can tremendously improve the reliability and expand the user base thereby easing traffic congestion and provide all the associated benefits.

Scope of the Research Paper

The study is limited to the bus transport in Pune–PMPML.

Objectives of the Study

1. Study the public transport in Pune city and areas surrounding it, with special reference to PMPML.

2. Propose digitization of PMPML transport system (including the existing mobile apps of PMPML)

3. Development of a simple and highly efficient mobile app for commuters to track the real time movement of bus.

4. Characterize the benefits associated with the usage of real-time bus tracking app.

5. Providing financial viability of the development and application of the real-time mobile app for PMPML commuters and increased revenue for the PMPML

6. Expanding scope to additional utilities that can be added in the proposed app.

7. Learning from the digitization of bus transport in other countries which are comparable to PMPML.

8. Execution of such a proposal, hurdles and other considerations.

Research Methodology

The paper is primarily based on observation, primary data from commuters and secondary data collected from the various available resources like–websites, annual reports of PMPML, newspapers etc.

There has been an effort to meet up various technology firms which can get associated in implementation of this research project. Under a signed NDA (Non-Disclosure Agreement), Mitroz Technologies has agreed to develop the android application. The business consultant, MSL Corporate Advisory Services has agreed to oversee financial and marketing aspects of the research project.

The study was carried out with the help of these two entities ready to partner in the project with PMPML authorities for its implementation, if proposal is accepted. There is no objection if PMPML implements the project on its own in a timely manner with adequate consulting.

About PMPML

The company, PMPML (Pune Mahanagar Parivahan Mahamandal Ltd.) came into existence, on 19 October 2007 when the two transport undertakings, *viz*, PMT and PCMT were merged. PMPML caters its bus services to the Puneites and plays a vital role in providing affordable and convenient public transport service that help the people reach any nook and corner in and around PMC and PCMC area. It is useful for different groups of people like students, employed people, senior citizens, shoppers, people visiting Pune city etc. PMPML Bus Service has been serving the people on the same line of PMT, formerly known as Pune Municipal Transport, since for last 58 years. PMPML has a share in the city developments as people give priority to those areas where PMPML buses ply while selecting their houses to settle down.[2]

About BRTS: (Bus Rapid Transport System)

The world's first BRT system, the Rede Integrada de Transporte in Curitiba, Brazil, was opened in 1974.[3] Since then, many other countries have implemented BRTS.

Pune was the first city in India to experiment with a Bus Rapid Transit System.

Rainbow BRTS is a Bus Rapid Transit System in the twin cities of Pune and Pimpri-Chinchwad in Maharashtra, India which is operated by the Pune Mahanagar Parivahan Mahamandal Limited (PMPML). The infrastructure has been developed by the Pune Municipal Corporation (PMC), Pimpri-Chinchwad Municipal Corporation (PCMC). The project currently envisages 113 km of dedicated bus corridors along with buses, bus stations, terminals and intelligent transit management system.

PMPML started plying pilot routes in December 2006. The Hadapsar-Katraj pilot project consisted of 16.5 kilometres (10.3 mi) of bus lanes along the Pune-Satara Road using airconditioned, low-floor more than 500 Volvo B7RLE buses initially on Katraj-Swargate-Hadapsar. Most of these buses are not in service currently. The funding for the project came from the Government of India under the Jawaharlal Nehru National Urban Renewal Mission. A total of

112 kilometres (70 mi) route was proposed for Pune BRTS. Now regular PMPML buses ply on the Hadapsar-Katraj corridor of BRTS.

The Pimpri-Chinchwad BRTS was announced in December 2008, when eight routes covering 112 km were proposed. Construction of the first route was due to be completed within 18 months.[2] By January 2009, 90% of the construction work on an 11 km pilot route between Nigdi and Dapodi had been completed. However, a string of disputes between the Pimpri-Chinchwad Municipal Corporation (PCMC), civic administrators and corporators led to the project being delayed, with corporators citing funding difficulties and problems encountered on the similar Delhi BRTS and Pune BRTS projects as the causes.

In September 2009, it was announced to the press that, although most work had been completed, difficulties in procuring the 650 buses required to run on the system had led to the project being indefinitely postponed. It was also found that the proposed new bus shelters had been due to be installed on the wrong side of the road, leading to delays in their construction, while passenger information systems had yet to be installed. The PCMC stated that this was not a major issue as the shelters could be constructed quickly from prefabricated materials, and that the vehicles would be purchased by December 2009. A month later, it was revealed that the cost of the project had overrun by 230 crore, around 50% of the total project cost. By May 2010, funding for the completion of four BRT routes had been agreed, with the remaining four sanctioned by the national government but not yet funded. A number of high-rise buildings along the routes had also been approved for construction.

Both the systems were merged to form Rainbow BRTS which is currently under expansion.

Fig. 1

BRTS at Wakad

By April 2014, two of the routes were under construction, with the first station near to completion. The first two lines were expected to be operational by the end of March or the beginning of April 2015.[8] The Sangvi-Kiwale corridor (earlier named as Aundh-Ravet corridor) was thrown open to public on 5 September 2015.[4]

Rainbow BRT Description[5]

The features of Rainbow BRT include:

- **Buses**: Over 600 special Rainbow BRT buses with doors on both sides and more standing space, that ply smoothly and rapidly in reserved lanes.

- **Bus Stations in the BRT Lanes**: Covered and providing protection from rain and sun, well lit, have a ramp at the entrance and signage boards with information about the BRT corridors.

- **Tickets at Stations**: The ticket is to be bought at the ticket counter inside the station before boarding the bus. Smart Cards are proposed in the next phase Alternate option of buying from bus conductor is also available.

- **Level Boarding**: The height of the bus platform and the BRT station platform are all at the doors and bus interface level. Passengers do not have to climb steps to board the bus, a feature similar to metro rail.

- **Automatic Doors**: Automatic doors on BRT stations and bus doors open only when the bus is properly docked at the station.

- **Crossings**: The crossings from the footpath to the BRT stations have signals in many locations or have speed tables so that vehicles have to slow down to allow passengers to cross safely.

- **Bus Route Number, Bus Arrival and Station Information**: Information on bus arrivals is displayed on screens at the bus stations. Display screens and audio announcements in buses give information about the next stop. Route numbers appear on LED displays on the front, back and the left side of buses

- **Intelligent Transit Management System**: BRT buses have GPS and all bus and stations are linked with the BRTS Control Room at Swargate which tracks bus movement and gives feedback to drivers to improve service.

- **Security and Traffic Management**: Security personnel are present at each BRT bus station. Traffic wardens are present at signals and crossings to help in the management of other traffic and prevent entry into dedicated bus lanes.

Fig. 2
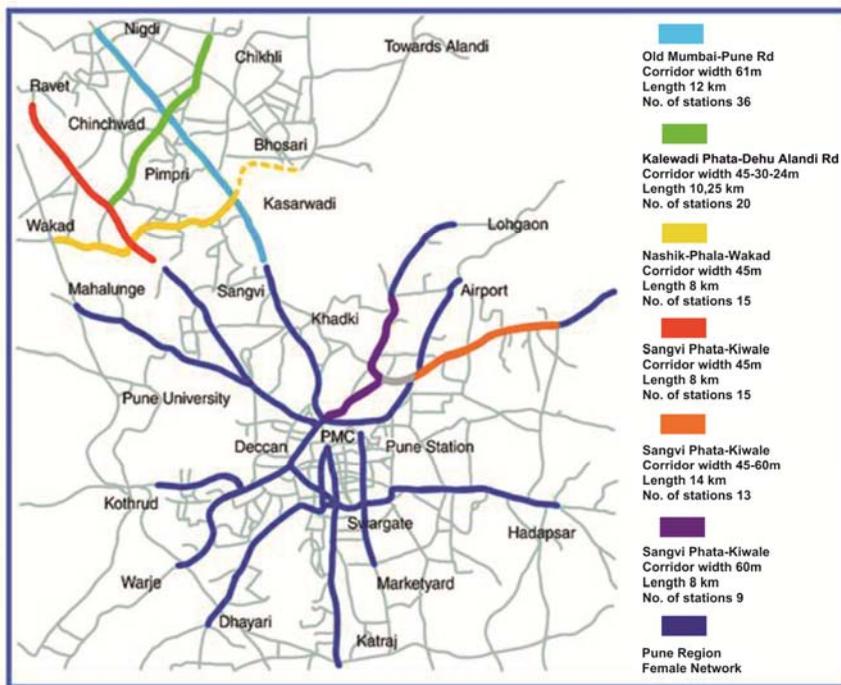
Fig. 3

About BRT Prospects[6]

The special features of a BRT, combined with its higher carrying capacity automatically makes it the right choice for augmenting existing public transport by also enhancing its image.

Pune's Comprehensive Mobility Plan is a milestone in Pune's traffic and transport planning history and it recommends BRT as a highly effective solution for the forecasted traffic growth. While today the public transport share in Pune region is abysmally low at around 15%, it will further reduce to 10% in 2031 if no concrete steps are taken. Augmentation of PMPML service alone will only increase the share marginally, while a comprehensive BRT network which complements regular PMPML service will cater to 60% of the modal share in 2031, making Pune comparable with other model international cities.

Statistics of PMPML Buses[7,8,9,10]

1. 19th October 2007: The company, PMPML was formed by merging PMT and PCMT.

2. Currently PMPML has 1600 buses with it (including the approximately 1000 buses which are not operating in the BRTS, and approximately 600 new buses which are operating in the BRTS).

3. PMPML is in process of buying 1550 new buses for its BRTS routes.

4. Pune and Pimpri Chinchwad Municipal Corporations are giving Rs. 300 crore and 200 crore respectively to PMPML for buying new vehicles.

5. Rs. 1816 crores spent on BRTS.

6. BRTS in Pune was initiated in 2007.

7. In all, 6 BRTS routes are operational in the twin city of Pune and PCMC:

    -   Katraj–Swargate–Hadapsar (Rs. 108 crores: 16 km)

    -   Vishrantwadi–Wagholi (with the link route of newly constructed Sangamwadi–Deccan College Road) (Rs. 38 crores: 15.2 km)

    -   Dapodi–Nigdi (not functional yet)(Rs. 286 crores: 12 km)

    -   Aundh–Ravet (Rs. 238 crores: 14.5 km)

    -   Nasik Phata–Wakad (Rs. 205 crores – 8 km)

    -   Kalewadi Phata–Dehuroad(Rs. 45 crores spent, still not functional: 10.5 km)
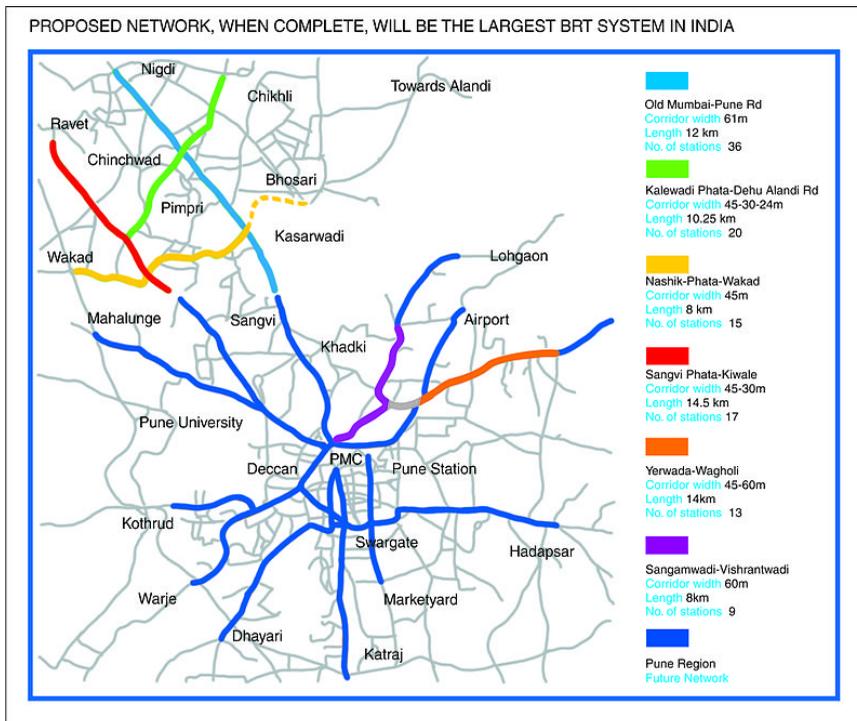
Fig. 4

Mobile Applications (PMPML Routes) Available in Google Play Store Currently

All the apps in the list given just provide the information of bus timings related to the time-table as displayed on the PMPML website. The time-table is not updated on a regular basis to show the timing of the bus. There is one app, ridlr [11] which is also useful but no real-time tracking of the bus is possible since it operates without internet. It is very much useful in train tracking not only in Pune but also at other places. The app has low user-base in spite of its utility.
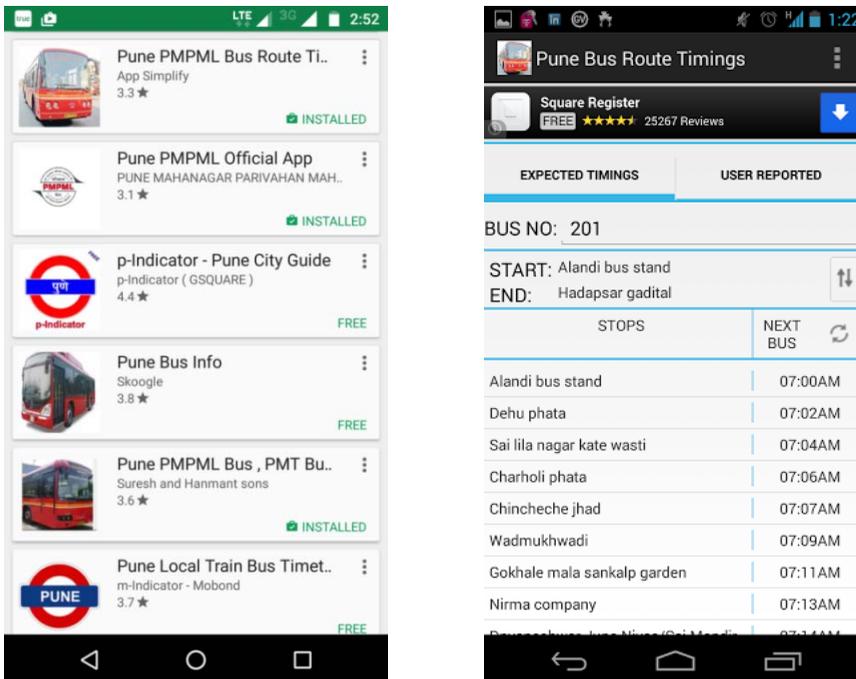
Fig. 5

Brief Reviews of Users of App[12,13]

Commuter-1(Dec 09, 2016): Waste of time–The app did not show information about any single route, even basic route such as bus to Shivajinagar. Every time the app shows a message that alternate route will be available soon.

Commuter-2 (Oct 30, 2016): WORST APP–Earlier the buses as well as their timings werethe worst part of this company; now ONE more thing is added and that is the APP which they are saying is for customer's help but it converts their hope into FRUSTRATION. Please, if you can't give better, then don't show it. 1. The app is not working properly. 2. Some bus routes are missing. 3. Please try to avoid the multiple stops. 4. Please make the proper TO & FROM stop

names so people could find the proper bus route. 4.ETA PART SHOULD WORK properly. 5.Please show bus time.

Commuter-3 (May 18, 2015): Good initiative, but timings are wrong. It is a good initiative, but timings displayed are incorrect. e.g. after 1:10 pm, timing for next stop is 11:57 am. This needs to be updated as timings are the important part of this app as said in the description. 'There are lots of apps that give Bus Routes, but this is the only app that also gives TIME'.

Commuter-4 (July 27, 2015): Good to start with. The app is good to atleast know the next bus timing. User reported module is good if used by many people. Although there are lot many things which can be included like 'from' and 'to' place, Range of timings within which user wants to know the buses, via stations, multiple options if available for the routes for the same journey. I hope the developer takes it into account during the next update. Thank you for making this app worthwhile at the least.

Commuter-5 (Feb 05, 2014): Good app but lacks a few features. When I am in the bus, it does not show my current location even though I am connected to GPS. Secondly, and most importantly, if I know the start and end point from where I have to board and where to get down but don't know the bus number, then this app is useless. Kindly add this, so people will come to know different bus numbers also going via the same route; thiswill be especially useful for newcomers in Pune.

Commuter-6 (Dec 24, 2016): What a shame! If most of the features are 'soon to be available' then why to release the app? Flow should be like enter 'from' and 'to' station and then it should show. All buses and options leaving on or after that time and then clicking on bus should show route.

Commuter-7(October 14, 2016): Very Good App. Thank You PMPML. PMPML is very good service by Pune and Pimpri-Chinchwad Corporation...but needs some improvements in buses and staff... It's very useful for outside students.

Problems Ahead if Bus Transport Issues are not Resolved on War Footing

1. Increase in shift to personal transport (two-wheeler/ four-wheeler) leading to traffic congestion, lost productivity and pollution.

2. Increased incidences of irresponsible driving, road rageleading to road accidents.

3. Higher fuel prices due to increased demand. This results in either higher subsidy (budget deficit) or higher prices (inflation).

4. Increase in the under-age student community driving two wheelers on road without license and decreased usage of buses.

5. Increased fare prices which will further erode user base or subsidies which will cause local government budget deficits leading to increased taxation.

6. The Pensioner's Paradise–Pune–no more a destination for elderly community, leading to decreased growth.

7. The BRTS purpose will be defeated while problem will still remain unsolved instead of spending crores of rupees

8. Tourism to eventually suffer due to dearth of good public transport (since many tourists cannot depend or may not prefer on OLA, UBER due to myriad reasons).

9. Pune's vision of being a SMART CITY almost impossible to achieve.

Observations

1. Though public transport is highly used by Puneites, many still prefer personal transport due to lack of timeliness and convenience in using public transport like PMPML Bus.

2. This has resulted in an increase in usage of two wheelers and four wheelers by people leading to more of traffic congestion on roads.

3. The usage of more of personal transport has led to more fuel consumption and increase in pollution; thus more of environmental hazards.

4. It was also observed that a major proportion of the student population in Pune uses two-wheeler for commutation between their residence and education centre. This has led to many fatal accidents on roads due to irresponsible driving by many of those students. Not to mention that many of them are riding the two wheelers without any license or formal training.

5. Bus Rapid Transit provides an integrated network of safer, faster, affordable and more efficient public transport. However, the pending status of the construction of the BRTS routes at most of the places has made it more of an inconvenience than comfort.

6. Commuters can experience high quality BRT stations, level boarding facility, real time bus arrival information and voice announcements on Rainbow BRT. Though this is available only at a few places where BRTS is functional (that too after almost 10 long years since 2007 since BRTS was initiated). The places where the facility are not existing, the commuters have to depend on the road maps or time table provided on the bus-stop which has very limited availability and most are outdated.

7. Dedicated lanes ensure that BRT buses are able to run efficiently and rapidly along their routes, helping passengers reach their destinations easily. However, if any bus fails in the process, or stuck in traffic, commuter cannot track its position. There is no system to track the real-time position of the bus. The commuter may end up waiting for hours.

8. The mobile applications available online are an application version of the data available on website www.pmpml.org. They have very limited use when it comes to real-time tracking.

9. The routes where BRTS is not available, the commuters do not have any option other than to wait endlessly for the bus to come, especially when lot of re-routing has taken place due to lot of civil work going on various roads in Pune.

10. When the bus breaks down (something very common with PMPML), the commuter in the broken bus cannot plan his next route or bus at the non-BRTS route.

11. When the bus breaks down, the commuter at the next bus stop (who has least idea of what has happened to the bus mid-way) is still waiting for the bus to come since the commuter does not have any LED panel to be looked for the arrival of the bus at the non-BRTS route.

12. The buses at non-BRTS routes sometimes do not even halt at the designated route, leaving the commuters in a lurch who have been waiting since long for the bus.

13. The buses often do not halt at designated bus stops due to various reasons. Sometimes, the bus is overfull and cannot take more passengers and many other times, when there is no other passenger to disembark from the bus at the designated route, the bus driver ignores halting at the designated route due to sheer lack of sense of duty. Poor commuter experience.

14. The bus drivers lack accountability because of no real-time monitoring on their travel path.

15. The Pune Smart City proposal, has not considered the real-time tracking of bus facility.[14]

> 'The public transport company's financial condition is very weak and is worsening rapidly. We are not able to carry out preventive maintenance of buses because there is no money to buy spares,' said Pravin Ashtikar, Joint Managing Director of PMPML.[15]

My Contribution to the Study

I strongly feel that there is a need of a real-time tracking app for PMPML bus system. Though there are many apps available with time and route details, still there is a dearth of a real time tracking system on the side of the commuter. The PMPML tracks the route of the buses operating in BRTS but what about the buses operating on other roads? Also, this tracking is on the terminal of PMPML. The commuter can see the actual approach time of the bus at the BRTS in the LED. However, if the commuter has to plan his/her journey for a route, he/she cannot do so because the time of arrival of the buses only at the current terminal can be known in the app. To plan a complete tour, it is very important to know the real-time position of the buses enroute. Accordingly, the commuter can decide whether to wait for a direct bus or complete his journey in breaks.

Another utility which can be very useful to the commuter is the capacity utilization of the bus. If the commuter knows that the bus is full beyond a particular capacity (which will generally happen in a populated city like Pune, especially during the peak hours); then he or she can decide to wait for the next bus which may be just few minutes away and comparatively empty. This will give a comfortable journey to the commuter. Commuters generally try to get into the first available

bus which is overfull thinking that the next bus would be much away or in same condition. As we can see in the app of UF, the bus capacity utilized is clearly visible in the app.

The development of such an application for PMPML was even discussed with technology experts from Mitroz Technologies.

A suitable name was also decided for the app 'DAMINI' ☺

'DAMINI' means lightning. So with the speed of lightning the information would be available to the commuters thus, making their journey safe, comfortable and rapid in real sense.

A similar app is available in US–NJ–New Jersey
(http://mybusnow.njtransit.com/bustime/home.jsp)

Bus map
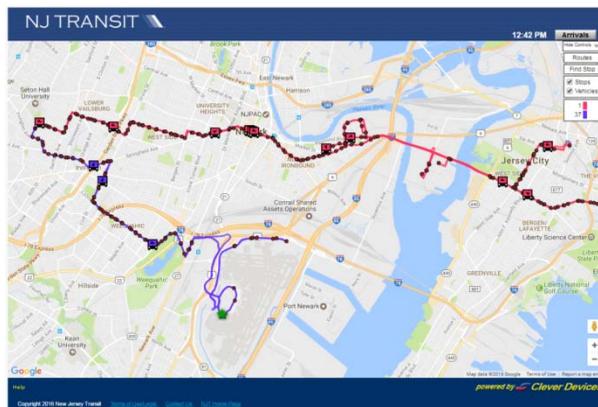
Fig. 6

Close View of the Route: When the cursor is taken on the bus, it gives the exact information about the bus and its destination.
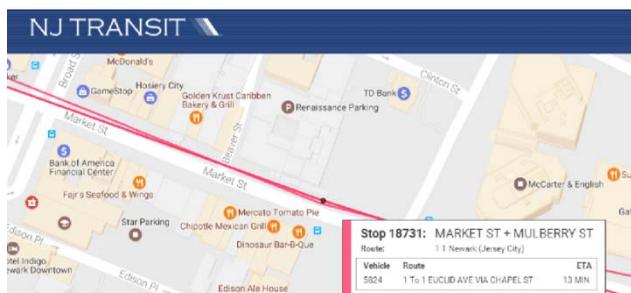
Fig. 7

Another screen shot of real-time tracking of bus in the NJ transit app
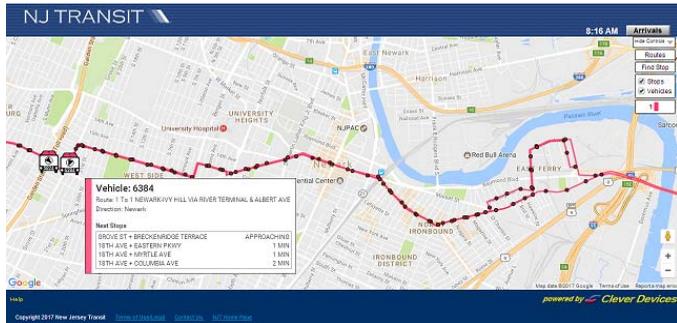
Fig. 8

Image of real-time tracking of bus
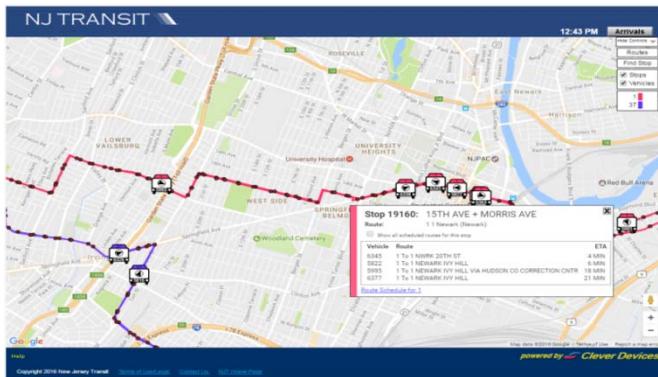
Fig. 9

This can also be used to provide any service alerts to public which is helpful to them for planning their travel.[16]

Announcements available at another app in University of Florida (Florida has a major percentage of student population using public transport).
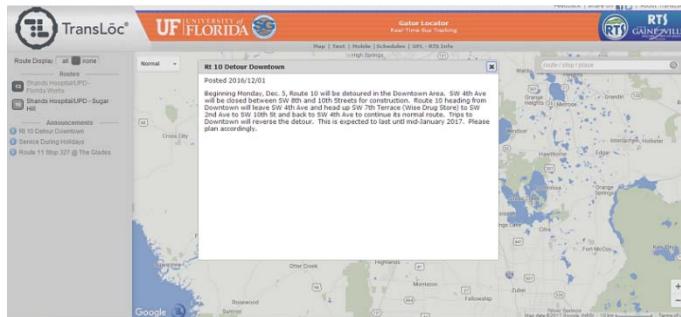
Fig. 10

Challenges in Development and Implementation of App Damini

Technical Challenges

1. The language to be used for the DAMINI app development: JAVA, HTML 5, etc.

2. Platform selection: Android, iOS, etc. Cloud based app development platforms.

3. Ability of the app to integrate and synchronize with different mobile devices with similar data and features.

4. Security issue of app.

5. Availability of Internet for the commuter.

6. App user experience has to be enhanced to make it usable.

7. Integration of vast information related to the bus routes and bus numbers.

8. Advertising within app: To make the DAMINI project financially viable, it will need to run the advertisement on the app. Integration of advertising in text, image or video form with the app.

Possible Solution: The technical challenges can be handled with ease with the help of efficient and talented technology partners, who have handled transportation related apps in the past. Such apps are commonly available in many big cities across the world and can serve as a role model to develop DAMINI.

Financial Challenges

1. The installation of GPS in all the buses of PMPML (approximately 1600 buses currently) would be an expensive affair. The GPS device will cost anything between Rs. 12,000 to Rs. 15,000 per device. So for 1600 buses it would be Rs. 192–240 lakh.

2. The software development will cost around Rs. 3 lakh (as discussed with technology partner Mitroz Technologies).

3. The app development will not be a one-time activity. It is going to require continuous upgradation and support which will involve hiring of a complete team of software and hardware technicians.

Financial Viability: The required investment of Rs. 2 crore–Rs. 3 crore in the project is miniscule compared to the Rs. 1800 crore already spent by PMPML on the BRTS project. If the PMPML authorities permit, MSL Corporate Advisory (Project Partner) is willing to partner and arrange for venture capital to implement the solution. The advertisements run on the app would be a good revenue generating source to keep the app financially viable. Commuters who do not need the advertisement can go for the paid versionwith a one-time nominal price of say Rs. 50.

System Challenges

1. The red-tapism and hierarchy in the PMPML is quite infamous. Though the PMPML is a separate entity from PMC and PCMC, it has the same work culture which existed in the old system. This restricts early implementation of many things.

2. There may be some resistance from the PMPML employees as the proposed solution makes the system efficient and accountable.

3. The app requires usage of smart phones.

Possible Solution: Partnering with an external firm could make the implementation more efficient rather than PMPML taking up the task. Of course PMPML support is needed but the relevant technical experts can be appropriately involved. Making it an open and transparent process could also speed up the task. A major portion of bus commuters are using smart phones which makes the implementation of the app easy. Additionally, PMPML is planning to introduce free Wi-Fi on the bus stops, which will further help the commuters. The profit generated from advertisement revenue could be another source of income for PMPML, which should help in coping with their losses. The proposal could be introduced in phases covering the most populous routes first and expanding to others eventually. This may also control the costs and allow to adopt, based on initial rollout.

> Jagtap told reporters that installation of GPS in buses would involve a cost of Rs 2.17 crore. 'The gadgets would be installed in the buses so that their movement can be tracked from the centralised control room, which is being set up at the PMPML headquarters in Swargate. In case of breakdowns, it would help PMPML to rush repair vehicles to the spot.'[17]

Future Plans of PMPML[18]

1. Introduction of mobility card and pre-paid cards for commuters.
2. Providing free Wi-Fi to commuters at 560 bus stops
3. Installation of GPS in all buses to track their movement and provide support in case of breakdown.
4. Timely completion of BRTS routes which are in process.

Conclusion

DAMINI would serve as a real-time tracking app for the commuters, which would be cost-efficient, easy to operate and helpful in planning travel to a great extent. I suppose with the wave of demonetization and digitization, more and more people in India have become tech-savvy helping in successful implementation of DAMINI. This is a vanilla proposition which will be improvised and flavoured with more utilities as the project development phase starts. It is high time, that we become responsible towards our environment and society. Less vehicles, less traffic,

less pollution, less accidents with more usage of a comfortable and convenient public transport. DAMINI would help us in achieving the objective of being a 'SMART PUNE'

Further Research Prospects

1. Track the financial progress of PMPML revenues.

2. Increase or decrease in the number of commuters of PMPML after implementation of 'DAMINI'.

3. Learning from the project and opportunities in other relevant public sector areas.

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The Effect of Social Influence on Psychological Contract Breach Evaluation: How it is Related to Deviant Workplace Behaviour

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Abstract: Psychological Contract (PC) breach has a significant impact on employee behaviour. Most researches have studied how individual characteristics, work characteristics and organizational characteristics influence PCB evaluations. But research has overlooked how the social network i.e. positionally similar others and relational others influence evaluation of PCB. This study proposes a conceptual model exploring these relationships. Also, when an employee perceives breach he/she is likely to show deviant behaviour. This study proposes how PCB and categories of deviance behaviour (interpersonal and organizational deviance) are related and how network characteristics like density, centrality and type of ties (expressive ties) could moderate this relationship. This conceptual paper explores how these relationships could play out.

Keywords: Psychological Contract Breach Evaluation, Deviant Workplace Behaviour

Introduction

The increased competition in the business environment and the technological development in business have resulted in the restructuring of the organization as well as the restructuring of the work. This has changed the employment relationships of employees at all levels of the organization (Shore *et al.*, 2004). This has an impact of the psychological contract (PC) that employees have with their organization. Thus, there is an increased academic interest in the study of the employee's relationship with the organization (at different levels) and PC and how this affects the organization. But a large portion of the work in the area of PC is focused on the nature and the content of the contract (Chen *et al.*, 2008) and the consequences of contract breach, violation and change (e.g., Turnley and Feldman, 2000; Chen *et al.*, 2008).

Also, social influence is an aspect that has an influence on work, work relations and work attitudes and behaviors. So, given the relational nature of work (people needing to work in teams) and organizations today, it would be interesting to understand how an employee's social network influences the evaluation of PC breach and how this in turn influences deviant behaviour at work.

Literature Review

Psychological Contract Breach

The psychological contract is defined as the set of implicit mutual expectation that the employees and the employers hold about the terms and conditions about the exchange relationship (Kotter, 1973; Rousseau and Tijoriwala, 1998). The PC between the parties to the employment leads to the creation of a mental model about the employment relationship and also provides an understanding about the expectations from both parties. It also guides the action of the parties (Rousseau, 2004).

Most of the literature in the area of PC addresses PC breach. PC breach is experienced when one of the parties in the exchange relationship perceives that the other party has failed to fulfill their obligations (Robinson and Rousseau, 1994; Morrison *and* Robinson, 1997). Understanding PC breach (PCB) is important because it has implications for the organization. Perceptions of PCB lead to lower commitment, lower OCB, performance and job satisfaction and higher intention to quit and actual turnover (Bunderson, 2001; Conway *and* Briner, 2002;Coyle-Shapiro, 2002; Edwards, Rust, McKinley, *and* Moon, 2003; Hui, Lee, *and* Rousseau, 2004a; Kickul, Lester, *and* Belgio, 2004; Raja, Johns, *and* Ntalianis, 2004 as cited in Chen *et al.*, 2008). Researchers have proposed a model to understand the relationship between PCB and work outcomes. Rousseau (1995) proposed a model where she explained the process beginning from the employees' perception of contract- outcome discrepancy and ends with the perception of breach. Morrison and Robinson's (1997) model also explains how things move from the employee's perception of unmet promises from the organization to PCB to violation. This model focuses on the formal socialization process without addressing the informal influences between employees. Both these models, however, overlook the other social forces that can affect the employee's evaluation of PCB. Most of the research on PC, it seems, is based on the assumption of social vacuum. Thus, there is a lack of research on the impact of social influence on the PC despite the evidence that social influence impacts employee attitudes and perceptions.

Social Network Analysis

Social network analysis can be used to understand how individuals make choice of referents for PC-based information (e.g., Burt, 1982;Coleman *et al.,* 1966). There are two popular network models that have been used to explain the social influence process. They are the relational model (also known as cohesion) and the positional model (also known as structural equivalence) (Burkhardt, 1994;Contractor and Eisenberg, 1990). According to the relational model, social influences operate through the mechanisms of cohesion and solidarity and people are influenced by those with whom they have direct interactions and social closeness i.e. the relational others (Burkhardt, 1994). Example of these are friendship and advice ties; they are easily accessible and allow individuals the opportunity to get information easily and frequently and so the salience of such information is high (Friedkin, 1998). They are characterized by positive interactions (Friedkin, 1984) and so are more likely to be chosen as a source of social information. The other model is the positional model which explains the mechanism for social influence which is competition and socialization (Burt 1987). So, this model states that individuals focus on people who are is positions similar to theirs in the informal structure as social referents. This happens for two reasons: firstly, because positionally similar people are looked upon as substitutes (Sailer 1978) and so there is a competitive orientation between them. So, the individual focuses on such a person's perceptions and behaviours to ensure his standing as equal or superior (Friedkin, 1998). Secondly, on account of the structurally similar positions, the individual and the positionally similar others are likely to have a similar set of people in their network and have the same socialization experiences. So, this makes them both suitable and relevant as a social referent (Marsden and Friedkin, 1993).

There are two concepts to understanding interrelationships between individuals–the structure and the content of the relationship (Balkundi *and* Harrison, 2006). The structure is the pattern of relationships between the parties. Concepts related to this are network density and network centrality (which are explained later). The content determines the nature of the resources that flow through the structure. The two types of tie content are instrumental and expressive ties (Lincoln *and* Miller, 1979). Instrumental ties are related to work-related advice (Ibarra, 1993) and expressive ties are friendships. Instrumental ties emerge from formal relations and the information shared is usually work related. Expressive ties involve more affect and are central to the social support.

Psychological Contract and Organizational Members

Theoretically, there are a number of sources that play a role in the formation of the psychological contract. These include co-workers, supervisors, mentors, HR practices in the organization, individual predispositions, etc. (Rousseau, 1995, 2001). These actors in the organization play an important role in the socialization of the employees and they also influence the perceptions of the employees by providing information and cues about events and how they should be interpreted. They also help the employees to navigate work at the organization and set work norms and behaviour standards (Nelson *and* Quick, 1991; Morrison, 1993). Of these, the most influential actors are the co-workers as well as the supervisors (Rousseau *and* Greller, 1994).

Rousseau (1995) pointed out that individuals who share a common PC are also likely to experience breach, violation and other changes to the contract, based on each other's experience in the organization. Despite this, for over two decades there has been very limited research that has attempted to understand how the internal and external organizational actors influence PC formation and breach evaluation (Raja, Johns, *and* Ntalianis, 2004).

Social Influence and the Psychological Contract Breach

The evaluation of PC fulfilment is a sense-making process in which the employee attempts to evaluate the extent to which the employer meets the expectations of the employee. The sense making theory points to the fact that PC is a subjective perceptual construct which depends on the 'eyes of the beholder' (Robinson *and* Rousseau, 1994, p. 246). Ho (2002) postulated that the evaluation of PC fulfilment or PC breach is contingent not only on one's own perceived discrepancy between the expectations held and the expectations met but also the discrepancy of the individual's social referents. So the evaluation of fulfillment is not just a simple calculation of the discrepancy between what was promised and what is received but it is also a complex, personal and social 'construction of reality whereby referents can offer cues and standards to guide the evaluation process. Consequently, these evaluations are even more likely to be subject to social information processing and influence.' (Ho, 2005 p. 114). Ho (2005) reported that referents like friends and substitutes play an important role in evaluations of PC fulfillment. The same logic can be extended for PCB evaluation. But there is very little other empirical work on the relationship between the patterns of social interaction and PCB evaluation.

When employees have an unfavourable treatment at work they look to their social networks for information and support (e.g., Van Emmerik, Euwema, *and* Bakker, 2007). The social information processing theory points out that as employees experience more uncertainty their reliance on their social network increases for information and support so as to manage the uncertainty (Lamertz, 2002; Umphress *et al.*, 2003). Also breach undermines the foundation of the employment relationship (e.g., Restubog *et al.*, 2008) and so makes the employees uncertain about their relationship with the organization (Coyle-Shapiro *and* Kessler, 2000). So, the employees ask their peers for explanations about why they think the breach happened and support from peers can restore positive self-identity. So, peers do have an influence on PCB perception.

There has been research (Orvis *et al.*, 2008; Chiu *and* Peng, 2008; Restubog *and* Bordia, 2006) that has focused on dispositional moderators or psycho-social moderators. But there has been a lack of research on the role of informal dynamics which can be a useful framework to understand work related attitudes (e.g. Rice *and* Aydin, 1991). Given that employees fill the gaps in their expectations on the basis of cues from the environment and signals they receive from the social environment, thus making the context important (e.g., Kickul *et al.*, 2002; Turnley *and* Feldman, 1999).

Rousseau (1996) has pointed out that the employment relationship comes in the focus when events happen that beg for questions should be asked. Conscious attention is paid to unexpected events and the sense-making process is initiated and as pointed out above negative events come to focus more often than positive events. All these arguments point to the fact that there is a need to study the impact, that social influence has on PCB perceptions as compared to prior work of the same on fulfillment evaluation.

PCB and Social Structure

Theories like the social information processing theory (e.g., Salancik *and* Pfeffer, 1978) and the sense-making theory (e.g., Greenberg, 1995) show the importance of the social context in shaping individual perceptions. Pfeffer *and* Langton, (1993) have pointed out that social referents play an important role in the judgements that individuals form about their work and organizations. In fact, an individual's evaluation is affected by social influence even when objective information is present (Klein, 1997). Thus, the structural context can play an important role in individual's perceptions and behaviour. On account of the networks that individuals have, they are able to exchange information and form similar perceptions since they are able to vicariously experience another's behaviour about an event (Hackman, 1983). Thus, networks act as mechanisms through which individuals are exposed to other information and influence.

Apart from the formal influences, there exist informal influences that stem from the employee's social interactions. In an organizational setting, social influences can come from immediate local social interactions or influences can be systemic and can stem from large informal structures that individuals are embedded in (Ibarra *and* Andrews, 1993). Both these network forms have distinct characteristics and can influence behaviour differently (Lincoln *and* Miller, 1979).

The sources of influence can be cohesive others and positionally similar others. The source can determine which influencing mechanism is dominant. But this depends on situational factors like the type of network. There are two possible relationships: instrumental or expressive ties and these have a differential impact on behaviour. Instrumental ties are weak ties that link people who have different personal characteristics or hold different positions or have differential access to scarce resources (Granovetter, 1983). Expressive ties are strong and intimate and tend to connect people who share similar personal characteristics (Marsden, 1988). They also involve frequent interaction (Krackhardt, 1990). So, instrumental ties are explored for information like advice, expertise, etc while expressive ties provide affect resources like friendship and support. Both of these need to be considered when studying social influence (Ho, 2005) because empirical research suggests that the type of the network affects the amount of social influence and so there is a differential impact of these.

Hypothesis: Employees will rely more on cohesive others than positionally similar others as social referents when evaluating PC Breach.

Hypothesis: The relationship between the influence of positionally similar others on PCB evaluation is stronger for instrumental ties than expressive ties.

Hypothesis: The relationship between the influence of cohesive others on PCB evaluation is stronger for expressive ties than instrumental ties.

A combination of positionally similar ties and cohesive ties results in multiplex ties. This combination of ties results in a unique influence mechanism. Research (Wheeldon, 1969) has shown that multiplex relations are influential and 'the more different kinds of relationships a dyad includes...the more relevant it is to different kinds of attitudes' (Erickson 1988, p.103). Multiplicity results in more ease in obtaining information, getting more relevant information because the relationships have more settings within their span and there are also more sources from which information can be sought.

Hypothesis: Employees will more rely on multiplex others (i.e., cohesive and positionally similar) when evaluating PCB.

PCB and Deviance

When an employee's behaviour is against organizational norms, it is deemed as workplace deviance (Robinson *and* Bennett 1995). WPD is a kind of frustration that organizations bear from employees. Deviance can be categorized into interpersonal deviance and organizational deviance (Robinson *and* Bennett, 1995). When organizational members are the target of behaviour like disrespect, rudeness, etc. it is called interpersonal deviance since the co-workers are harmed. Organizational deviance occurs when the organization is the target of the deviant behaviour. This can include stealing, vandalism, etc. (Giacalone, Riordan *and* Rosenfeld, 1997). Both these categories have different results (Giacalone, Riordan *and* Rosenfeld, 1997) and so need to be studied separately. Bordia and colleagues (2008) categorized deviant workplace behaviour into

minor and major offences. They indirectly reported that PCB had an effect on major offences. Previous researchers (Restubog *et al.*, 2007; Turnley *et al.*, 2003) have also shown that PCB is more strongly linked to organizational deviance than interpersonal deviance.

Theoretically, the negative effects of PCB can be understood using the social exchange theory (Coyle-Shapiro *and* Conway, 2004). The employer - employee relationship is governed by social exchange; so, when the employee perceives that the organization has broken a promise, the employee reciprocates by acting against organizational interests (like withholding effort, exiting). Also Bordia *et al.* (2008) says that provocations in the workplace like injustice, poor work conditions, etc. could lead to a cognition of discrepancy between reality and expectations and this disparity manifests itself in an emotional reaction. A PCB is perceived when there is a disparity and this can act as a provocation to indulge in deviant behaviour. In the social context, the social information processing theory explains that group members work in a shared environment and they receive similar cues from the environment and this can convince them that deviant behaviours are acceptable adaptations to the situation. So, no one attempts to stop or correct the behaviour and it spreads as explained by the social contagion theory. Thus, social influence also has an impact on deviant behaviour.

Hypothesis: PCB will be positively related to interpersonal deviance.

Hypothesis: PCB will be positively related to organizational deviance.

There are a limited number of studies that have examined the role of interpersonal relationships in understanding and predicting behaviour (Settoon *and* Mossholder, 2002; Venkataramani *and* Dalal, 2007). Thus, there is a need to examine the effect of PCB evaluation on deviant behaviour in the context of social networks.

Moderators of PCB and Workplace Deviance

As mentioned above, situational and dispositional variables influence workplace deviance. Seibert *et al.*, (2001) pointed out that when individuals need to form and maintain a network with important colleagues, it requires the individual to invest time and energy. Thus, as the number of connections increase, it becomes more important to maintain a positive image in the network. Thus, variables like centrality in the network and density of the network can impose constraints in terms of engaging in deviant behaviour, since deviant behaviour can lead in reputation loss. Thus, it would be interesting to explore how the structure of the network (like centrality and density) influences response to breach.

Centrality

There are a number of measures of network centrality (Freeman, 1979). One variable that is relevant to our argument is closeness centrality. Closeness centrality is the extent to which an individual can reach all the other individuals in the network with the least number of direct and indirect links (Freeman, 1979). Direct links are weighted as closer than the indirect links. In terms

of workplace deviance, the direct connections cause increased surveillance while the indirect connections determine how many others will find out about the deviant behaviour and it is an indicator of how much loss of reputation can occur. When closeness centrality is high, the surveillance is high and so there is more loss of reputation associated with engaging in deviant behaviour. When people are isolated in networks, they do not lose reputation but as an individual's network increases in size, his/her reputation becomes more important. A highly central actor has more visibility because apart from the actual relationships they are also known to others and this adds more constraints in terms of possible reputation loss.

Hypothesis: Network centrality will moderate the relation between PCB and deviance such that centrality is negatively related to deviant behaviour.

Density

Density is the proportion of network ties compared to the total number of possible ties (Scott, 1991). Jones (1991) pointed out that the density of relations can increase social consensus on issues and this can lead to increased moral intensity, intent and behaviour. Researchers (Coleman, 1988; Granovetter, 1992; Burt *and* Knez, 1995) also reached similar conclusions about the relationship between density and trust. When the network has high interconnection, surveillance is high and the possible loss of reputation on account of being deviant is also increased. On the other hand, in a network that is loosely connected, it is more likely that individuals engage in workplace deviance.

Hypothesis: Network density will moderate the relation between PCB and deviance such that density is negatively related to deviant behaviour.

Expressive Ties

Expressive ties play a role in helping prevent or constraint destructive behaviour that are motivated by the emotion of revenge (e.g., Bordia *et al.*, 2008). Brass *et al.*, (1998) also suggested that the structural relations in a social network can play a role in deviant behaviour because of the possible loss of reputation. In order to prevent loss of reputation in the social network, employee may refrain from engaging in bad behaviour (Bass *et al.*, 1998).

Hypothesis: Expressive ties moderate the relationship between PCB and deviance such that expressive ties will constraint deviant behaviour.

Research Gaps and Potential Contribution

Despite the huge amount of research in the area of psychological contracts there are some research gaps that have emerged from the literature. Firstly, most of the research in the area of PC has focussed on the employee outcomes of PCB (Lo *and* Aryee, 2003) and there is very limited research that has focussed on the contextual factors that can moderate the PCB-outcome relations.

Research has focussed on unfavourable work perceptions like job satisfaction (e.g., Withey *and* Cooper, 1989; Zhou *and* George, 2001) and low organizational support (e.g., Van Knippenberg *et al.*, 2007). Over the last decade there has been a call for research that has explored the impact that contextual moderators have on the PCB- outcome relation (e.g., Chen *et al.*, 2008). This study proposes relations that can help understand how the context shapes employee - PCB evaluations. Previous studies have explored how individuals use their social ties as referents to understand their PC obligations (Ho *et al.*, 2006) and PC fulfilment (Ho, 2005) but they have not explored how PCB is influenced.

Another limitation is the lack of evidence to explain the differential impact of PCB on different behavioural outcomes. There are a handful of studies (e.g., Chen, Tsui, *and* Zhong, 2008; Orvis, Dudley, *and* Cortina, 2008; Lo *and* Aryee, 2003; Tekleab *and* Taylor, 2003) that have examined the relationship between PCB and outcomes but they have not considered the theoretical differences and similarities of the behaviours. This limitation is important because otherwise researchers could conclude that OCB has equivalent effects on conceptually and empirically dissimilar constructs (e.g. extra-role and in-role performance).

This study integrates the work of Dabos *and* Rousseau (2004), Ho (2005) and Ho (2008). All of them used the social network theory to gain an understanding of PC fulfillment. Previously researchers (Bashir et al., 2011; Bordia *et al.*; 2008) have explored the relationship between PCB and workplace deviance but they have not used network analysis. By using this approach, an understanding can be gained on how employee social networks can influence how they respond to PCB.

Most of the work in the area of PC has been carried out in the Western context. Employee expectations from the employment are driven by societal settings (Rousseau *and* Schalk, 2000). Also given that PC is perceptual in nature, cultural differences influence the agreement on expectations (Thomas *and* Au, 2000). So, in different cultures, different results are expected. In the work that the researchers have studied, there have been no studies on the impact of social influence on workplace deviance in the Indian context.

Most of the studies in the area of PC study fulfillment or breach. It is very important to study breach because it has more damaging effect than the positive effects of fulfilment (Conway *et al.*, 2011). Research has established than negative effects have a greater effect on the mood than positive events and individuals are also more responsive to negative events (Taylor, 1991).

Rousseau (1989) stated that the defining feature of PCB is the fact that once a promise is broken it cannot be repaired easily and this implies that breach has differential effects and these are more magnified as compared to fulfillment (Conway *et al.*, 2011). When people receive unexpected negative surprises it results in sense-making and this in turn results in counterfactual thinking. So, there is a perceived loss and this perceived loss is more harmful than the pleasure from a gain and so it leads to a stronger response (Jervis, 2004). This points out that it is important to study breach because of the potential damage that it can cause.

The conceptual model as proposed by us is as below:
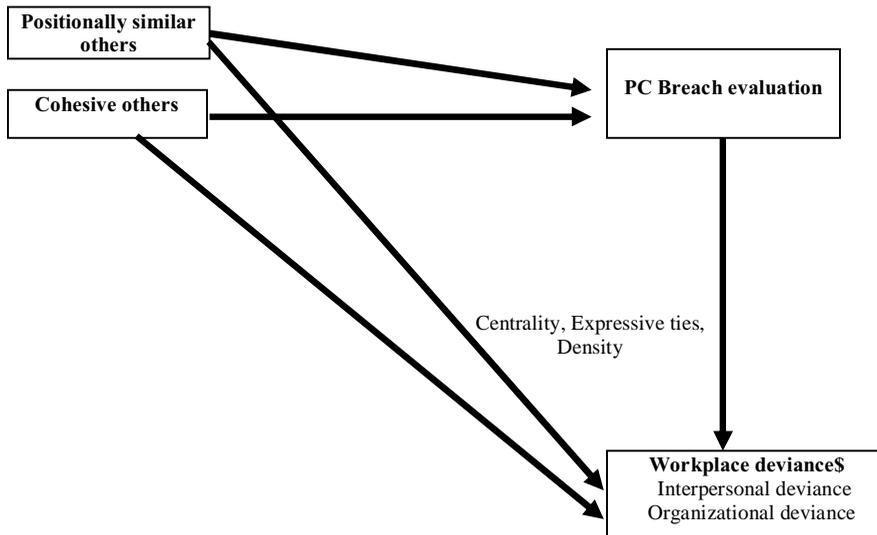
Fig. 1

Conclusion

Psychological contract breach has important implications for the organization because it is related to important work outcomes like performance, commitment, turnover, etc. PCB evaluation will determine whether employees react to the breach or not; and how they would react to the breach. One important source that impacts PCB evaluation is social influence, people we reach out to in order to interpret events. This evaluation, in turn, leads to behavioural outcomes both positive and negative. This paper points out that negative outcomes like workplace deviance can be understood as a resultant of PCB. Also factors like network centrality, density and expressive ties can moderate the relationship between PCB and deviance because they put constraints on what qualifies as acceptable behaviour. This paper presents a conceptual model that can be tested empirically to understand the proposed relationships better.

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Valuing Intellectual Capital: Need of the Era
(An Exploratory Study of Valuation of Intellectual Capital in Service Sector Companies in India)

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Abstract: This paper is an empirical study that explores the need to carry intellectual capital measurement and related impact on business performance in the Indian context. The success of a service sector organization is linked to the leader's, human capital, knowledge, skills of employees, innovation and creativity, know-how, copyright, patents, production processes, information technology, as well as customer relations of the organization. This study is an interaction with 36 industry leaders from Indian service sector companies to explore the awareness, actual scenario regarding measurement of intellectual capital apropos business performance. Through this empirical study and interviews of 36top executives reiterate the importance of measurement of intellectual capital and its influence on company valuation and business performance in dynamic business environment. The results of this study should help both academics and the industry to understand the importance of intellectual capital measurement. Thus, valuation of intellectual capital is need of current era.

Keywords: Intellectual Capital, Human Capital, Business Performance

Purpose of the Study

After liberalization, privatization and globalization (post-1991), Indian economy changed from agriculture and Industrial economy to service sector economy aided by advancement in technology. The fundamental difference is in the very nature of their assets which these industries require. In the former economy, the physical assets like machinery, plant, material etc. were of utmost importance; and in the service sector economy, knowledge and employees have greater significance. For example, in the case of a consultancy firm, the value of physical assets is negligible as compared with the value of the copyrights, patent, knowledge and skills of its human resource. In IT firm, hospitals, academic institutions we observe the same. The financial net-worth of the organization rests mainly on the employee skills and the services they render. Thus, success of these organizations is subject to the quality of their knowledge, human resource, competence, motivation and organizational culture.

The services sector is an important part of the Indian economy. India's services sector accounts nearly to 57% of the gross domestic product (GDP). Service sector has emerged as one of the largest and fastest-growing sectors not just in the country but in the global scenario; its contribution towards global GDP and employment has been substantial. This sector comprises of trading, transportation, communication, financial, business services and personal services, technology companies (IT and ITeS), telecom and back-office management. Every year service sector generates direct employment of 2 million jobs and indirect job creation is estimated at 10

million. Its share of total Indian exports (merchandise plus services) is 30% now. Rising incomes are creating powerful demand for financial services and product innovation is leading to healthy growth in risk, insurance and NBFCs. Recently, several major service sector companies have been in the process of corporate restructuring for value creation. Conventionally, enterprise valuation models are asset-based, earnings-based, or a mixture of both. Assets-based valuation models are based on fixed assets and/or tangible assets as a foundation of value creation, while earnings-based valuation models focus on profitability, earnings and growth. For service sector companies, human capital (intangible assets) is expected to play the most significant role in creating value of company than tangible assets. In knowledge-driven economies, thus, human capital should be recognized as an essential part of the net-worth of an organization. It is necessary that, appropriate method of gauging the worth of the knowledge, skills organizational processes, training and development which support these human resources to perform better, should be developed. In such state of affairs, there is a requirement for new methods towards valuation of intellectual capital in service sector companies in India.

Literature Review

Definitions

1. Definition of 'Valuation': Valuation is the process of determining the current worth of an asset, or company. (Many techniques are used to determine value including subjective and objective methods).

2. Intellectual Capital:

    *   Edvinsson and Malone (1997, p. 358) broadened the definition of IC to 'knowledge that can be converted into value'.

    *   Stewart *et al.* (1997) led to classification of intellectual capital components, namely human capital (HC) and structural capital (SC).

        HC is defined as the knowledge, qualifications and skills of employees and the fact that companies cannot own or prevent those employees from going home at night (examples are innovation capacity, creativity, know-how and previous experience, team work capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education).

        SC refers to the knowledge that remains with the company after the employees go home at after work. It includes copyrights, patents, production processes, information technology, customer relations, R&D, etc.

3. Organization for Economic and Cooperation in 1999, defined 'Intellectual Capital' as the economic value of two categories of intangible assets of a company, namely, structural and human capital.

When valuing a company, analysts draw on evidence from current financial statements of the firm. They use this information to understand how profitable a firm's investments are, or have been in past; how much funds are reinvested and generated for future growth. They study recent history of the firm from earnings and market prices point of view. The firm's rivals are benchmarked to measure how much good or bad this firm is in comparison to its competition. In such a scenario, human capital becomes the vital asset of the service sector company. The present valuation models mostly cover financial aspects and rarely do they include structures like human resources, customer relations and its expertise. Intellectual capital is emerging in India where as in developed countries it has already been accepted. The growing importance of India as emerging global economy makes it not only vital to study developing areas like intellectual capital and addition of it in valuation of service sector companies, but also significant addition to existing body of knowledge.

1. Modigliani and Miller (1958) deliberated the impact of leverage on firm net-worth. According to their analysis, capital structure had no influence on the value of the firm in the absence of taxes; in the existence of a tax structure, they state that the value of the firm is enhanced by the present value of tax shields.

2. Myers (1974) suggested the adjusted present value (APV) model. He recommended that the present value of tax shields could be computed by discounting the tax savings at the cost of debt (kd).

3. Harris and Pringle (1985) projected that the value of tax shields should be considered by discounting the tax savings, affirming that the interest tax shields have similar systematic risk as the firm's underlying cash flows. Copeland *et al.* (2000) also advocated the APV model.

4. A leverage cost was presented into the valuation (Fernandez, 2002). He argued that there were four basic approaches for valuing companies using discounted cash flows: (a) using the free cash flow and the weighted average cost of capital; (b) using the expected equity cash flow and the required return to equity (ke); (c)using the capital cash flow and weighted average cost of capital before tax; (d) and using the adjusted present value.

5. Relative valuation models express the value of a firm in terms of the market value of similar firms. The simplest method for relative valuation practices valuation multiples: for instance, the P/E ratio, or the P/BV ratio. The usage of valuation multiples can enlarge errors in valuation, and are totally inappropriate if earnings are red or negative. Liu *et al.* (2002) provided the foundations for this method. The development of segment or industry-specific valuation models also has a great literature, almost as wide as that of valuation modeling itself. Industry-specific representations help in identifying key value drivers aimed at the industry, and are of great use in guiding strategic formulation in the industry (Damodaran, 2002).

6. Hand (2003) examined equity valuation for online firms, based on net incomes (profits and losses). He suggested that the negative pricing of losses is not due to poor operating performance, but instead reflect massive fund utilization in intangible assets that accounting rules require to be expensed rather than be treated as assets and amortized over time.

7. Jenning *et al.* (2001) stated that goodwill amortization only adds errors to the stock valuation trendsand significantly affects the value of intangible assets. The role of intangibles in firm valuation must be an area of further investigation in the context of specific industry and segment. Resource-based view of the company, including both tangible and intangible assets, is getting more acceptances, in the economic, accounting and strategic management and gives emphasis on linkages between firm resources and performance measurement.

8. Bornemann *et al.et al.* (1999) argued that intellectual capital can be calculated by the cumulative value of three categories:human capital (knowledge, skills), customer capital (supplier and customer relations) and structural capital (databases and organizational structure).

9. The method Pulic (2000a,b) proposed aims to provide information about the value creation efficiency of both tangible (capital employed) and intangible (human and structural capital) assets of an organization. This method is named VAIC and is distinguishable because it indirectly measures IC via the measurement of capital employed efficiency (VACA), human capital efficiency (VAHU) and structural capital efficiency (STVA). The higher the VAIC, the better the utilization of the value creation potential of a firm.

10. Damodaran (2002) stated three basic approaches in valuation modeling:

    - Discounted cash flow (DCF) valuation models,

    - Relative valuation models, and

    - Contingent valuation models.

DCF valuation models compare the value of a firm to the present value of expected future cash flows to the firm. While this approach is theoretically appealing, there have been several variations in the literature concerning the appropriate cash flows to be used, the treatment of tax shields, and the appropriate discount rate.

1. The higher gap observed between market value and book value of many companies has attracted investigation of the value missing from financial statements. According to various researchers, IC is the hidden value that missed in financial statements and then that leads organizations to gain a competitive advantage (Chen *et al.*, 2005; Lev and Radhakrishnan, 2003; Yang and Lin, 2009). Additionally, it is also believed that the

restrictions of financial statements in exactly explaining firm value reveal the fact that the foundation of economic value is the creation of intellectual capital and no longer the manufacturing of materials and goods (Chen *et al.*, 2005).

2. Chen *et al.* (2005) presented that investors in Taiwan receive greater value from the companies having higher intellectual capital effectiveness and which in turn yield the greater success and revenue growth of both current and future performance of the companies in coming years.

3. Dimitrios Maditinos *et al.* (2011) states statistically significant relationship among human capital efficiency and financial performance of a company.

Objective of Study

1. To explore the need to measure intellectual capital in the Indian context with reference to business performance.

2. To understand the important variables associated with the intellectual capital.

3. To study the awareness of intellectual capital measurement in Indian service sector companies.

Hypothesis

There is awareness regarding measurement intellectual capital among business leaders.

Research Methodology

Research Type

The type of research is exploratory research, wherein the interviews of **leaders of 36 service sector companies (Chief Financial Officers, Business Head and Vertical Head)** are conducted to understand the real scenario of valuation of company, measurement of intellectual capital, human capital and structural capital. The research also discusses need of valuating intellectual capital and linkages to business performance.

Universe of Study

The sampling universe consists of all Indian as well as MNC Service sector companies (IT, ITeS, Financial Services, Banking and Consultancy Services).

Sample Frame: Sample Frame consists of List of Chief Financial Officers, Business Head and Vertical Head who are responsible for valuation of assets, business performance and financial reporting.

Method of Study: The study is based on primary data of pre-identified parameters related to valuation of assets, intellectual capital and company.

***Sampling Method*:** Non-probability Sampling (Convenience Sampling).

***Primary Data Collection*:** Personal formal Interview.

***Secondary Data Collection*:** Secondary data can be collected through research papers, company websites and company's annual statements.

Data Analysis and Discussion

This study faced some difficulty in data collection as in India it is observed that people are reluctant to share financial data. On promise of confidentiality and anonymity (not reveling names of the companies) 26 Chief Financial Officers, 7 Business Headsand 3 Vertical Heads (total: 36) were ready to give interview from service sector. Since the data is more in qualitative form, it is presented in two tables only to show descriptive statistics.

Table 1: Summery of Human Capital Valuation/ Measurement

Human Capital Valuation/ Measurement	Count	Percentage
Knowledge	4	11.1
Qualifications and Education	6	16.7
Training	10	27.8
Skills of Employees	20	55.6
Learning Capacity	4	11.1
Innovation Capacity and Creativity	8	22.2
Previous Experience	6	16.7
Team Work Capacity	4	11.1
Employee Flexibility	0	0.0
Tolerance for Ambiguity	0	0.0
Motivation of employees	4	11.1
Loyalty of employees	4	11.1

Table 2: Summary of Structural Capital Valuation/ Measurement

Structural Capital Valuation/ Measurement	Count	Percentage
Intangible Assets	36	100.0
Copyrights	36	100.0
Patents	36	100.0
Production Processes	4	11.1
Information Technology Resources	20	55.6
Customer Relations	0	0.0
R&D Investments	34	94.4
Supplier Relations	0	0.0
Databases	4	11.1
organizational structure	0	0.0

A total of 36 interviews were conducted ina span of 15 months for the research study. It is observed that all the organizations are aware of importance of valuation of special business units and, in turn, entire organization. Every quarter of financial year, these leaders keep close watch on current worth of all tangible assets and current net-worth of a company. On most occasions, it is aligned with quarterly financial reporting for administrative purpose. Most of the organizations use economic value added, return to assets, return to equity to measure or benchmark their business performance. They use either relative valuation (P/E ratio) or discounted cash flows for

valuation of company. These models are used for mergers and acquisitions of the companies with required modifications as per synergy creation, the market and economic conditions and respective home and host country legal system. Not a single company considers intellectual capital valuation for mergers and acquisitions. All leaders are aware of the term 'Intellectual Capital, but only 27% could state the components, namely, human capital and structural capital. Only 11.1% companies carry out intellectual capital valuation in financial and monetary (quantitative) forms. All companies keep record for qualifications and education, training, skills of employees, previous experience, loyalty of employee but did not measure them from valuation perspective. Most of the companies measure and carry valuation of intangible assets, copyrights, patents, R&D investments every quarter and Information Technology resources as a part of financial reporting but does not carry it from intellectual capital perspective. Not a single company ever valued customer relations, supplier relations, employee flexibility, employee tolerance for ambiguity and organizational structure. Only a few leaders are ready to accept that intellectual capital valuation can justify gap between book value and market value. Not a single company is ready to link intellectual capital, human capital efficiency to its financial performance.

Conclusion

The fundamental objective of this research paper was exploring the need to measure intellectual capital in the Indian context with reference to business performance. This is foundation for further analytical and applied research work. It is found that although all the interviewed organizations were aware of intellectual capital, only two companies (11%) measure intellectual capital in objective form and use it for valuation. Most of the companies value intellectual capital in some qualitative form but not in quantitative or monetary form apart from patents and copyright. There is a need to create strong awareness about intellectual capital components in service sector. Most of the industry leaders mentioned non-availability of time-tested and widely accepted valuation models for intellectual capital in the Indian context. On all remaining identified parameters, the leaders accepted importance of measurement of intellectual capital and asserted that there is a need to look beyond financial reporting and compliance. It is now important to observe how many of them implement intellectual capital measurement in their respective organizations. Thus, from the above research, it can be concluded that though intellectual capital measurement is at nascent stage in Indian service sector, the trend is towards more objective measurement of intangibles.

Future Scope

To study and use appropriate models for valuation of Intellectual capital and measure its impact on business performance.

Limitation

The organizations are not ready to share financial data considering financial confidentiality. Hence names of the organization cannot be published in research paper.

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Impact of Customer Satisfaction on Customer Loyalty and Switching Intentions: A Pilot Study on Telecom Sector in Pune City

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Abstract: Telecom sector has materialized as the fastest growing service sector in India over the last decade. The cut-throat competition, technology pace and mobile number portability (MNP) have increased the challenges for the telecom service providers. The companies have accentuated on achieving customers' satisfaction with loyalty and achieving customers' retention.

This research paper attempts to find the impact of customer satisfaction on customer loyalty and their switching intentions. The primary data collection is done with160 customers in Pune city. Researchers found that customer satisfaction has positive correlation with customer loyalty and negative correlation with customers' switching intentions.

Keywords: Customer Satisfaction, Customer Loyalty, MNP, Telecom Sector

Introduction

Telecom Sector in India

India has the fastest growing telecom network in the world with its high population and development potential. Airtel, Vodafone, Idea, Telenor, Reliance Jio, Tata DoCoMo, Aircel, BSNL and MTNL are the major operators in India. India's public sector telecom company BSNL is the seventh largest telecom company in the world.

Private operators hold 90.05% of the wireless subscriber market share whereas the two PSU operators, BSNL and MTNL, hold only 9.95% of the market share.

The total number of telephones in the country stands at 1002.05 million, while the overall teledensity has increased to 79.67% as of 31 May 2015 and the total numbers of mobile phone subscribers have reached 975.78 million as of May 2015. In the wireless segment, 2.44 million subscribers were added in May 2015 (Source: www.trai.gov.in)

Customer Satisfaction

Customer satisfaction can be defined as, 'the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals.'

Customer Loyalty

Customer loyalty contributes towards organization's success. According to Reichheld and Sasser (1990), the loyal customers:

1. Re-buy products despite the fact that there are attractive competitive alternatives to cause switching;

2. Spend money on trying products across the firm's product-line offerings

3. Recommend the firm's goods or services to other consumers;

4. Give the company sincere suggestions (feedback) as to their needs and expectations.

Customer retention can be achieved through successful customer loyalty strategy.

Mobile Number Portability (MNP)

MNP or mobile number portability allows you to switch your mobile phone operator from one mobile phone network provider to another mobile phone provider and keep your existing mobile phone number. Number portability is allowed within a circle, nationwide or intra-circle. The following table shows noticeable increase in MNP requests from customers, indicating dissatisfaction for their existing service providers. Total 15.86% from total subscribers are availing MNP facility.

Year	Request for MNP (In Millions)
2012–13	47.82
2013–14	89.70
2014–15	153.85
2015–16	Not available

Source: www.trai.gov.in

Theoretical Framework of the Study
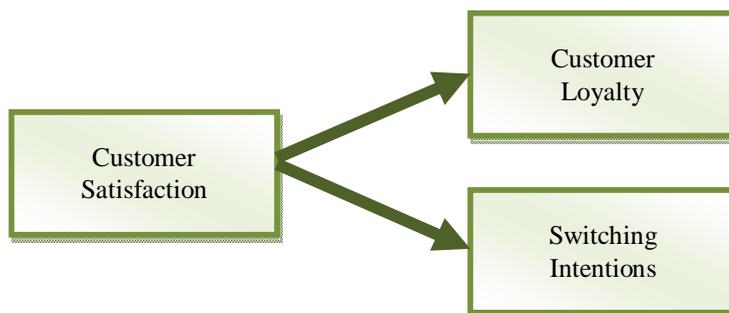
Fig. 1

RESEARCH DESIGN

Sl. No.	Parameter	Description
1	Type of research	Descriptive and Exploratory Research
2	Research Instrument	Structured Questionnaire
3	Survey period	October 2016
4	Type of Industry	Telecom Industry
5	Universe	Population of Pune City
6	Sampling Method	Simple Random Sampling
7	Dependent variables	Customer Loyalty and Switching Intentions
8	Independent variable	Customer Satisfaction
9	Secondary sources	Book, Journal, Articles, Magazines
10	Primary sources	Questionnaire, Interview and Field Survey
11	Measurable scale used	Nominal and Interval Scale.
12	Rating Scale	Likert Scale 1 to 7 (1= Strongly Disagree, 5 = Strongly Agree)
13	Total Responders	160

HYPOTHESIS OF THE STUDY

Hypothesis 1

$H_{1(0)}$: There is no significant association between 'customer satisfaction' and 'customer loyalty'.

$H_{1(0)}$: There is significant association between 'customer satisfaction' and 'customer loyalty'.

Hypothesis 2

$H_{2(0)}$: There is no significant association between 'customer satisfaction' and 'switching intentions'.

$H_{2(0)}$: There is significant association between 'customer satisfaction' and 'switching intentions'.

DATA ANALYSIS AND INTERPRETATIONS

Table 1: (Demographics) Total respondents are 160 and the distribution is as follows

Demographics	Category	Number of Responders	Percentage of Responders (%)
Name of the Service Provider	Idea	32	20.00
	Airtel	24	15.00
	Vodafone	27	16.88
	BSNL	11	6.88
	Uninor	15	9.38
	Aircel	18	11.25
	Tata Docomo	14	8.75
	Reliance Jio	19	11.88
	Total	160	100

Table 1 (Contd.)…

...Table 1 (Contd.)

Occupation	Service	59	36.88
	Business	18	11.25
	Student	83	51.88
	Total	160	100
Qualification	Undergraduate	12	7.50
	Graduate	31	19.38
	PG andabove	117	73.13
	Total	160	100
Gender	Male	92	57.50
	Female	68	42.50
	Total	160	100

Table 2: Customer Satisfaction: Independent Variable
Customer Loyalty: Dependent Variable
Switching Intention: Dependent Variable

	Mean	Standard Deviation
Customer Satisfaction	3.69	0.812
Customer Loyalty	3.93	0.593
Switching Intention	3.47	0.712

Interpretation of Table II

According to the survey, researchers found that customer satisfaction is having mean value of 3.69 with standard deviation of 0.812. These figures indicate that customers are satisfied with their respective telecom service providers.

Researchers found that customer loyalty was (mean value 3.93 with standard deviation 0.593) and switching intentions (mean value 3.47 with standard deviation 0.712). These figures indicate that respondents show loyalty towards their telecom service providers. Though there are various other offers from other telecom service providers; responders show less intention towards switching their existing service providers.

Table 3: Correlations

		Customer Loyalty	Switching Intentions
Customer Satisfaction	Pearson Correlation Sig. (2-tailed)	0.493	-0.276

(Level of Significance 0.01)

The correlation coefficient is 0.493 for customer loyalty and customer satisfaction. This is significant to reject our first stated null hypothesis and accept alternate hypothesis. Thus researchers found that, 'There is significant association between "customer satisfaction" and "customer loyalty". This correlation is found to be positive.

For switching intentions and customer satisfaction, the correlation coefficient is -0.276 which is found to be negative and is also significant. Thus, researchers accept stated second alternative hypothesis which states that, 'There is significant association between "customer satisfaction" and "switching intentions".'

CONCLUSION

In this pilot survey, researchers attempt to analyze the impact of customer satisfaction on customer loyalty and their switching intentions amongst the telecom service users in Pune city. For satisfaction to be effective, it must be able to create loyalty amongst customers.

Satisfaction is a key measure which indicates that customers' needs are well fulfilled. Customer loyalty measures how a customer is likely to repeat the purchases activities with service provider. Customer satisfaction is not an accurate indicator of measuring customer loyalty as loyalty is susceptible.

In many cases, consumers are satisfied with the services but they may switch to other service providers if they can get better value, less cost or better quality elsewhere. Therefore, customer satisfaction is not an accurate indicator of loyalty. Customer retention is one of the crucial factors that telecom service providers must be looking for, to gain a strategic advantage.

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Consumerism and its Effect in the Contemporary Times

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Introduction

Biosphere ethics and consumption have a relation. People are convinced that to consume is the surest route to personal happiness, social status, and national success. Advertising, packaging, and marketing create false needs that are believed real because the 'economic' machine has made people feel inferior and insufficient. To keep the economic machine moving, people have to be dissatisfied with what they have, hence with who they are. Consequently, the meaning of one's life is located in acquisition, possessions, and consumption.

The rationale behind writing on consumerism is: Iam personally convinced that by changing our habits and the way we think, can alter or put a halt to the present level of devastation of the biosphere. In the contemporary world, the rise of consumers and consumerism has a strong impact to the nation and the world. The present level of consumption is ecologically destructive and unsustainable. Consumerism affects the psychological health of the individual through erosion of the true self and replacing it with false self, and the spiritual health of the individual by eroding our spiritual connections with nature and replacing it with consumption of goods and services. Awareness of the link between the consumerism and the functioning of the biosphere can give rise to the ecosophical development. We as humans are not just the residents of the earth and pass our life period just by extraction and stuffing our necessaries but also to be responsible and be aware.

What is Consumerism?

Consumerism is defined as: The theory that a progressively greater consumption of goods is economically beneficial; attachment to materialistic values or possessions. The need that we have to consume and feel good has percolated deep in our psyche. As substantial population is migrating from the rural regions to the urban centers there is a delineation of the human with the nature. Historically, men were engaged with the nature through hunting, primitive agriculture, past times whereas in the contemporary times man's activities are dotted with gadgets like I-Phone, gizmos, play stations although this has its own benefits and it comes with a price that the existing civilization has to pay. As the society gets innovative through product innovation, there is a provocation by the capitalist that use more, buy more and get the benefits. So, the mantra that is subtly hammered that the benefits come through more usages. With the mass production facilities and the establishment of mega factories, million or a billion stock keeping units can be manufactured and special pricing schemes are aired to entice the consumers. I am not writing this paper to label that consumerism is bad and people should practice austerity. This writing of mine is a striving towards getting conscious about the biosphere and what can an individual or society do.

The Roots of Modern Consumerism

In the time period spanning 1800–1920, a number of important events in the development of consumerism occurred. In 1830, the first departmental store opened in Paris. By 1850, large departmental stores had spread to other major cities in Western Europe and United States. Also, mail order catalogue and a wide variety of imports and consumer goods become available. As the nation's become industrialized and new methods of production came in the foray, availability of the goods were not a question and the research was how the people can be induced to consume more and more. The capitalist wanted to churn money and the route was massive production. The industrial leaders understood that want of certain categories of products are dull so what is required is continual promotion and reinforcement.

Consumerism: An Existential Enquiry

Heidegger first distinguishes between the being of an entity qua particular thing (static, structural: what he calls 'ontic' questions) and the way something is 'in-a-world' (the dynamic, 'ontological' relations to other things in the world that cannot be understood as properties or attributes of independently existing things).Modern man, through consumption, is at the ontic level and the deeper and subtler living is the missing link. The German word '*Dasein*', which literally means 'Being There', and is normally translated as existence, is used by Heidegger to refer to human being in the world. The central thesis of *Being and Time* is that the only way 'to work out the question of Being adequately' is by 'making an entity - the enquirer - transparent in his own Being'[4]. Modern day peopleare living in the realm of consumption; so living in the present age is about consuming. An enquiry into self can reveal why am I consuming? How much should I consume? How is my consumption affecting the ecology? What should I do to prevent consumption? Heidegger says that *Dasein* understands itself in its being. Once a consumer questions self, then the nature of consumption can alter as it can be felt that being in the world means luxury and disposition. An analytic and felt enquiry can lift a man and get wisdom about his consumption. Man in the state of inwardness can exchange self with self and the authentic self-need not be redeemed with goods which eventually make the individual insensitive. This insensitivity gets manifested through reckless usage and treating nature as a resource and not as a subject.

I believe consuming is a stage that man has acquired as the civilization progressed, In considering Kierkegaard's three stages in adult developments, there is a possibility in exploring the evolutionary leap man can take in the days of consumption.

1. The Aesthetic stage.

2. The Ethical stage.

3. The Religious stage.

In the aesthetic stage, the person who lives at this stage and one who could do so for an entire lifetime, is focused on the present and remains indifferent to the past as repentance or the future as obligation except in a calculating manner geared to enhance the present. Consumption falls in this zone where the earth as a larger being gets displaced and man remains in the state of oblivion.

The ethical sphere of existence is marked by duty, a duty to ethical principles. Rather than doing things for one's own sake like the aesthetic, the ethical person moves away from this and realizes that he must commit to a set of universal, abstract ethical principles. Something is done for the sake of what is right, and left undone to the extent that it is wrong. The ethical person wills this commitment and acts in accordance with her moral obligations even to her own displeasure. This is in accordance with man's sense of duty and get conscious about consumption. The ethical person realizes that recollection is backward-looking, and in willing himself into the ethical, looks forward instead. Kierkegaard's claims that the forward-looking-ness of the ethical person is represented by the theme of repetition and in the third stage Kierkegaard's view is the 'leap' of faith which constitutes entrance into the religious sphere and the highest form of individuation. Here, the operative categories are neither pleasure nor pain, as in the aesthetic sphere, nor good and evil, as in the ethical, but sin and grace. Man's commitment towards nature can have a religious dimension. The word 'religion' derives from the Latin *religare*, which means 'to bind together'. The joining character of 'ligare' is expressed in the word 'ligament', the structure that binds muscle to bone. The British political writer David Edwards, in his book *Burning All Illusions* makes a point of *religare* as that rejoins the individual with society, the world, and the cosmos. My belief and interpretation of Kierkegaard religious stage is a coherent connection, a connection that doesn't require any external tools or authority but an illumination within. We are in the stage of evolution and coming to the religious stage would be an achievement at a collective level that can redeem from the world of stuffs and goods that is in the process of perpetual over-production and over-consumption. Humans are the connecting tissue with the environment and the doings of humans, especially, through conscious consumption can dramatically reduce the harms imposed on the environment.

Over-Consumption as Bad Faith

One of the characteristic features of Sartre's philosophical writing, especially in *Being and Nothingness* about the structures of conscious experience and the shape of the human condition is Bad Faith. Among the best known of these are his description of Parisian café waiters, who somehow contrive to caricature themselves, and his analysis of feeling shame upon being caught spying through a keyhole. The waiter is usually taken to provide an example of Bad Faith, on grounds that he is taking himself to have a fixed nature that determines his actions. Bad faith is the failure to face the openness of human existence and in the age of awareness on ecology, individuals are closed and fixated to consume. Bad Faith blocks motivation to take responsibility for what we do, and thus who we are in the process of becoming by denying the importance of action, attitude, change and even innovation. Consuming and stuffing the earth and remaining

blind to the repercussion on the earth are Bad Faith. Humans have the responsibility and a duty to reflect on what I am doing. As the species humans have the intellect and the discriminating ability and if that is not practiced then it remains a Bad Faith. As Sartre describes: 'One puts oneself in bad faith as one goes to sleep and one is in Bad Faith as one dreams.' But because of the unblinking eye of pre-reflective consciousness, one is aware of having settled for this non-persuasive evidence. One remains responsible for remaining in Bad Faith.

Mass Advertising: The Generator of Consumerism

It was understood that production is one part of the story and the crux was on to keep on producing so that money keeps on coming to the capitalist few. It was also understood that general consumers are averse to buying so what is required to be in their mind and hence the birth of the Advertising Industry. At present the Advertising Industry predicts thata global total TV advertising revenue will rise at a 4.1% CAGR to US$204.07 bn in 2019 (global entertainment and media outlook).This shows that the industry leaders and the decision involve a game of consuming. On reflection, it would be noticed that many-a-times we don't require the product but we are urged to buy and this is being manufactured somewhere. Benjamin Hunnicutt described the situation in the following terms: Consumption was not guaranteed, but it could be promoted. It would be the hard work of the investors, marketing experts, advertisers, and the business leaders, as well as the spending examples set by the rich that would promote consumption…the business community broke its long concentration on production, introduced, the age of mass consumption, founded a new age of progress in an abundant society, and gave life to the advertising industry.

Consumption and its Effect

It is documented that the depletion and the biospheric hazards are caused and directly related to mindless consumption and services. When we consume, we are mindless and we lack the connected wisdom. Our biosphere is in relation to us. We, in the race of life and in the mode of acquiring, lost the relational aspect; so, our consumption patterns have grown and have been growing unabated. Yes, we are required to consume, to survive and enjoy the benefits of technology but not at the cost of the invaluable relation component with the sacred realm. We tend to believe that what can an individual do and the irony is everything thinks alike and the after-effect is the toxic accumulation of wastes and colossal extractions from the nature to manufacture finished goods. To find its effect, I found the following results that are worth reading slowly:

1. 75% of the major marine fish stocks are either depleted, overexploited or being fished at their biological limit. (World Summit on Sustainable Development 2002, *A Framework for Action on Biodiversity & Ecosystem Management*.)

2. The Western world spends more on luxury products than it would cost to achieve the UN's Millennium Development Goals.

    (Worldwatch Institute, State of the World 2004: The Consumer Society.)

3. A survey of 15,500 consumers in 17 countries revealed that more than a third was boycotting, at least one brand. (GM Poll, 2005)

4. Each person in the United States makes 4.5 pounds of garbage a day. That is twice what they each made thirty years ago.

   (U.S. Environmental Protection Agency, 2007).

5. For every one garbage can of waste you put out on the curb, 70 garbage cans of waste were made upstream to make the junk in that one garbage can you put out on the curb.

   (U.S. Environmental Protection Agency, 2001).

6. Some 4 billion PET recyclable bottles end up in the U.S. waste stream each year, costing cities some $70 million in cleanup and landfill costs. A plastic water bottle can take up to 1000 years to degrade in a landfill; when plastic is burned in incinerators, it releases dioxins, some of the most harmful manmade chemicals that exist.

7. The Story of Bottled Water, www.storyofbottledwater.org

   Around 10 and 15 percent of the price of a bottle of water goes asadvertising costs. Effective marketing of bottled water has contributed to undermining confidence – and investment – in public tap water and encouraging underfunding of public agencies.

   (The Story of Bottled Water, www.storyofbottledwater.org)

8. North America has the largest market for organics – $14.6 billion in 2005, up 17% on the year before. Organic food now represents 2.5% of total US food sales.

   (Organic Trade Association, 2006 Manufacturer Survey.)

9. The global market for organic food and drink was worth $28 billion in 2005 – $2 billion more than 2004. In 2005, 31 million hectares of land were farmed organically by 623,147 farmers in 120 countries.

   (UK Soil Association, Organic Market Report 2006)

The Revelation

The above statistics shows a stark reality where we are heading. I was researching on the internet how is human consumption impacting the reality and distorting the ecological cycle. When I got the above data from various sites and collated, it struck me that at least I should be careful what I consume and why should I consume. As Holmes Rolston states, 'Consumption must be constrained by the larger sense of community. Everyone has the right to live; no one has the right to jeopardize the community of life. No one can claim a right to increased consumption if this jeopardizes the health of us all. One common thread that connects all is the force. Here the force is the domination and proving to stand apart. This force has given a push to the civilization in terms of material convenience and mankind has stretched it so much that the biosphere is unable to

tolerate it. In the process of growth and refinement, the society has turned to be society of appearance.

Conscious Consumption

In the biospheric terms, consumption means the using up of natural and physical resources. It is sometimes referred to in terms of the throughput of energy and materials from energy and materials from natural resources tap to environmental sink(the eventual depositing of the waste in air, land, and sea).It is being observed that consumerism is the cultural orientation that leads people to find meaning, contentment, and acceptance through what they consume.

The culture that has evolved over last three centuries has shaped our behaviour to live a life that is desired based on the evolved display mechanisms. The realities of the external world are stark and palpable. The more we consume the more we feel like consuming. As Mahatma Gandhi stated, 'there is enough in the world for satisfying the need but not enough for satisfying the greed.' My contention of the thesis is to find through review of literature and personal reflection is where we can bridge the gap. As a civilization, we need to be progressive and strive for having a better condition in the realm of biosphere that houses us, the social sphere that glues us and the economy that makes us operable. And for the society to be sustainable, it has to consider all the three. So the challenge is to keep consumption alive and at the same time maintain social equity and be concerned about the biosphere. For these things to manifest, the intangibles haveto be given significance. Once one is aware about his home, one is touched at its core and then it is not just consumption but conscious consumption and that demands inner transformation.

Conclusion

The UN recognized the link between consumption, citizenship and development. The 1998 UN Human Development Report was titled: 'Changing Today Consumption Patterns: For Tomorrow Human Development. The premise of this report was to make people aware of how consumption patterns affect human development and sustainability. It is recognized that the irony in the fact that human life is nourished and sustained by consumption but that our current consumption patterns are not sustaining all human life. The report recommended 4S to illustrate how consumption could benefit human and social development:

1. It should be shared, meaning basic needs should be ensured for all (equality);

2. Strengthening-build human capabilities;

3. Socially responsible so it does not compromise the well-being of others;

4. Ecologically sustainable for future generations.

What is demanded is a sense of responsibility and respect for our biosphere by the individuals and be conscious about consumption. The crux of the matter is shared living is sustainable living and this requires us to explore the intricacies of biosphere and humans interconnectedness.

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Comparative Study of using Own Private Vehicle and using PMPML Bus for the Purpose of Local Commutation in the Areas of PMC and PCMC

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Abstract: Most of the public is aware that use of public transport is better for environment and also cost beneficial. However, number of privately owned vehicles has been on continuous rise. Therefore, detailed benefits as well as setbacks of privately owned vehicle and PMPML buses are analyzed in order to study public opinion on preferred mode of local transport in the areas of PMC and PCMC. Public opinion about what steps and improvisations in PMPML would shift the demand towards public transit is also studied. Also, efforts already taken by PMPML in order to popularize public transit have been studied. A detailed study of the recently implemented BRT system has been done in this research paper.

Keywords: Local Commutation, Private Vehicle, PMPML Bus

Introduction

Urbanization and urban population growth are pointers towards the change in the occupational pattern of the community, from agriculture and allied livelihoods to industrial and other non-agriculture occupations. Pune, a rapidly growing industrial hub is not an exception. Pune Municipal Corporation (PMC) jurisdiction extends up to an area of 243.84 sq. km. within 144 wards and a population of 31 lakhs in 2011. It is the most preferred destination for many citizens in Maharashtra for job, education, healthcare treatment, real estate investment, and better quality of life. Industries, trade and commerce activities and number of educational centers Pune attract floating population from all across India into the city. However, rapid growth of the city is also attributed to the expansion of information technology (IT) industry in the last decade.

As a consequence, the problem of increasing traffic volume of Pune has been on the continuous rise. Working population is preferring own two-wheeler instead of bus service in spite of low bus fare.

According to Surwat, 2016-Public Parking Policy (Draft), with rising income levels, there is an urge for people to acquire a personal motor vehicle. Pune RTO is registering almost 450-500 new vehicles everyday and Pune and Pimpri-Chinchwad RTOs are jointly registering more than 700 vehicles every day. The following graph of Pune vehicle registration data indicates the overall growth of vehicles in the city.

The current trend of increasing personal motor vehicle ownership will continue and if timely action is not taken, it is unlikely that the trend will slowdown, let alone reverse, in the next few years.

The increasing number of privately owned vehicles has been a major cause to the serious issue of traffic in the areas of PMC and PCMC. In the wake of increasing urban traffic and

environmental problems, alternative of using PMPML buses needs to be considered on a more serious level.

PMPML caters its bus services to the Puneites and plays a vital role in providing affordable and convenient public transport service that help the people reach any nook and corner in and around PMC and PCMC area. It is useful for different groups of people like students, employed people, senior citizens, people visiting Pune city etc.
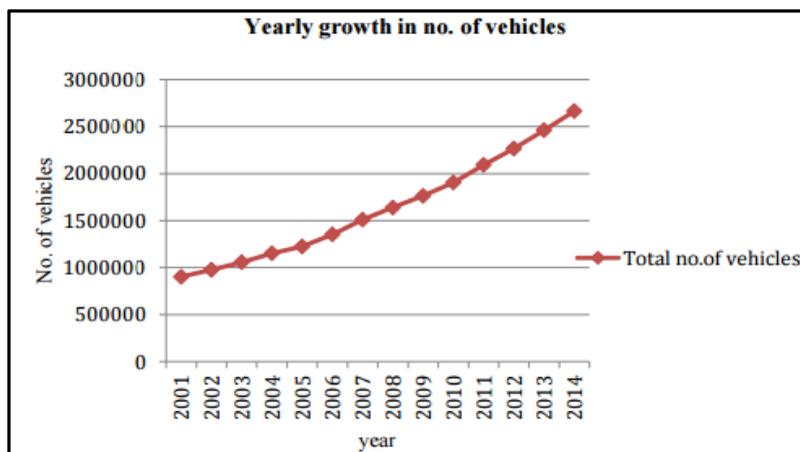
Fig. 1

Performance Matrices of PMPML as on 29 March 2017

Sr. no	Performance Matrics	Pmpml	Hired	PPP	Total
1	Total Fleet	1183	653	200	2036
2	On Road Buses	612	535	140	1287
3	Off Road Buses	571	118	60	749
4	Off Road Buses%	48%	18%	30%	37%
5	Breakdown No	167	144	34	345
6	Breakdown % (Fleet)	27%	27%	24%	27%
7	Breakdown per 10,000 km	-	-	-	-
8	Ridership	-	-	-	938369
9	Passanger Per Bus Per Day	-	-	-	729
10	Total Schedule km planned	-	-	-	-
11	Actual Schedule km operated	-	-	-	-
12	Schedules km cancelled	-	-	-	-
13	Schedules k.m. Cancelled %	-	-	-	-

Fig. 2

Source: pmpml.org-archives

Above performance matrix of PMPML for a normal working day show that on an average938369 passengers use public transit for commutation. This number is very less as compared to total working population of Pune (3751221 persons as per Census 2011).

Objective

To study the benefits and setbacks of using privately owned vehicle and using PMPML bus for commutation purpose.

To perform detailed study of efforts taken by PMPML to increase share of public transit in local commutation.

Hypothesis

Using PMPML bus for the purpose of local commutation is more beneficialthan using a privately owned vehicle.

Bottom of Form

Research Methodology

For the purpose of research, detailed study of various analytical reports from the local governing body was done. Observation of statistical representations was conducted in order to examine the trend towards a certain mode of conveyance. Also, opinion of general public and also a few experts in this field was obtained through interviews and questionnaire.

Sources of Secondary Data

Official PMPML website: www.pmpml.org

www.wikipedia.org

www.quora.com

www.sciencedirect.com

Respondents

A total of 50 people were selected on random basis from PMC and PCMC area for the purpose of survey through questionnaire and interview. These persons include regular commuters preferring either personal vehicle or public transit. Two persons from PMPML were selected as experts in the field for the interview.

Findings

Following aspects were noticed from the research:

1. Comparison of expenses incurred by both alternatives was made.

   - By way of private vehicle. (Activa)

Table 1

Inner city mileage kmpl (Activa) (A)	40
Price of petrol per litre(B)	71.31
Rate per km B/A	Rs. 1.78

Table 2

No. of Kms(A)	40
Ticket fare(B)	45
Rate per km B/A	1.12

- By way of PMPML bus (Sample ticket for Rajgurunagar to Pune Station)

By above calculations, it is understood that commutation by bus is more affordable than by private vehicle. Moreover, the purchase price of the vehicle, maintenance cost adds to the expenses for a private vehicle.

2. Majority of the respondents prefer own vehicle for commuting in Pune. Following reasons were given by them:

- Time-saving and convenient mode.No need of waiting for bus at specific bus stop, own vehicle always available at hand, no need to face the crowd

- Delayed buses

- Nature of work(travel to different places frequently, location of workplace)

- Reluctance to use public transit while having own vehicle.

- Lack of cleanliness in PMPML buses.

3. In case of the respondents in favour of using PMPML bus, following reasons were given:

- Commuting by bus is convenient and time-saving as per nature of work.

- It is convenient, safe mode and stress-free

- This opinion was mainly observed in case of respondents who travel by non-crowded routes

- It reduces the cost of travelling. Concessional passes ranging from a single -day pass to yearly pass are made available by PMPML for regular commuters. This brings the travelling expenses even more down.

- Own vehicle, petrol and also the maintenance expenses are not affordable.

- Health problems due to constant need to be alert, pollution, etc.

4. Following improvements in PMPML bus transit may be able to shift the preference to public transit, according to the respondents:

- Frequency of the buses is increased so that public transit becomes quick and crowd free.

- Buses are timely and disciplined.

- Adequate numbers of seats are available for every route.

- Buses are maintained properly. Modernization of bus system is carried out. e.g. increasing the coverage of BRT routes

- Information of bus timings, bus stops is readily available.

- Response from PMPML staff is prompt, informative and cordial.

5. Most of the two-wheeler users did not consider environmental factors while switching to private vehicle. Factors of convenience, time, fuel cost are considered by a few.

   Rise in income level has contributed to increase in the number of private vehicles. However, it is not a major factor as two-wheelers have become affordable almost for every class.

6. Experiences were observed pertaining to irresponsible or rude behavior of the PMPML staff. However, it was observed that many of the respondents have received positive experience also.

About Rainbow BRTS

BRT is a strategic long term smart transport solution towards expanding efficient and effective public transport operations in cities at a low cost. The special features of a BRT combined with its higher carrying capacity automatically makes it the right choice for enhancing existing public transport by also enhancing its image.
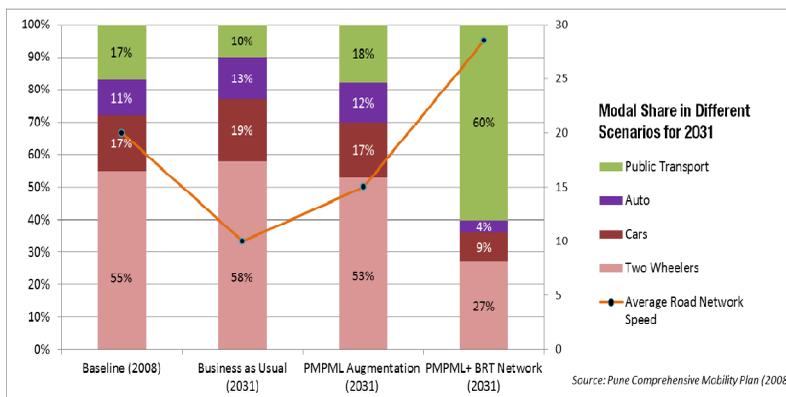
Fig. 3

Pune's Comprehensive Mobility Plan is a milestone in Pune's traffic and transport planning history and it recommends BRT as a highly effective solution for the forecasted traffic growth.

While today the Public Transport share in Pune region is as low as around 15%, it will further reduce to 10% in 2031 if no concrete efforts are made. Mere growth in PMPML service will contribute only marginally, while a comprehensive BRT network which complements regular PMPML service will cater to 60% of the modal share in 2031, making Pune comparable with other model international cities.

Rainbow BRTS aims to provide a few immediate benefits to the passengers: Comfortable ride on the BRTS buses, with shorter waiting times and shorter travel time. The long term benefits to Pune and Pimpri Chinchwad urban areas expected are:

1. Reduced pollution from motor vehicles

2. Reduced congestion due to motor vehicles

3. Reduced spending on infrastructure for motor vehicles such as flyovers, parking lots

4. Increased economic activity due to improved connectivity

Justification of Hypothesis

PMPML buses at the present condition, is not more beneficial than using own vehicle, considering plus points of time factor and convenience. However, with more improvements in PMPML combined with more BRT route projects it can be a better option for commutation than using own vehicle.

Recommendations and Suggestions

1. PMPML should take more efforts to popularize the public transit by way of modernization of bus system. For example, electronic tickets at the bus stop, bus tracking, bus guide apps, etc.

2. Rainbow BRTS plan should be continued more rigorously. New BRT routes must be planned.

3. Frequency of the buses, coverage of area by PMPML routes should be increased.

4. Bus infrastructure should be improved and well maintained. Old and obsolete buses should be retired from the fleet.

5. Delayed buses, breakdown rate of buses should be reduced.

6. Seating capacity of the buses should be increased.

Efforts for attracting public towards public transit by way of concessional passes, attractive and well maintained buses as well as bus stops and bus depots.

Conclusion

From the above research, it could be concluded that PMPML has way more improvisations to do for tackling the problem of traffic volume and congestion due to increasing private vehicles. Image of public transport has to be improved by taking rigorous and smart measures.

The status of PMPML transit, the convenience and comfort provided by PMPML system should exceed that of private vehicles from the view point of common man. Government has to take concrete measures in order to achieve the scenario.

Questionnaire

1. Which mode of transit do you prefer for commuting in Pune?

   (a) Own vehicle b. Public transit

2. Why do you prefer the above option?

3. What plus points do you observe in using public transit for regular commutation?

4. What plus points do you observe in using private vehicle for regular commutation?

5. What improvements in PMPML buses may convince you to shift to using PMPML bus for commutation?

6. Do you have any special experience to share that convinced you to choose specifically the above option?

7. Do you think increase in income level may cause one to shift from public transit to private vehicle?

8. (If private vehicle user) Did you consider effect on environment while taking the decision to use private vehicle?

9. Considering most improved scenario of PMPML buses, will you travel by private vehicle or PMPML bus?

10. Do you think using PMPML bus option is socially inferior as compared to using a private vehicle?

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GST–Paradigm Shift in Indirect Taxes

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Abstract: Goods and Services Tax (GST) is a proposed regime of indirect taxation in India subsuming most of the existing taxes into single system of taxation. It was introduced as The Constitution (One Hundredand First Amendment) Act 2016. The Chairman of GST Council is Union Finance Minister which is currently Mr. Arun Jaitley. The introduction of Goods and Services Tax (GST) would be a significant step in the reform of indirect taxation in India. Amalgamating several Central and State taxes into a single tax would mitigate cascading or double taxation, facilitating a common national market. The simplicity of the tax should lead to easier administration and enforcement. From the consumer point of view, the biggest advantage would be in terms of a reduction in the overall tax burden on goods, which is currently estimated at 25%–30%.

Keywords: Revolution in Tax System, Indirect Taxes, Revenue, Compliance, Tax Credit, Industrial Impact

Introduction

GST is the indirect tax which will subsume major indirect taxes in current regime. Basically,, GST is destination-based tax which is also called as consumption-based tax. Place of consumption of service/goods will be important while considering the tax impact.
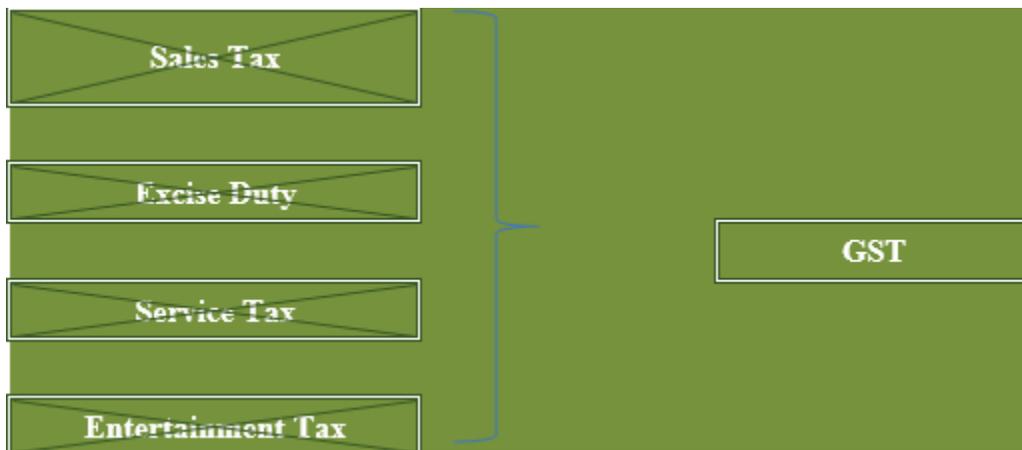
Objectives

1. To know the basic impact of GST on the Indian economy

2. To know the impact of GST on overall price level

3. To know the about technology used while implementing GST

Hypothesis

1. GST will provide ease in the flow of input tax credit

2. GST will reduce overall tax burden on customer

3. GST will increase compliance and same will result into transparent and tax compliant regime

Source of Data Collection

Being an explanatory research it is based on secondary data of journals, articles, newspapers and magazines. Considering the objectives of study descriptive type research design is adopted to have more accuracy and rigorous analysis of research study. The accessible secondary data is intensively used for research study.

Tax Credit

Currently, dealers and manufacturers as well as service providers are involved in the different chains of tax credit system.

- Manufacturer gets input tax credit of the local tax paid (Sales Tax) and Central Tax paid in some cases (Service Tax as well as Excise Duty)

- Dealers get input tax credit of Sales Tax paid in the state only for the purchase of goods

- Service provider gets credit of input services provided or used to provide output service. However, the above mentioned system has many loopholes due to which there are leakages and cascading effects on the indirect taxes. Such loopholes will be removed by implementing GST.

Current Regime *vs.* New Regime

Particulars	Current Regime (Pre-GST)	New Regime (Post-GST)
Flow of Input Tax Credit	1. Tax paid in local state cannot be claimed to pay off the liability of Service Tax/ Excise Duty and vice versa 2. Countervailing Duty cannot be utilized to pay the local sales tax 3. SAD cannot be utilized to pay off the local sales tax liability	1. There will be IGST, SSGT and CGST in play. - Each head will have no restriction to be set off against respective head (i.e. IGST with IGST, CGST with CGST, SGST with SGST) - If any balance remains, it can be utilized against other heads (except for CGST with SGST and vice versa)*
Transformation from One Way Compliance to two way matching	In the current regime, tax credit is monitored by way of one way compliance. - Input credit on the services is claimed by the taxpayer cannot be counter-checked withrespecttothe input tax whether it is paid or not - Input credit of sales tax is claimed by the tax payer is counter-checked only after the assessment or after completion of VAT Audit. Thus, there is no automation for the same	With new tax regime i.e. GST: - There will be two-way matching in the tax credit utilization. Input tax credit can only be claimed after the reflection of the same at the online portal of GSTN. - Correction in the same shall be valid till the date of upload - Credit in the online portal shall only be considered as valid and remaining balance needs to be paid in way of cash

*However, it has one drawback. With respect to the current draft law in the GST, if one erroneously pays off the tax in different tax head (Paying CGST in place of SGST), same cannot be claimed as credit and it needs to be applied for the refund.

Effects of GST on Various Industries

After release of Model GST Law, in common parlance it was assumed that general rate of GST will be 18%. However, rates schedule provided by department does not reflectthe same view. Tax rate will depend upon the current tax collection from the particular industry and estimation of particular industry.

But, it is clear that with respect of tax rates provided in current rates schedule, GST will have positive as well as negative impact on different sectors.

Tax rates provided in the GST rates schedule can be summarized as follows:

Tax Rate	Goods/ Services Description
Zero Rate	Essential Items including foods
5%	Common used items
12%	Standard rate for specified goods and services
18%	Standard rate for specified goods and services
28%	Luxuries items

With thesetax rates, goods which are currently taxed at 31%-32% shall come down which will directly impact on overall tax burden on end consumer.

Short Term–Long Term Impact

Short Term Impact: Short term impact of GST will be changed on revenue of government as well as there will be huge impact on tax credit utilization in the initial phase. For the initial phase, there would be a huge burden of tax payment where the business runs on advance payment.

Long Term Impact: According to Japanese financial services major Nomura, GST is a game-changing indirect tax reform and its implementation will be positive for long-term growth.

Sectoral Imbalance

In the current Indirect tax regime, there are different tax structures for different sectors. It has huge impact on litigation and interpretational matters with respect to tax disputes. However, with the introduction of GST, it will reduce the relative interpretation and complexity of tax laws. Ease in the day-to-day business will increase.

Impact on Agricultural Sector

Agriculture industry forms major part of the Indian economy and the same is not covered in any tax bracket. Question comes whether under GST, agricultural products will also come under GST bracket?

Simple answer of the question is: government has no intention to draw agricultural production under the bracket of GST. But GST tax regime provides the benefit to only tax on agricultural products and not to the compliance angle. It requires that even though any person is providing exempted services/goods needs to get registered under GSTN and comply all the requirements provided by GST rules. But with respect to the registration as tax payer, agriculturist is specifically excluded from the person required to be registered under the GST law.

Revenue of State and Central Government

Passing GST law in both the houses of the Parliament was huge task in front of NDA government. Reason behind the same is revenue-sharing between central and state government was disputable topic and state governments were not in the position to sacrifice the revenue for GST. To overcome the dispute, GST Committee suggested following ways for balancing the revenue:

1. Central Government will compensate the revenue loss of state government on provisional basis.

2. Central Government shall introduce the Additional Cess on the Higher rate Goods (28%) to recover loss.

State Agreement on the Compensation

States will receive provisional compensation from Centre for loss of revenue from implementation of GST every quarter but the final annual number would be decided after an audit is carried out by the CAG. The compensation would be met through the levy of a cess called 'GST Compensation Cess' on luxury items and sin goods like tobacco, for the first five years. Any excess amount after the end of five year tenure in the 'GST Compensation Fund' so created, would be divided between Centre and states, said the draft GST compensation law made public by the Centre today.

Half of the excess amount would go to the consolidated fund of India and would form part of the overall tax kitty, which as per statute, is divided in a fixed proportion between the Centre and the states. The remaining 50% would be disbursed among the states in the ratio of their total revenues from SGST in the last year of the transition period.

Technology While Implementing GST

Implementing GST requires fast track action and due to implementation at the nation level, it requires huge technical support and automation in the process.

The information technology (IT) system will allow taxpayers to register themselves using their permanent account numbers and file tax returns, as well as process payments online. This will also allow collation of data at a central level after which it will be transmitted to the state tax departments, thereby preventing tax evasion and widening the tax base to include more traders.

With this level of implementation, government needed a huge player in the technical support. For the time being and in the initial phase of GST, Infosys will be the technical partner for the GST implementation.

Justification and Conclusion to Hypothesis

With a view to the above discussed points, the views drawn as objectives of this research paper satisfy with justification. Thus,

1. GST will help to stabilize growth in economy in the long run.

2. GST will reduce overall tax burden on the end consumer.

3. GST will improve transparency and will improve flow of input tax credit of indirect tax.

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Gap Analysis in Service Quality through SERVQUAL Model: A Study in Private Bank, Pune City

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Abstract: Service is an activity that creates value and provides benefits for customers at specific time. Service quality seems to be a moral string for every organization. In today's competitive scenario, service quality, customer satisfaction and loyalty are becoming principal challenges for every organization and they are in a position to create and monitor new touch-points for their best performance in order to manage customer are always probing for high quality services in every interaction with the organization, gaining knowledge of novel skills, advancement of efficiency, learning to compete for each sector and deprived service qualities practiced if any, by the organization can pave a way to competitive disadvantages.

It is seen from the sequence of earlier research work in fiscal service organization that the relationship between Service Quality, Customer Satisfaction and Loyalty has been studied only in commercial banks encompassing public sector, private sector banks and foreign banks with several of service quality and its impact on satisfaction and loyalty in the banking sector. This is the major gap actually identified and this study put forth an attempt in evaluating the service quality and its impact on customer satisfaction and loyalty in the above sector through SERVQUAL model.

Keywords: Service Quality, SERVQUAL Model, Private Bank

Introduction

The SERVQUAL service quality model was developed by a group of American authors, Parsu Parasuraman, Valarie Zeithaml and Len Berry, in 1988. It highlights the main components of high quality service. The SERVQUAL authors originally identified ten elements of service quality, but in later work, these were collapsed into five factors: reliability, assurance, tangibles, empathy and responsiveness, that create the acronym RATER.

Businesses using SERVQUAL to measure and manage service quality deploy a questionnaire that measures both the customer expectations of service quality in terms of these five dimensions, and their perceptions of the service they receive. When customer expectations are greater than their perceptions of received delivery, service quality is deemed low.

In additional to being a measurement model, SERVQUAL is also a management model. The SERVQUAL authors identified five Gaps that may cause customers to experience poor service quality.

Gap 1: Between Consumer Expectation and Management Perception

This gap arises when the management does not correctly perceive what the customers want. For instance, hospital administrators may think that patients want better food, but patients may be more concerned with the responsiveness of the nurse. Key factors leading to this gap are:

- Insufficient marketing research.

- Poorly interpreted information about the audience's expectations.

- Research not focussed on demand quality.

- Too many layers between the front line personnel and the top level management.

Gap 2: Between Management Perception and Service Quality Specification

Although the management might correctly perceive what the customer wants, they may not set an appropriate performance standard. An example would be when hospital administrators instruct nurses to respond to a request 'fast', but may not specify 'how fast'. Gap 2 may occur due to the following reasons:

- Insufficient planning procedures.

- Lack of management commitment.

- Unclear or ambiguous service design.

- Unsystematic new service development process.

Gap 3: Between Service Quality Specification and Service Delivery

This gap may arise through service personnel being poorly trained, incapable or unwilling to meet the set service standard. The possible major reasons for this gap are:

- Deficiencies in human resource policies such as ineffective recruitment, role ambiguity, role conflict, improper evaluation and compensation system.

- Ineffective internal marketing.

- Failure to match demand and supply.

- Lack of proper customer education and training.

Gap 4: Between Service Delivery and External Communication

Consumer expectations are highly influenced by the statements made by company representatives and advertisements. The gap arises when these assumed expectations are not fulfilled at the time of delivery of the service. For example, the hospital printed on the brochure may have clean and furnished rooms, but in reality it may be poorly maintained, in which case the patients' expectations are not met. The discrepancy between actual service and the promised one may occur due to the following reasons:

- Over-promising in external communication campaign.

- Failure to manage customer expectations.

- Failure to perform according to specifications.

Gap 5: Between Expected Service and Experienced Service

This gap arises when the consumer misinterprets the service quality. For example, a physician may keep visiting the patient to show and ensure care, but the patient may interpret this as an indication that something is really wrong.

Determinants

The ten determinants that may influence the appearance of a gap are:

1. Competence is the possession of the required skills and knowledge to perform the service. For example, there may be competence in the knowledge and skill of contact personnel, knowledge and skill of operational support personnel and research capabilities of the organization.

2. Courtesy is the consideration for the customer's property and a clean and neat appearance of contact personnel, manifesting as politeness, respect, and friendliness.

3. Credibility includes factors such as trustworthiness, belief and honesty. It involves having the customer's best interests at prime position. It may be influenced by company name, company reputation and the personal characteristics of the contact personnel.

4. Security enables the customer to feel free from danger, risk or doubt including physical safety, financial security and confidentiality.

5. Access is approachability and ease of contact for example, convenient office operation hours and locations.

6. Communication means both informing customers in a language they are able to understand and also listening to customers. A company may need to adjust its language for the varying needs of its customers. Information might include for example, explanation of the service and its cost, the relationship between services and costs and assurances as to the way any problems are effectively managed.

7. Knowing the customer means making an effort to understand the customer's individual needs, providing individualized attention, recognizing the customer when they arrive and so on. This in turn helps to delight the customers by rising above their expectations.

8. Tangibles are the physical evidence of the service, for instance, the appearance of the physical facilities, tools and equipment used to provide the service; the appearance of personnel and communication materials and the presence of other customers in the service facility.

9. Reliability is the ability to perform the promised service in a dependable and accurate manner. The service is performed correctly on the first occasion, the accounting is correct, records are up-to-date and schedules are kept.

10. Responsiveness is the readiness and willingness of employees to help customers by providing prompt timely services, for example, mailing a transaction slip immediately or setting up appointments quickly.

By the early 1990s, the authors had refined the model to five factors that enable the acronym RATER:

1. *Reliability*: The ability to perform the promised service dependably and accurately;

2. *Assurance*: The knowledge and courtesy of employees and their ability to convey trust and confidence;

3. *Tangibles*: The appearance of physical facilities, equipment, personnel and communication materials;

4. *Empathy*: The provision of caring, individualized attention to customers;

5. *Responsiveness*: The willingness to help customers and to provide prompt service.

The simplified RATER model allows customer service experiences to be explored and assessed quantitatively and has been used widely by service delivery organizations.

Nyeck, Morales, Ladhari and Pons (2002) stated the SERVQUAL measuring tool, 'appears to remain the most complete attempt to conceptualize and measure service quality' (p. 101). The SERVQUAL measuring tool has been used by several researchers to examine numerous.

OBJECTIVES OF THE STUDY

1. To evaluate the impact of service quality on customer satisfaction.

2. To analyze customers' expectations towards service quality of Private Bank.

3. To analyze customers' perception about service quality delivered by Private Bank.

4. To find the service gap between customers' expectations and perception of customer towards SERVQUAL.

5. To give suggestions for further improvement in service quality.

LIMITATIONS OF THE STUDY

1. Time period of the report was limited for two month only.

2. Some data are confidential due to which we cannot take actual figure to do proper research study.

3. The data analysis used simple graphical methods.

4. The sample of 150 respondents may constitute a limitation due to its smallest nature of sample.

5. Biased opinion of some of the respondents.

RESEARCH DESIGN

Table 1

Sl. No.	Parameter	Description
1	Type of research	Analytical Research
2	Nature of Research	Qualitative andQuantitative
3	Research Instrument	Structured Questionnaire
4	Survey period	15 May to 15 July 2016
5	Sample Size	150
6	Sampling Method	Non-Probability Convenience Sampling
7	Sources of data collection	Primary and Secondary sources
8	Primary sources	Structured questionnaire, observation, interview and field survey
9	Secondary sources	Book, Journal, Articles, Magazines

Data Analysis and Interpretation

Table 2

Gender	Male	Female
Responders	128	22
Percentage (%)	85	15
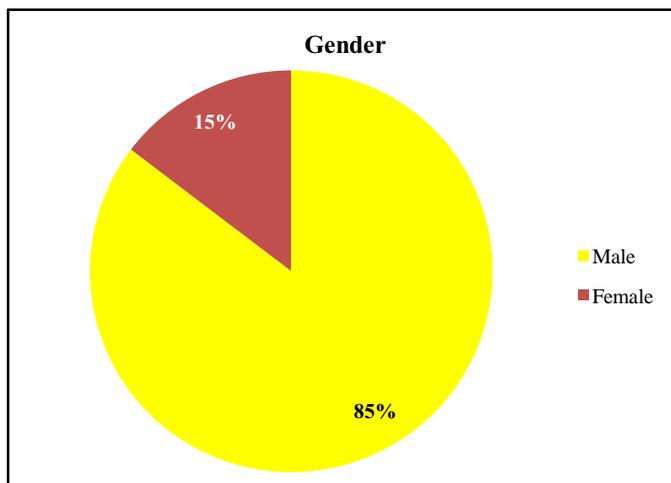
Graph A1

Interpretation

The total number of male account holders in Private Bank is much more than female account holders.

Table 3

Occupation	Respondents
Student	78
Service	27
Farmer	17
Business	8
Housewife	20
Total	**150**
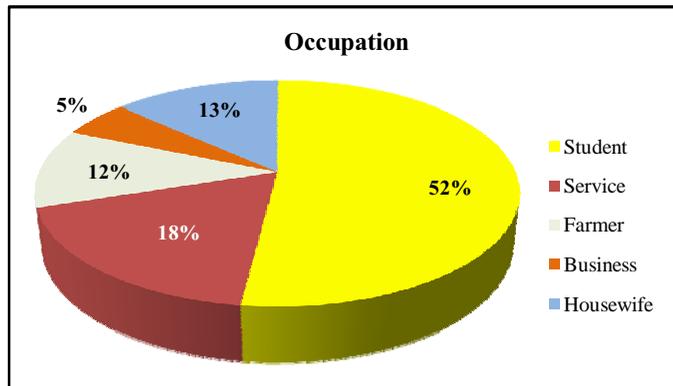
Graph A2

Interpretation

The number of students and service persons are more than others in the Private bank

Table 4

Annual Income	Respondents
Less than Rs.1,00,000	92
Between Rs.1,00,000 to 3,50,000	46
More than Rs.3,50,000	12
Total	**150**
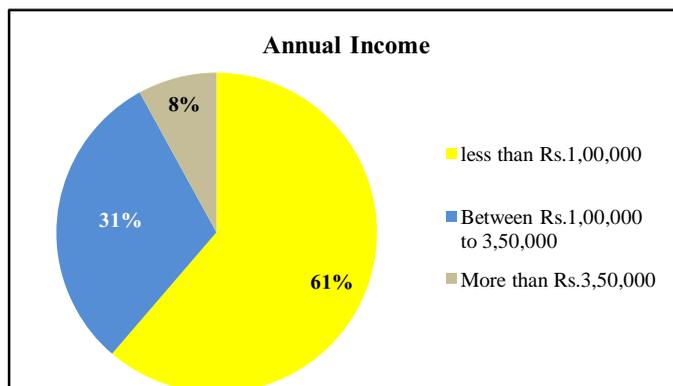
Graph A3

Interpretation

According to this survey, researcher found that the maximum numbers of responders are having annual incomes less than Rs 1,00,000 in Private Bank.

Table 5

Qualification	Respondents
UG	87
Graduate	52
PG	11
Total	**150**
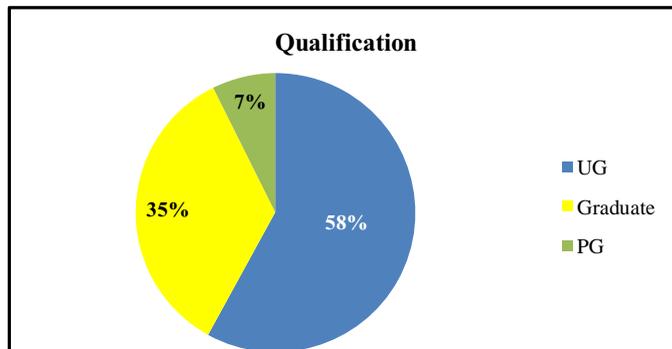
Graph A4

Interpretation

The numbers of undergraduate are more than graduates and post-graduates in Private bank.

Table 6

Type of Bank Account	Respondents
Current	17
Saving	133
Total	**150**
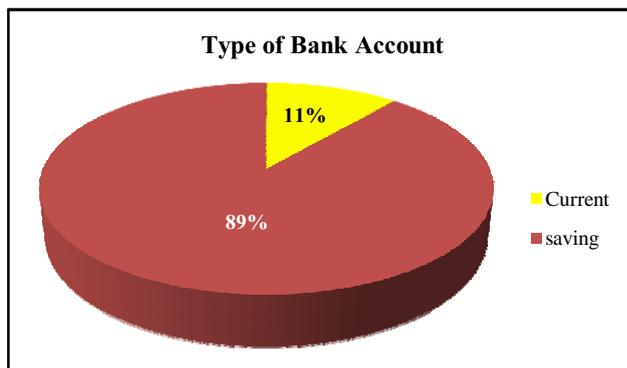
Graph A5

Interpretation

The saving account holders are more in number than current account holders.

Part B

Researcher has used Likert Scale from 1 to 7 as follows:

Strongly Disagree Strongly Agree

1	2	3	4	5	6	7

The average response of total 150 responders about Perception (P) and Expectations (E) have been calculated and analyzed.

Table 7: Calculations to Obtain UNWEIGHTED SERVQUAL Score

Average Tangible SERVQUAL score	-0.355
Average Reliability SERVQUAL score	**+0.204**
Average Responsiveness SERVQUAL score	**+0.0975**
Average Assurance SERVQUAL score	-0.218
Average Empathy SERVQUAL score	-0.156
TOTAL	-0.428
AVERAGE UNWEIGHTED SERVQUAL SCORE (=Total/5)	**-0.0855**

Listed below are five features pertaining to Private bank and the services they offer. Researcher has allocated total 100 points among the five features according to their importance.

Table 8: SERVQUAL Importance Weights

Parameter	Points
The appearance of the bank's physical facilities,equipment, personneland communication materials	10
The bank's ability to perform the promised services dependably and accurately	30
The bank's willingness to help customers and provide prompt services	30
The knowledge and courtesy of the bank's employees and their ability to convey trust and confidence	20
The caring,individual attention the bank provides to its customers.	10
Total	**100**

Table 9: SERVQUAL WEIGHTED SCORES

SERVQUAL Dimension	Score From Table 1 (A)	Importance weight from Table 2 (B)	Weighted Score A*B
Average Tangible	-0.355	10	-3.55
Average Reliability	+0.204	30	6.12
Average Responsiveness	+0.0975	30	2.925
Average Assurance	-0.218	20	-4.36
Average Empathy	-0.156	10	-1.56
TOTAL			-0.425
AVERAGE UNWEIGHTED SERVQUAL SCORE (=Total/5)	(-0.425)/5		-0.085

Findings

1. From the customers' response, the researcher found that Private bank's physical facilities are above customers' expectations and employees understand customers' specific needs.

2. Material associated with the service (such as pamphlets or statements) visually appealing at a Private bank.

3. Researcher found that when Private bank promises to do something by a certain time, it does so.

4. Solving customers' problems are always at highest priority in service sector. In this survey, the researcher found that when customers are having problems, Private bank shows sincere interest in solving those problems.

Recommendations

1. Modern equipments add value in terms of tangible parameters from customers' perception. Private bank should keep modern equipments as researcher found that customers' perception is less than their expectations.

2. Private bank should improve at neatness appearing at receptions desk. Researcher found that customers' perception is less than the expectations.

3. Keeping commitments as it promises is most important to achieve customer satisfaction. In this survey, the researcher found that private bank should improve in this particular area.

4. Researcher found that there is a communication gap between customers and bank employees which needs to be minimized. This gap is of 'communicating customers about service which will be the time when performed.

5. Researcher found that employees in private bank have less knowledge than customers' exceptions to answer customers' queries or question.

6. Customers expect working hours of their bank to be as per their convenience.

7. Here, in survey, the researcher found that private bank has operating hours which are not as per customers' expectations.

8. Researcher found that customers seek personal attention from employees of the bank. In this area employees need to improve.

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Telecom Industry in India: Evolution, Current Challenges & Future Road Map

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Abstract: Telecom industry is growing at a rapid pace in India. Today, India's Telecom sector stands second in the world in terms of market share. Contribution of mobile phone industry as a part of gross domestic product (GDP) of the country in 2014 has been to the tune of US$ 400 billion. Based on the data available from GroupeSpeciale Mobile Association (GSMA), this sector will create close to 4 million additional jobs by 2020.

While Telecom sector is witnessing spectacular growth, it is also facing some major hurdles both in the area of government regulations as also consistent demand from customers to enhance customer service.

Keywords: Telecommunications, 3G, 4G, Broadband, Tele-density, Network

Introduction

Telecom sector in India is over 165 years old. Introduction of Telecommunications in India dates back to 1851 when the first landlines were made operational by the government at a place near Kolkata. Telephone services were formally introduced in India in 1881 and were subsequently merged with the postal system in 1883. Post-Independence, Posts, Telephone and Telegraph (PTT)body was formed by nationalization of all telecommunication companies and its governance was under the Ministry of Communication.

Indian telecom sector was government-owned until 1984, post which the private sector was allowed to manufacture telecommunication equipment only. The industry evolved only after the Department of Post and Telegraph was separated in 1985 and a new Department of Posts and the Department of Telecommunications (DoT) was formed.

Tele-density of Indian telecom industry (wireless plus wire line) has grown from a low of 3.60% in March 2001 to 84% in March 2016. The mobile subscriber base (GSM and CDMA combined) has grown from under 2 mn at the end of FY 1999–2000 to 1033.63 mn at the end of March 2016. This substantial leap, both in terms of number of consumers as well as revenues from telecom services has contributed significantly to the growth of Indian GDP and also provided much needed employment.

> *"India is so big. Maybe in 10 years, we can have a factory in every state."*
>
> **—TerryGou**
> *Founder and Chairman, Foxconn*

Data Sources and Methodology

This paper throws light on the evolution of telecom sector in India. Key focus is on providing and understanding the growth and challenges of telecom sector. For this purpose, secondary data has been collected through journals, websites, govt. reports etc. In addition, following key points were considered as a part of research methodology—supply, demand, barriers to entry, bargaining power of suppliers and customers and competition.

Objective of this Research

1. To evaluate and understand current set of challenges faced by Telecom industry in India;

2. To propose a future road map to overcome these challenges;

3. To submit the findings as an outcome of this research;

Accordingly key telecom players who are the market leaders, encompassing top private and public sector companies were selected.

The methodology adopted for research was analysis of data available on public domain network including research articles and private and government publications.

Evolution
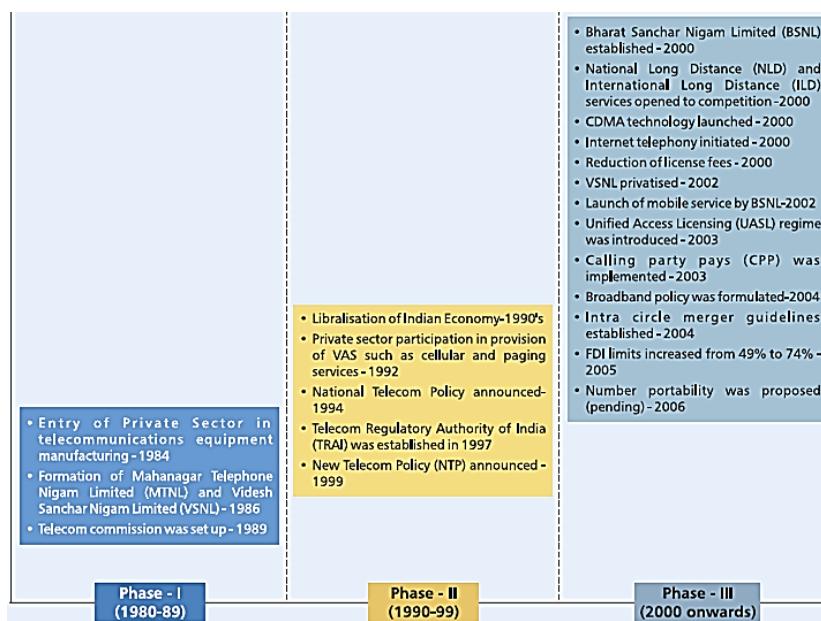
Fig. 1

Source: D&B Research

Until 1984, Telecom sector was owned by the government, subsequent to which private players entered the area of manufacturing. Although growth momentum in the first two phases was slow, divestment of VSNL in 2002 (phase III) saw entry of private players in the service provider domain.

Growth in the wireless sector (technology getting upgraded from 1G to 4G) has resulted in a significant boom in the data usability space, providing users with mobile broadband and fast speed data services.
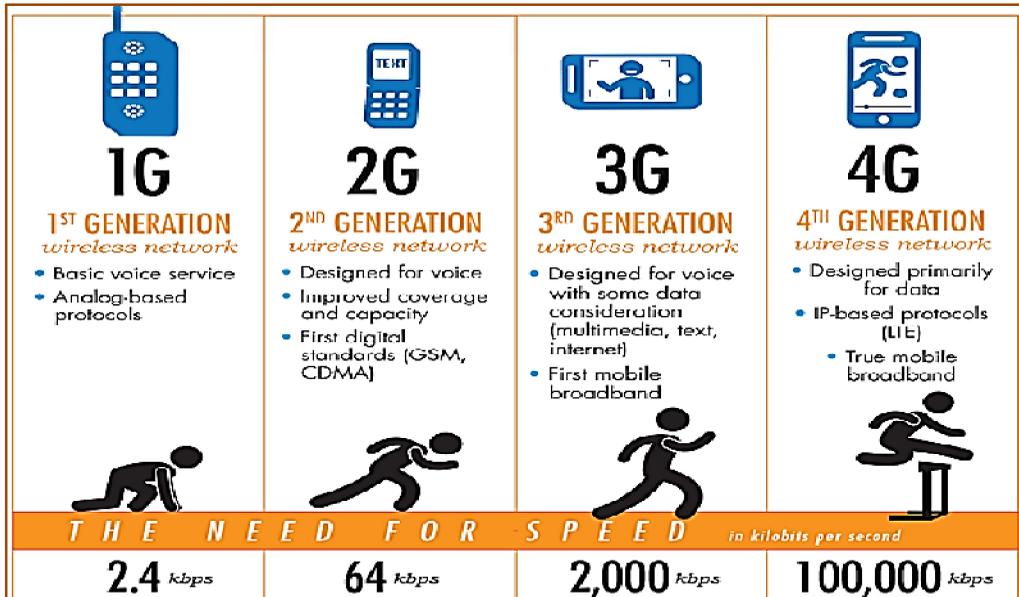
Fig. 2

Current Industry Structure

Rapidly growing telecom sector in India is being serviced both by players in private and public sector. Permission to private players has been given for all segments of the telecom industry, including ILD, NLD, basic cellular and internet. A diagrammatic representation of the structure of the telecom industry in terms of service providers is given below:
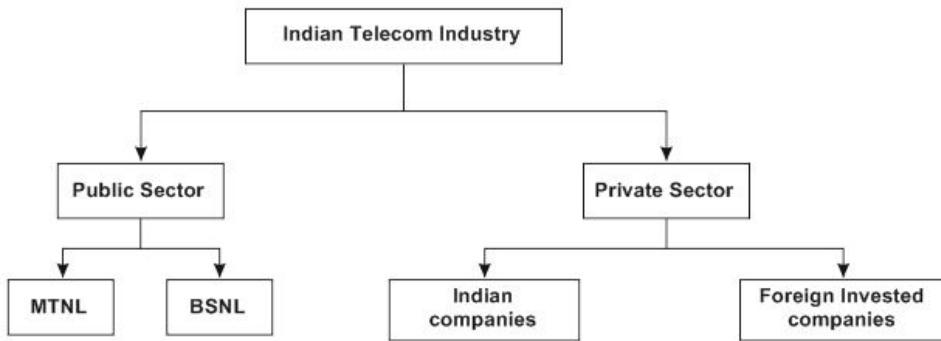
Fig. 3

Source: D&B Research

Indian Telecom Industry Framework

Current Indian Telecom industry framework has been bifurcated into:

1. Indian government bodies encompassing WPC, DoT, Telecom Commission and GoI Telecom & IT, and

2. Independent bodies constituting TRAI, TDSAT and AUSPI.
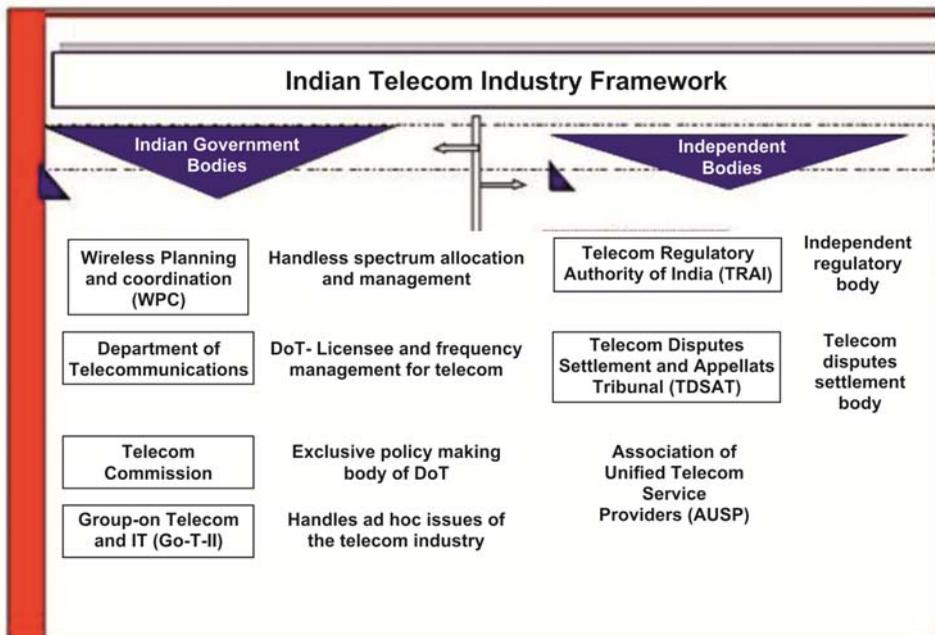
Fig. 4

Key Objectives

Indian Government Bodies (WPC, DoT, Telecom Commission and GoT Telecom & IT)

1. WPC (Wireless Planning and Coordination wing) is responsible for:

    - Spectrum Management pertaining to frequency.

    - Licensing of wireless stations.

    - Catering to the needs of all wireless users in India.

2. DoT (Department of Telecom)

    - Policyand coordination matters including licensing, relating to telegraphs, telephones, wireless, data and other forms of communication.

    - Framing of rules related to security of telecom networks and coordination with security agencies.

    - Spectrum management and spectrum allocation.

3. Telecom commission

    - Formulate policy.

    - Matters related to telegraphs, telephones, data services and forms of communication of similar nature.

Independent Bodies (TRAI, TDSAT)

1. TRAI

    - Prime objective of TRAI is to provide complete transparency in the policy environment which in turn will help provide unique opportunities to various telecom players.

    - TRAI provides recommendation on various policy matters and in addition also possesses regulatory and judicial powers.

2. TDSAT

    - TDSAT has been given exclusive powers to decide on any dispute between:
        o   DoT (licensor) and licensee
        o   Various service providers and
        o   Multiple service providers and customers.

Key Telecom Players

- Players in the public sector: BSNL, MTNL

- Key players in the private sector: Reliance Telecom, Bharti (Airtel), Tata Telecom, Vodafone and Idea Cellular.

<div align="center">Key Companies in the Market</div>

	Company	Ownership	Presence
MTNL	Mahanagar Telephone Nigam Ltd (MTNL)	Government (56.3 percent)	Fixed line and mobile telephony (in Delhi and Mumbai), data and internet
BSNL Connecting India	Bharat Sanchar Nigam Ltd (BSNL)	Government (100 Percent)	Fixed line and mobile telephony (GSM-outside Delhi and Mumbai), data and internet in 22 circles
RELIANCE Communications Anil Dhirubhai Ambani Group	Reliance Communications	ADAG Group (approximately 67.9 percent)	Mobile (CDMA and Broadband
Airtel	Bharti Airtel	Bharti Group (45.7) Pastel Ltd (15.57 percent), LIC India (4.3 percent)	Broadand and mobile (GSM) in 22 circles
vodafone	Vadafone Essar	Vodafone (74 percent), Telecom Investment India (19.5 percent)	Broadband and mobile (GSM) in 22 circles

<div align="center">Fig. 5</div>

While BSNL and MTNL are key government players based on customer size and revenue generated, Reliance, Idea Cellular and Vodafone are the key players in the private sector, considering the subscriber base and revenue earned.

National Telecom Policy 2012

Union Cabinet on May 31, 2012 approved the National Telecom Policy, 2012. Policy vision was, 'to provide secure, reliable, affordable and high quality converged telecommunication services

anytime, anywhere for an accelerated inclusive socio-economic development.' Key components of the policy are:

1. Broadband telephony for rural areas

2. Standardize Telecommunication Equipment from R&D and Manufacturing stand point

3. Licensing and Value Added Services (VAS)

4. Managing spectrum

5. Service quality

6. Data and network security.
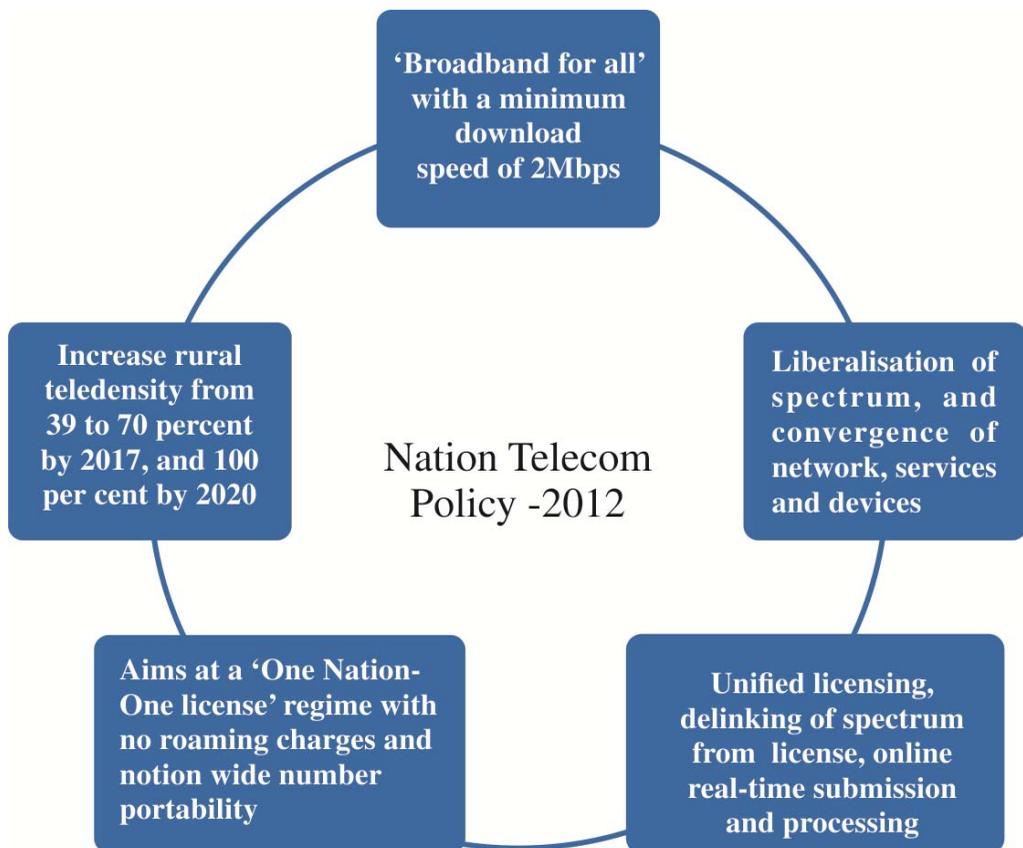
Fig. 6

FDI in Telecom

- Between April 2000 to January 2014, FDI inflow in telecom sector experienced an increase of 6% of the total foreign direct investments (FDI) amounting to US$ 59,796 million, as per report published by the Department of Industrial Policy and Promotion.

- During the period April 2014 to February 2016, FDI equity inflow in telecom sector increased to $4,091 million ($ 4.09 billion or approx. Rs 26,000 crores) which is more than double the amount in the corresponding period of previous two years, i.e. April 2012 to March 2014 ($1,611 million).

Substantial FDI inflows, emphasizes the importance of Telecom sector in the overall industrial growth in India and the need for further rationalization of existing Telecom policy.

Current Industry Status

Telecommunication sector has become an integral part of the Indian economy. While the industry is working under stringent regulations, latest government policies are providing this sector with good growth opportunities through reduced spectrum charges and flexible rate plans.

India stands second in terms of market size and third in terms of internet users in the world.

- India's telephone subscriber base has increased at the rate of 19.5% (CAGR), between FY 07–16

- Telephone subscriber base stood at 1,022.61 million in September 2015 and tele-density stood at 81% (refer table below)

- Revenue from mobile services market is likely to touch US$ 37 billion in 2017 which is a 5.2% (CAGR) growth during 2014–17, as per data provided by the research firm IDC. This is due to substantial increase in data consumption on handheld devices.

Growth in total subscribers

Telephone Subscribers (in millions)

Source: Telecom Regulathority of India, TechSci Research
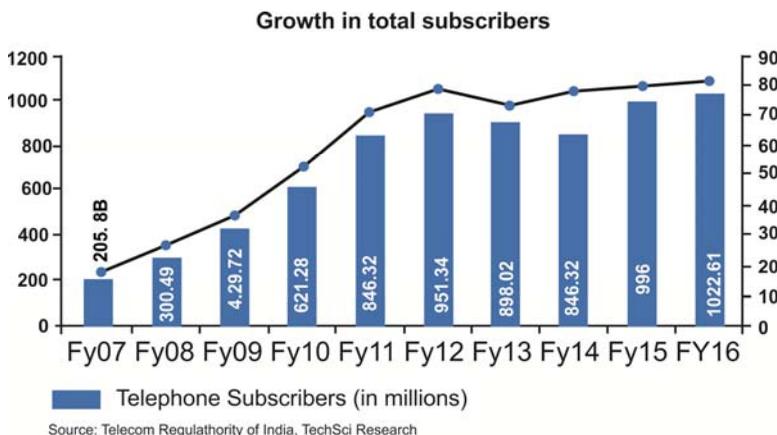
Fig. 7

With the growth in subscriber base, spectrum requirement increased. At Rs. 11,485 crore for 1 MHz, the 700MHz band was the most expensive on offer at the auction. At that price, it made a bidder liable to pay Rs. 57,425 Crore for 5MHz on a pan-India basis, and had the potential to fetch bids worth over Rs. 4 trillion.

Most analysts had expected telcos to avoid bidding for the band, given the steep price, the financial strain on the debt-ridden telecom industry and more intense competition following the entry of Reliance JioInfocomm Ltd.

SPECTRUM: WHO BOUGHT WHAT

Band	Airwaves bought (in MHz)	Value of airwaves bought (in Rs cr)
800 MHz		
Jio	15	3,623.49
1,800 MHz		
Jio	39.6	2,153.91
Airtel	18.8	2,396.8
Idea	54.6	5,403.9
Vodafone	42.6	3,743.5
Tata	12.4	4,619.2
R-Com	5	65
Aircel	1.8	111.6
2,100 MHz		
Airtel	25	4,840
Idea	20	3,985
Vodafone	40	7,315
2,300 MHz		
Jio	160	7,895.06
Airtel	130	7,006.78
Idea	30	888.28
2,500 MHz		
Idea	170	2,520.8
Vodafone	200	9,220.8

Source: Government

Fig. 8

Composition of Telephone Subscribers (FY 16)
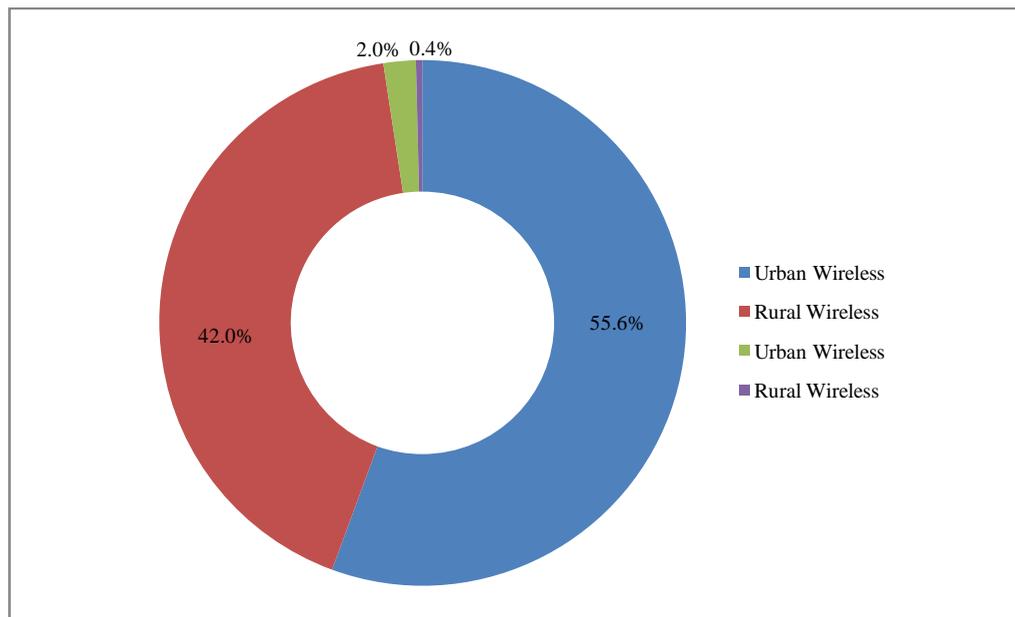
Fig. 9

Source: Telecom Regulatory Authority of India, Techsci Research

Current Challenges

Indian telecom industry has witnessed a sea change post-liberalisation. It has experienced substantial growth, primarily in the wireless segment in the last 5–7 years. New set of services ranging from voice and data services, Wi-max, VPN, bandwidth on demand to virtual private networks is transforming the way business is being conducted specifically in the service sector, i.e., IT, BPO and also the manufacturing sector. In the process, it has provided access to new technology to millions of people.

In order to make speedy progress, current set of challenges as listed below need to be addressed expeditiously:

- *Substantial Investments in 4G Infrastructure*: Telecom operators have already incurred huge capex to roll out 4G infrastructure. Rolling out of 4G infrastructure is critical for higher Internet speed in India. It is estimated that 90% of the users in India will access the Internet through mobile by 2020.

- *Lack of Telecom Infrastructure in Semi-rural and Rural areas*: Service providers have to incur huge initial fixed cost to enter semi-rural and rural areas. Key reasons behind these costs are lack of basic infrastructure like power and roads, resulting in delays in

rolling out the infrastructure. Lack of trained personnel to operate and maintain the cellular infrastructure is another challenge.

- **Pressure on Margins Due to Stiff Competition**: With competition heating up post entry of Reliance Jio, other telecom players are feeling the heat of substantial drop in tariff rates both for voice and data (more significant for data subscribers). TRAI needs to fix a base price and help create a level playing ground for all players.

- **Rapidly Falling ARPU (Average Revenue Per User)**: The heady days of rising ARPU (average revenue per user) are long over. But the ARPU decline now is sharp and steady, which, combined with falling profits and in some cases serious losses, is prompting the Indian telecom industry to look at consolidation as the only way to boost revenues.

- **Delays in Roll Out of Innovative Products and Services**: Substantial delays in roll out of data based products and services are hampering the progress of telecom sectors. This is primarily due to the non-conducive environment resulting out of government policies and regulations.

- **Limited Spectrum Availability**: Available spectrum is less than 40% as compared to European nations and 50% as compared to China. Hence, it is imperative that spectrum auctioning at sustainable prices is the need of the hour.

- **Low Broad Band Penetration**: Low broadband penetration in the country is a matter of concern and the government needs to do a lot more work in the field to go up in the global ladder. As per white paper presented on broadband at the last ITU (International Telecommunication Union), broadband penetration in India is only 7%.

Opportunities

Companies should explore the potential business opportunities in the sector as mentioned below:

- **Boost to Telecom Manufacturing Companies**: In line with the 'Make in India' theme, exemption from basic customs duty, countervailing duty and special additional duty has been withdrawn on chargers, adapters, battery, wired headsets and speakers for mobile phones. This will help the local manufacturers by making imports costlier. Correspondingly, to encourage local manufacturing, import duties on inputs that contribute into making of such parts and components have been removed.

- **Continuous Enhancements to the Mobile Value Added Services (MVAS)**: To begin with VAS should cover utility services and opportunities are available in this area, specifically encompassing m-commerce, m-health, m-education, m-governance etc. Government has initiated the National e-Governance Plan, wherein many of the government services will be available to citizens online.

- *Expeditious Roll-out of 4G Services*: While Airtel had already completed roll-out of 4G services across 296 towns, Vodafone having completed roll out of its 4G services on a pan-India basis and Reliance Jio also entering the fray, has boosted the customer utilisation of high-end data products.

- *Infrastructure Sharing*: Since telecom business is heavy on capex and as much as 40%–60% of the Capex is utilized for setting up and managing the Telecom infrastructure. With ARPU and revenue per tower declining over time, sharing of tower and other infrastructure is imminent. By sharing infrastructure, operators can optimize their capex, and focus on providing new and innovative services to their subscribers. In the long run, this is what will differentiate them from the competition.

- *Availability of Affordable Smart Phones and Lower Tariff Rates*: With new players both domestic and international entering the Indian handset manufacturing market, cost of smart phones is dropping gradually. To add to this Reliance Jio has dramatically reduced the voice and data tariff rates as a result of which other players too are lowering tariff rates. Marked increase in Telecom subscriber base (expected to touch 5bn by 2020)

As per figures published by TRAI, India's telecom subscriber base, mobile and landline combined, touched the 1.18 billion mark at the end of February 2017. The market growth was propelled by the addition of 13.75 million mobile users during the month. The demand for once-popular landline phone has been dwindling as the cheap mobile handsets, coupled with falling tariffs and freebies, have led to an explosion in cell-phone connectivity.

- *Rural Telephony–Connecting the Real India*: As per the data shared by the Telecom Minister Ravi Shankar Prasad, close to 55,669 villages in India are devoid of telephony services. The objective, under the National Telecom Policy, includes improving the rural teledensity to 70% by 2017 (stood at 42.4% in 2016), while 100 per cent penetration is aimed for 2020.

Issues	Opportunity
• Falling ARPU	• Rural Telephony
• Lack of Infrastructure	• 3G Services
• Rural Areas-Underpenetrated	• WiMAX
• Excessive Competition	• Value Added Service (VAS)
• Price War	• Infrastructure Sharing
• Spectrum Allocation	• Managed Service
• Lower Broadband Penetration	

Fig. 10

Source: D&B Research

Observations

Considering the immense potential for growth in terms of revenue and employment generation and enhanced customer experience through consistent improvement in technology, telecom players need to work aggressively on potential key areas of growth which are shared below as a set of observations:

- *Growth in Embedded Devices*: Usage of embedded devices requiring mobile connectivity is growing exponentially. This will provide telecommunication companies chance to increase revenue.

- *Quality of Service*: Service providers need to maintain their focus on providing high quality data and voice services that are reliable and affordable.

- *IoT Expansion*: With expansion of IoT (Internet of things) and more streaming of content, data consumption will continue to grow.

- *MVAS & Cloud Computing*: MVAS market in India is estimated to be worth USD$ 13.34 billion in 2015 as per IAMAI (Internet and Mobile Association of India) while that for cloud computing is estimated to be worth USD$ 1.08 billion as per research firm Zinnov.

Findings

It is evident that Telecom sector holds immense opportunities across entire India and below listed findings will help the industry take the speedy path towards growth:

- Penetration of rural markets (72% of population staying in rural areas) will be the key growth driver.

- National Telecommunication Policy 2012 proposes unified licensing, full MNP (Mobile number portability) and free roaming.

- Outsourcing non-core functions such as network maintenance, IT operations and customer service.

- Divestment of tower assets into separate companies will enable curb costs and focus on core operations.

- Introduce new and efficient technologies such as M2M and cloud computing.

- Benefits of industry status in line with other infrastructure sectors in the country to be implemented.

- Explore the option of revenue sharing agreement between Internet players and telecommunication companies.

- Rationalise taxes and levies in the sector.

- Reduction in license fees.

- Make more spectrum available for data usage. This can be achieved through enhancement in spectrum limit from 6.28MHz to 2x8MHz (paired spectrum), specific to GSM technology. This will be applicable to all areas excluding Delhi and Mumbai where it will be 2x10MHz (paired spectrum).

- Development of Telecommunication infrastructure.

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Marketing for FDI in India

Dr. Avinash Parulekar

M.Sc., MBA, Ph.D. (Mktg), D.Sc. (A. Medicine)

'Marketing for FDI in India' means marketing the idea that India is the best country in the world with a lot of potential for investment as far as the foreign investors are concerned. This requires projecting the image of India as the fastest developing country in the world. Although it is the fact, it becomes obligatory on the part of the Prime Minister to go abroad and convince foreigners, that's what the present Prime Minister, Mr. Narendra Modi has been doing for the last three years.

Mr. Modi's several visits to foreign countries like Bhutan, Brazil, Nepal, Japan, America, Myanmar, Australia, Fiji, Mauritius, Shri Lanka, Singapore turned out to be fruitful in two ways. First, he could sell himself as the strong man at the helm of affairs in India with a large following and secondly he employed techniques in modern marketing using all types of social media skillfully to attract wealthy foreign investors towards the business opportunities created in India for FDI. Although FDI is not a new concept, it must be admitted that Mr. Modi could successfully make an imprint on the minds of foreign businessmen in countries which were not visited by the former Prime Minister Dr. Manmohan Singh.

Mr. Modi faced a lot of criticism on the expenditure incurred on his foreign tours. The question arises now about the performance appraisal of Mr. Modi and the measurement of success in quantitative terms. At this juncture, it will be interesting for the readers to know more about FDI.

FDI means Foreign Direct Investment. It is an investment in the monetary form made by a foreigner or a foreign company in the host country like India. It is done either for starting an industry in any sector or taking over an existing company in India for business expansion. For controlling purpose, the foreign company may purchase 10% or more shares from the open market. For acquiring any company, management procedure is followed and acquisition is done always systematically. For a new corporate venture by a foreign company in the Indian soil, Government of India's permission is required. But, a foreign investor will always think twice before investing a huge sum in India. He must be assured about the distinct advantages he will get in the future. Proper infrastructure is required or must be provided to facilitate his investment decision.

Now-a-days, private firms are also established like 'FDI Intelligence' to deliver important business information to foreign investors, which contain customized reports and data pertaining to the business sector for which the interest is shown by the foreign investor. The global insight and the credibility of such professional agencies is used positively by the investor. Even 'Microsoft' like giants also takes help of such agencies to know exact benefits while investing in India.

At this point, the reader might think why so much importance is given to the FDI. Actually, the FDI concept is not new. It has got historical background as far as India is concerned. The establishment of East India Company was nothing but a kind of Foreign Direct investment. It was based on the classical theory of trade in which the purpose behind trade was the difference in the cost of production of goods between the two countries. Establishment of tea gardens was one such example. After 1945, Japanese companies also started taking keen interest in India. Expansion of their trade activities was done slowly but methodically. Yet, Britishers are playing major role as investors in the Indian business. Further, after gaining Independence in 1947, the policy makers at the centre took special interest in the issues concerning foreign capital, multinational corporations and their working, etc. Then, the issue of FDI came to the forefront. The government designed FDI policy guarding Indian national interest. The aim was to use FDI as a means for development of relevant technology and for mobilization of foreign exchange resources. In 1965, the Government of India designed industrial policy so as to allow MNCs to extend helping hand to Indian industries for technical collaboration in India. Thereafter, the Government of India adopted a liberal view as far as the industrial development was concerned.

Afterwards, in the economic crisis, Government of India with the help of the World Bank and IMF implemented macro-economic stabilization and structural adjustment programme. These reforms were done in order to attract FDI inflows. In order to build confidence in the minds of foreign investors, even the foreign policy was liberalized. Afterwards, Government of India created Foreign Investment Promotion Board with sole purpose of attracting and alluring foreign investors. Such measures were taken so as to show positive attitude towards FDI.

The Government of India announced a New Industrial Policy on 24th July 1991. Economic Reforms were introduced for stabilization in order to restore balance of payments equilibrium and to control inflation. The government took several steps to attract FDI in India. In 1991, in the specific list of high technology and high investment priority industries, automatic permission was granted for FDI upto 51% foreign equity. The limit was raised to 74% and then to 100% foreign equity.

Many decisions were taken afterwards by Dr. Manmohan Singh and P.V. Narsimharao to enhance the possibilities for more FDI in India. So, India, although latecomer to the FDI scene as compared to other countries in Asia, its considerable potential from foreign investors point of view was evident from the figure $25.88 billion, FDI in 2010, which was $1 billion in 1990.

In 2013, FDI norms were relaxed in several sectors e.g. telecom, defence, oil refineries, and power plants. In civil aviation, Malaysia-based Air Asia and Singapore Airlines collaborated with the Tata Group to start two new airline services. Abu Dhabi based Etihad took 24% partnership in Jet Airways. In retail business also, UK-based Tesco invested $110 million to start a supermarket chain in India along with the Tata Group. A breakthrough came in tourism, pharmaceutical and construction business due to FDI. Korean group collaborated with Jinbhuvish Group to start Rs. 3450 Cr, project in Yavatmal. In 2013, the then PM, Dr. Manmohan Singh convinced Japanese

industrialists to put more money in India. This was evident from the 16% rise in the Japanese companies in India. Afterwards, the Indian government allowed 100% FDI under automatic route in storage and warehousing. The Government of India set up National Centre for Cold Chain Development (NCCD) to look after the standards and protocols for cold chain infrastructure.

Considering the recommendations of Foreign Investment Promotion Board, Government of India gave sanction to five FDI proposals amounting to Rs. 1133.41 crores in 2014. Since then, Government of India's FDI policy has become more investor-friendly as far as the foreign investor is concerned. The results are definitely encouraging FDI has given positive push to Indian economy during the last 25 years.

FDI inflow has supplemented domestic capital and the relevant technology and also utilized skills of existing companies in India.

Now-a-days, several incentives are given for attracting FDI which are in the following forms.

Corporate Tax burden is less
Tax Holidays are given
Sales Tax Concessions for a particular period
Preferential Tariffs
Special Economic Zones
Export Processing Zones
Bonded Warehouses
Investment Finance Subsidies
Free Land or Land Subsidies
Infrastructure Subsidies
R & D Support

Fig. 1

Now governmental investment promotion agencies use various marketing strategies to attract FDI.

Prime Minister Mr. Narendra Modi has taken tremendous efforts since 2014 to attract many countries for increased FDI in India. His team at the PM office has done excellent job in marketing for FDI in India. His foreign visits to countries e.g. Bhutan, Brazil, Nepal, Japan, America, Myanmar, Australia, Fiji, Mauritius, Sri Lanka and Singapore paid rich dividends and India received $19.78 bn FDI during 2014–2015. His strong personality and his team have made a positive impact on the key persons in the foreign countries visited. He is successful in his relentless efforts for the most assiduous task of wooing for FDI. He is also successful in convincing foreigners that FDI in India is number one opportunity for investors. And, the result is that India became the top destination for FDI in the world in 2015. In the first half of 2015, India attracted FDI worth $31 billion as compared to $28 billion and $27 billion of China and US

respectively. So, it is needless to say that PM Narendra Modi has done well in marketing for FDI in India during the last three years. So, this is marketing for FDI in a nutshell. As a result of these efforts the Maharashtra State has succeeded in attracting Rs. 68409 crores as FDI in the first six months of the financial year 2016–17. So far, so good!!!!

At this point, it will be interesting for the reader to know the figures which show cumulative amount of FDI inflows. From the Government Department fact sheet on FDI from April 2000 to December 2016, the cumulative amount of FDI inflows (which include Equity inflows, Reinvested earning and other capital) is US $472199 million, i.e. Rs. 17,35,711 crores.

The Following table gives country wise share in FDI during April 2000 to December 2016:

Table 1

	Investing Country	FDI Equity Inflow (Amount in Rs. Crores)	Percentage of Total Inflow (Approx)
1	Mautitius	566396	34
2	Singapore	304325	16
3	Japan	139193	8
4	UK	124071	8
5	USA	107585	6
6	Netherlands	111283	6
7	Germany	50961	3
8	Cyprus	46433	3
9	France	29337	2
10	UAE	25776	2

After reading so much, reader will ask 'Why there is so much fuss over the issue like FDI?' The simple answer is that FDI has played a very important role in restructuring Indian Economy. The overall development on all fronts in the industrial sectors is due to tremendous amount of FDI inflows. It has generated financial benefits through bringing in non-debt-creating foreign capital resources. Technological leap during the last 25 years is due to FDI. New employment was generated because of FDI in labour intensive sectors like food processing, manufacturing textiles and readymade garments, making leather products and manufacturing of light machine tools. Although, some negative effects are there like high profit margin for the investor, cultural impact on the local resident, much of the existing empirical evidence proves that positive advantage outweigh the negative effects So, FDI has definitely played vital role in India, during the last 25 years.

Author Index

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