SOCIAL, MOBILE, ANALYTICS & CLOUD

The game changers for the Indian IT industry

June 2013

DINODIA CAPITAL ADVISORS

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EXECUTIVE SUMMARY

The convergence of 4 emerging trends, social media, mobility, analytics and cloud computing (SMAC) presents a huge opportunity for Indian IT-BPM players to move up the value chain

- The US $108 billion Indian IT-BPM industry has been a global powerhouse over the last decade
- The first $100 billion revenues were achieved due to India's arbitrage advantage but going forward as the linearity in the industry diminishes, the Indian IT companies will have to move up the value chain and provide their clients with quality solutions in addition to the low cost advantage
- According to a recent survey by Gartner, Analytics, Mobile technologies and Cloud computing are the three top most priorities of CIOs world over and these services are set to change the face of the global IT-BPM market drastically over the course of the next few years
- With more than 25% of the users online time being spent on social networking sites like Facebook, Twitter and Google+, social media is changing the way in which companies are interacting with their customers and is extensively being used by companies for brand building and customer engagement
- Mobility services have brought the whole world to a tap of a finger and with services available on the go business efficiency has increased and interactions with customers and employees has become more informative, which in turn has resulted in increased revenues
- Analytics has its root in the need to analyze data being generated through social media, mobile apps and click stream. With 2.5 billion gigabyte of data being generated everyday, firms are investing heavily on analytics to identify hidden trends and patterns, to gauge customer likes and dislikes and use the insights obtained for superior decision making
- With ever increasing data, the need to store it and the need to access it anytime-anywhere has paved the way for cloud computing (using software and hardware managed by third parties at a remote location)

EXECUTIVE SUMMARY

Social, mobile, analytics and cloud (SMAC) can turn out to be the game changers for the $108 billion Indian IT industry. It is estimated that Indian IT vendors could generate $225 billion in SMAC related revenue by 2020

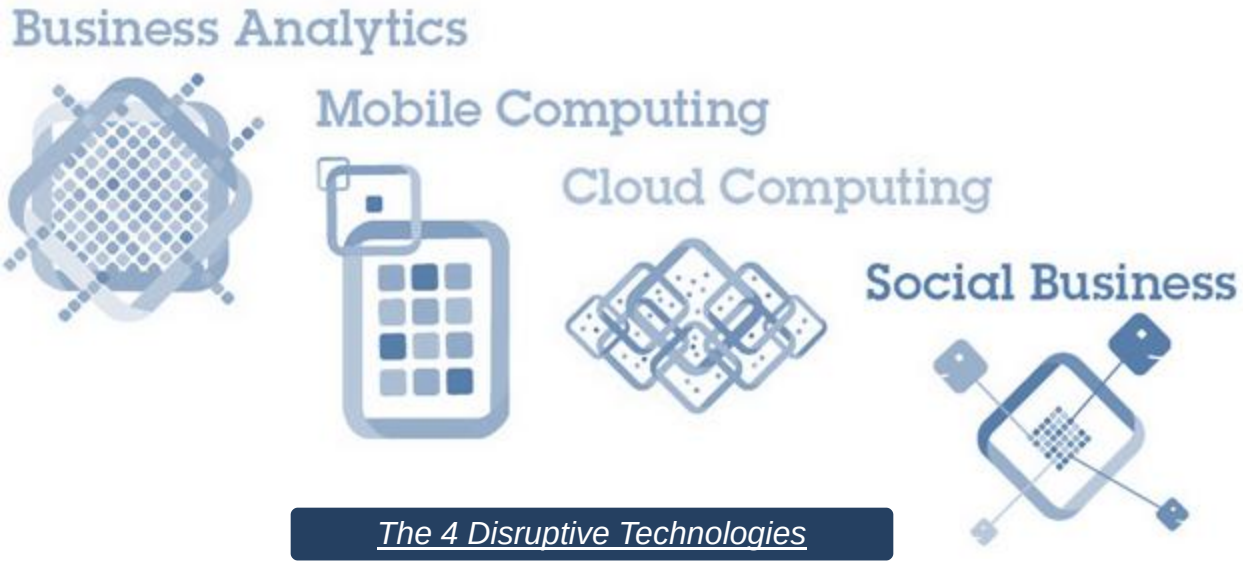
- Although these technologies have been growing on their own during the past few years, the convergence of two or more of these presents the greatest opportunities
- The global analytics market is expected to reach $25 billion by 2015 and the global cloud market is expected to be ~$675 billion by 2020. Indian IT players need to capitalize on its already well established IT/BPM market presence by increasing their services portfolio beyond the typical IT offerings
- Social, Mobile, Analytics and Cloud (better known as “SMAC”) presents an opportunity for players to increase their revenues by shifting into a higher margin business as compared to the commoditized traditional IT business
- The domestic market of Mobility, Cloud & Analytics in India is also at a relatively nascent stage as compared to developed countries. Hence the opportunity lies in providing high end outsourcing services to developed countries and at the same time educating the domestic clients about the benefits of adopting SMAC solutions
- Given the economic and demographic statistics, the improving levels of literacy and the large consumer base, India should be ideally positioned to take advantage of the convergence of SMAC technologies. Entrepreneurs in India should be able to create products that link and leverage these technologies together
- As the market matures the small players are going to look at being acquired or forming alliances with larger players who would provide them the market presence, systems and processes, and big IT-BPM players would need to acquire smaller players in niche segments in order to develop domain expertise and also develop geographical presence. The next wave of M&A and Private Equity in IT is going to be dominated by SMAC.

OVERVIEW

OVERVIEW

The convergence of 4 Disruptive Technologies

- Social, Mobility, Analytics and Cloud (SMAC) are individual technologies and platforms which have risen during the past few years and have shown immense growth
- While each of these four components have been evolving individually, companies are beginning to treat them as an integrated whole



The 4 Disruptive Technologies

- The convergence on these technologies means dismantling the traditional business design: No longer is it required to keep people and information in the same location or to spend big money to support information sharing, communication and collaboration
- SMAC based solutions, when offered and deployed as a SaaS based model, have given businesses a real opportunity to develop innovative solutions that ultimately lead to leveraging public IT infrastructure, lowering cost of ownership and deployment of innovative applications that not only improve enterprise decision making capabilities but also allows them to roll out new unprecedented business models and increase their reach to customers

OVERVIEW

The Old and the New

- Today, leading companies are capitalizing on digital ecosystems that are exploding due to confluence of social networks, mobile computing , analytics and cloud computing
- SMAC challenges enterprises to take advantage of the positive disruptions it portents, while they operate at the rapid pace of innovation and changes in demand
- These technologies are quickly changing the way companies relate to their customers, interact with employees, and bring products and services to market
- Indian IT companies can play a huge role in helping organizations around the world adopt these technologies and help them transform their business models
- The table below shows some companies who embraced the new technologies (Digit Winners) and up-rooted the prior industry leaders (Widget Winners) to become one of today's leading global enterprises:-

Industry	Widget Winners	Digit Winners	Tipping Points
Book Retailing	BORDERS	amazon	Borders bankrupt 2011; Amazon market cap $117 Billion
Movie Rentals	BLOCKBUSTER	NETFLIX	Blockbuster bankrupt in 2011; Netflix streaming volume constitutes one-quarter of the U.S. Internet traffic
Mobile phones	NOKIA		Nokia's market share at its1997 levels, Apple market cap $423 billion, Google market cap $280 billion
Photography	Kodak	flickr	Kodak files for bankruptcy in early 2012

Source: Cognizant

OVERVIEW

SMAC as a game changer for the Indian IT industry

- Social, mobility, analytics and cloud are reshaping businesses, consumers and all traditional approaches the Indian IT-BPM industry has seen till now
- Capitalizing on its already well established IT/BPO and knowledge service outsourcing industry, India is rising to play an important role as a key outsourcing destination for MNCs looking to leverage these technologies and transform their business models
- Indian players therefore need to act quickly in the near future to develop relevant IP and build significant scale to capture market share. Our view is that over the next 3 years technology M&A deals will tend to focus on SMAC technologies
- **As highlighted by NASSCOM, IDC estimates that Indian IT vendors could generate $225 billion in SMAC related revenue by 2020**
- India already has many small but innovative players who are making breakthroughs in these fields by creating products and solutions by leveraging the SMAC technologies
- As the market matures these small players are going to look at being acquired or forming alliances with larger players which would provide them the systems and processes enabling them to scale up to the levels required by global enterprise customers

- Big IT BPM players would need to acquire smaller players in niche segments in order to develop domain expertise and also develop geographical presence
- On 8th May 2013, **WIPRO** announced that it had purchased a minority stake in **Opera Solutions**, a US-based Big Data company for $30 million, which would help Wipro expand in the Big Data analytics space. **Tech-Mahindra's** acquisition of 51% stake in Gurgaon based mobile applications firm **Comviva** for ~$55 million in September 2013 are further testaments of Indian IT companies recognizing the importance of these technologies and paving the way of large deal flow in the sector

Increasing social networking

Social links *people* to their friends, work and each other in new and unexpected ways

by a widening base of mobile/tablet users

Mobile devices are a *platform* for effective social networking and new ways to work

presents opportunities for analytics

Analytics (Big Data) helps gain meaningful *insights* from the information, facilitating informed decision making

enabled by cloud computing

Cloud enables *delivery* of information and functionality to users and systems

SOCIAL

SOCIAL

Why is it important for businesses today?

- As per comScore[1] an **average Indian spent 25% of his/her online time on social networking sites** such as Facebook, LinkedIn, Twitter and Google+
- From being an avenue for simply connecting with family & friends, social media is increasingly being used for **customer engagement and brand building** by firms all across the world
- The important social media for business cannot be overemphasized in the company years. Whether you are a small business owner, or somebody more focused on understanding large business customer's habits and outcomes, social media matters. Regardless of industry, social media has proven to work across the board for many companies
- The world's top brands are using social media as a meaningful way of **deepening relationships with their customers**
- By using social media as a means of interacting with their customers, businesses can today **target their customers** in a more informed way and also gain **real-time feedbacks** from them

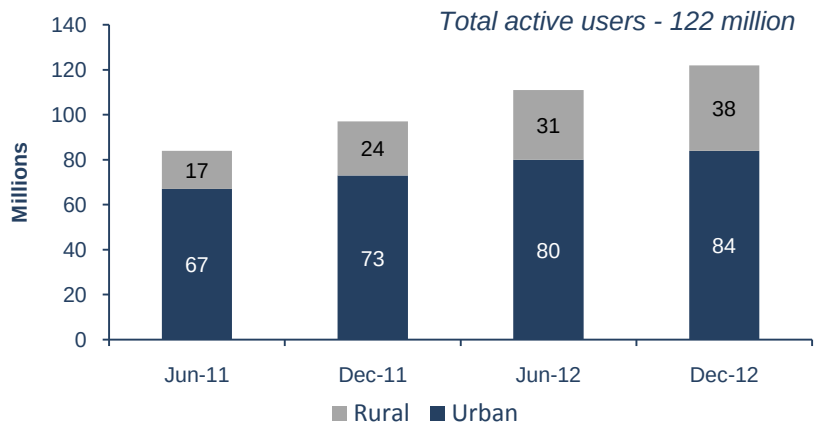
" In the coming years, if not sooner, social media will become a powerful tool that consumers will aggressively use to influence business attitudes and force companies into greater social responsibility"

1. comScore Press Release dated 19 August 2012

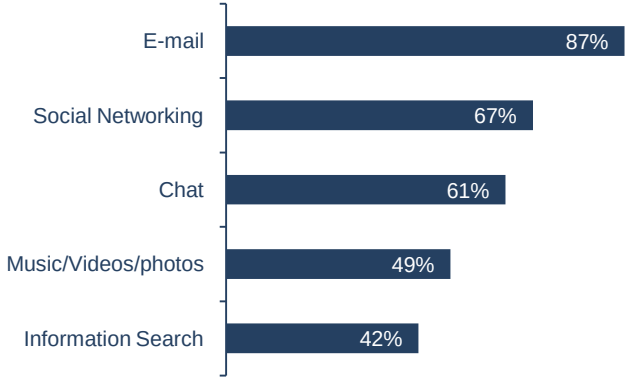
SOCIAL (CONT'D)

What is driving social media in India?

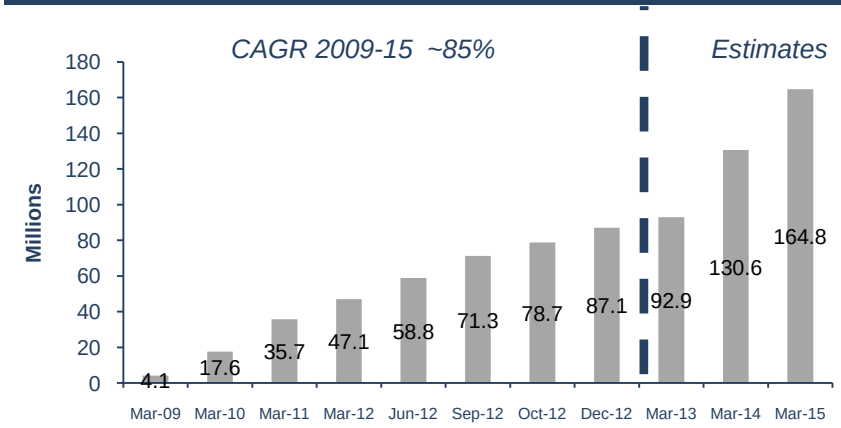
Active Internet Users



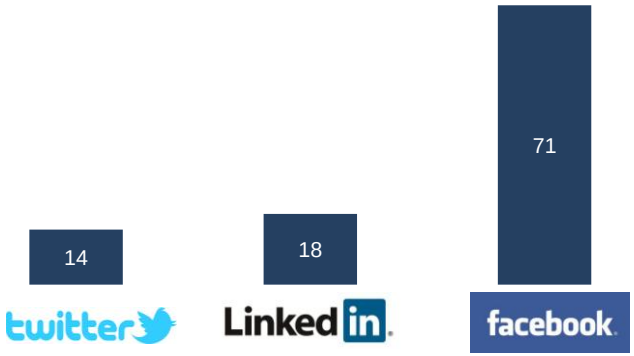
Purpose of Internet Usage (Urban, 2012)



Mobile Internet Users



Social Network Users in India * (millions)



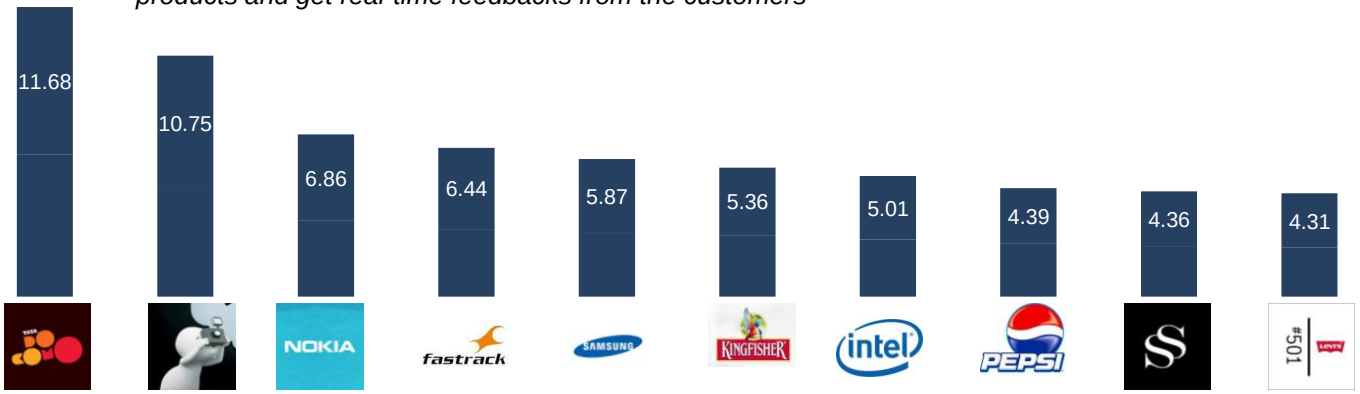
**Latest available data as of 1st May 2013*
Source:- IAMAI

SOCIAL (CONT'D)

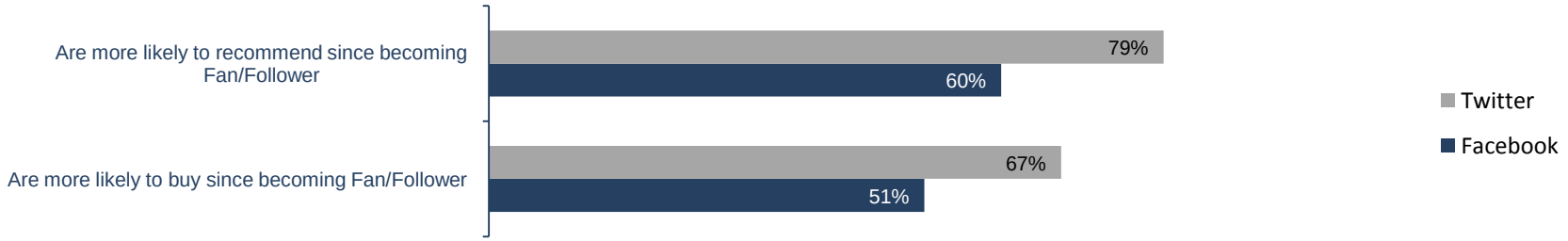
How businesses are connecting with their customers on social networks...

Top 10 Indian Brands on Facebook by Local Fans (millions)

A rapidly growing number of businesses are using social media to increase awareness of existing products, launch new products and get real-time feedbacks from the customers



- According to a 2011 study by Cmb Consumer Pulse, customers are more likely to buy a certain product or recommend them to others after they have liked the Facebook page or followed the Twitter page of that Brand/Company



Source:- Socialbakers.com, data as on 1st May 2013

SOCIAL (CONT'D)

How businesses are using social networks to increase sales…

Key Results

- **Citibank card spends grew eight times over** average daily spends at the 17 partner websites
- **The average ticket size increased by 30%** for the partner websites on Citibank cards
- Citibank India Fanpage achieved the highest reach ever visits in 2012 – 20,95,104 and the highest virality – 7.63% during the OMG! Sale

Source:- Socialsamosa.com

- **Brand-** citibank
- **Objective** - Bring Citibank card customers a unique shopping experience during the festive period. Provide a fillip to the Indian e-commerce industry by benefiting partnering e-tailers
- **Execution -**
  - A pendulum shaped, countdown cover image of the OMG! Sale campaign as a teaser was uploaded on Facebook
  - A dedicated Citibank OMG! Sale event page was created
  - The event link was shared on the brand's Facebook wall
  - Interesting OMG! Videos were shared on Citibank India's Facebook wall
  - Updates shared about the launch of the OMG! Sale

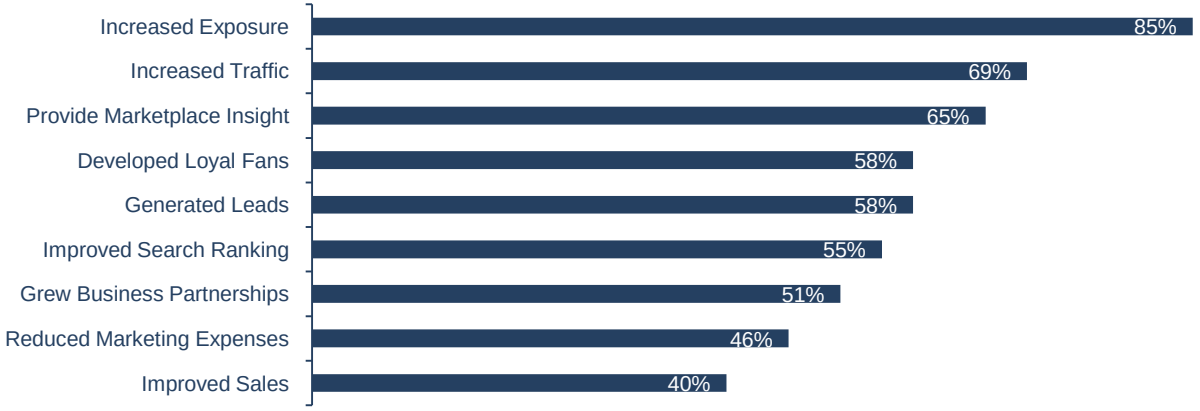
"This (social media) is perhaps the only medium through which one can engage and intrigue their consumers, create conversations and connect with them based on their preference."

-Mr. Sandeep Arora, Director Marketing , Intel South Asia

SOCIAL (CONT'D)

Benefits of social media for businesses

Benefits of Social Media for Businesses

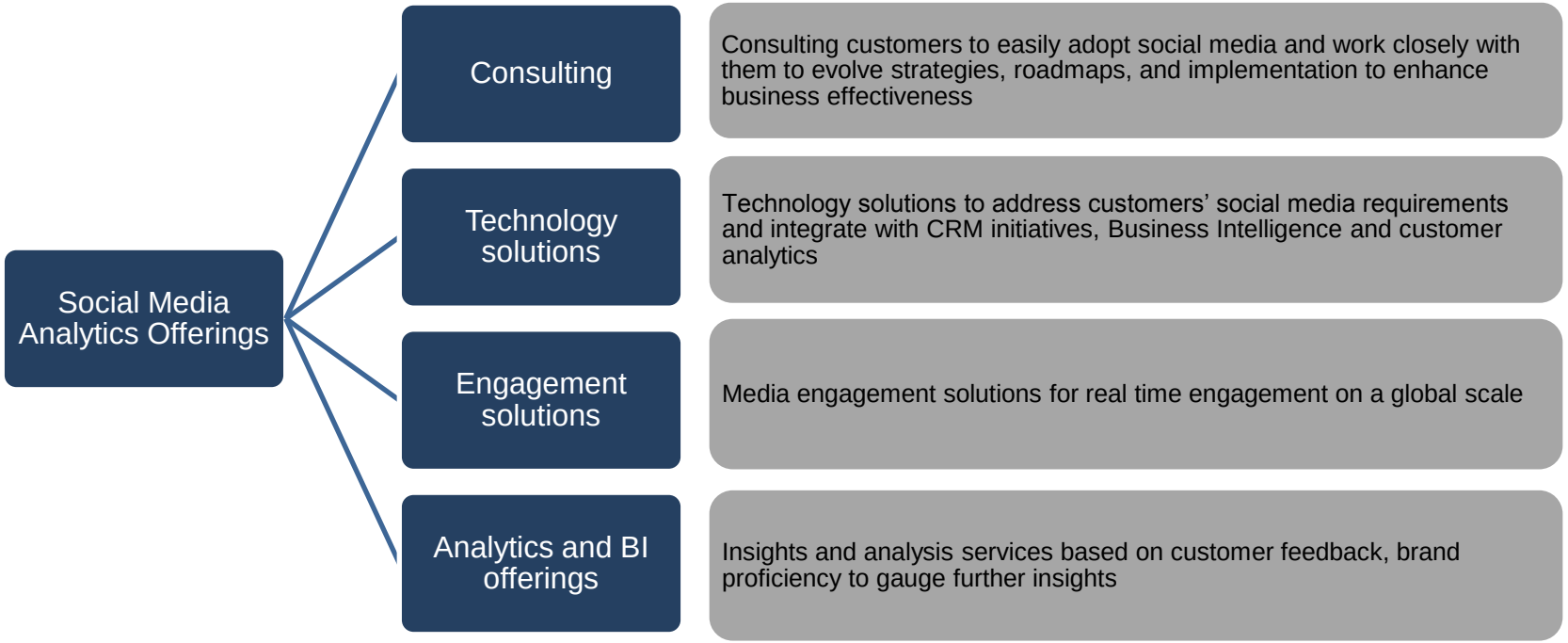


- As per research firm Gartner, by 2015, India is pegged to have more Facebook users than any other country in the world
- With 1 in every 4 minutes online being spent on social networking, it becomes imperative for businesses to have a presence in the social media circuits
- With the advent of smart phones and tablet PCs, people are staying connected to their friends and loved ones 24*7 through social networking apps along with the freedom of mobility
- The users on social networking sites are creating tons of data by conversing, sharing images/videos, reviewing products and comparing before buying. **All this data generated by the social network users, if analyzed can generate considerable insights for businesses. This is where Analytics comes in.**

SOCIAL (CONT'D)

Social Media Analytics

- Social media analytics has emerged as a powerful tool for uncovering customer sentiments dispersed across countless online sources
- As businesses feel the pressure to gain new insights from social media they require analytics expertise to transform this massive information into actionable insights
- Social media analytics help organizations provide meaningful insights into the data created by social website users so they can improve customer satisfaction, identify patterns and trends, and make smarter decisions regarding marketing campaigns
- Firms are investing heavily in software and hardware to study the online behavior of customers and trying to directly co-relate these with revenue streams

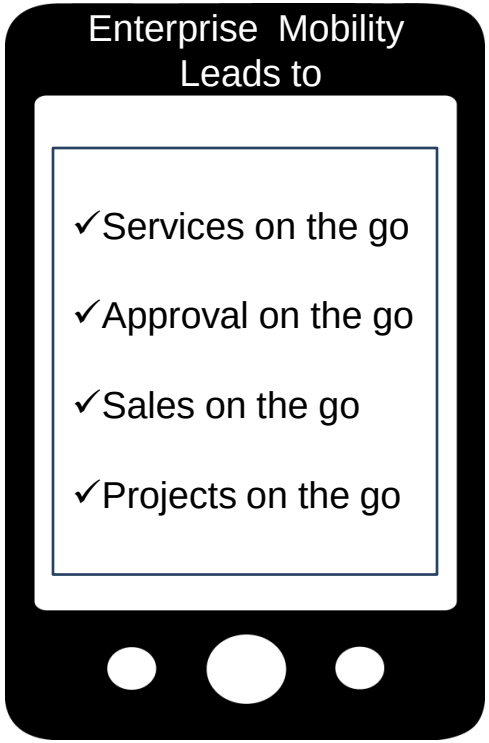


MOBILE

MOBILE

Enterprise Mobility : Access Data.. Anytime..Anywhere

- Anytime, anywhere access to data has become critical for businesses to excel in today's competitive environment
- Today, when organizations are facing unprecedented pressure to be innovative and cost-sensitive, Enterprise Mobility is bridging the gap between 'People' & 'Process' by providing access to critical data in real time
- As business are switching to enterprise mobility, importance of mobile devices like tablets, smartphones, sensors & connected devices (like handheld sales devices) are increasing



Which leads to

Increased Productivity & Efficiency

- By providing access to data remotely
- Using mobiles to implement workflows

Heightened Customer & Employee Satisfaction

- Real time data access reduces workload
- Customer interactions are more responsive

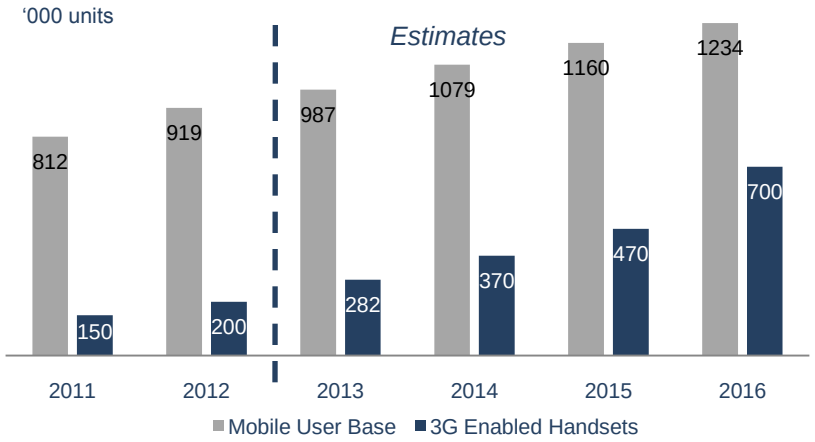
Reduced Paperwork

- Due to digitalization of documents
- Instructions being triggered with tap of a finger

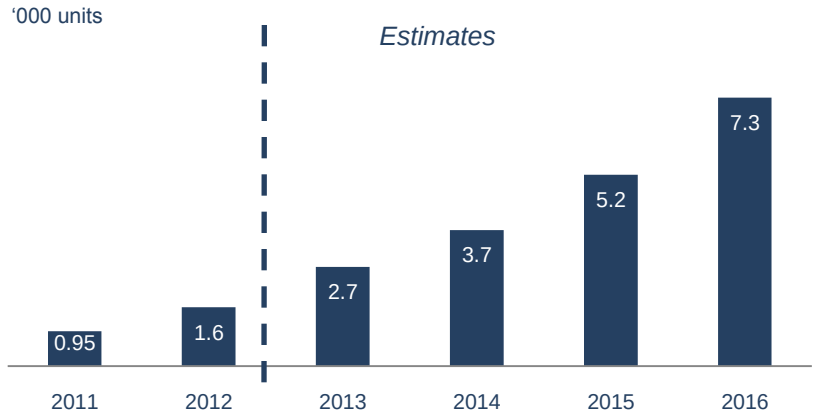
MOBILE (CONT'D)

Growth of Devices & Data Traffic in India

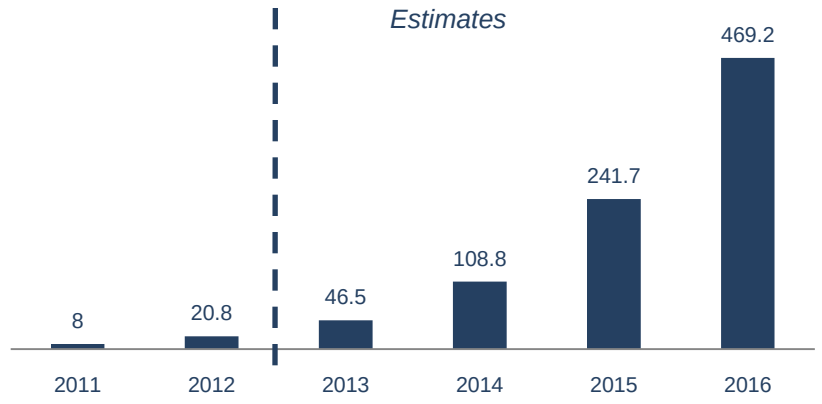
Mobile Subscription & 3G Enabled Smartphones (India) [1]



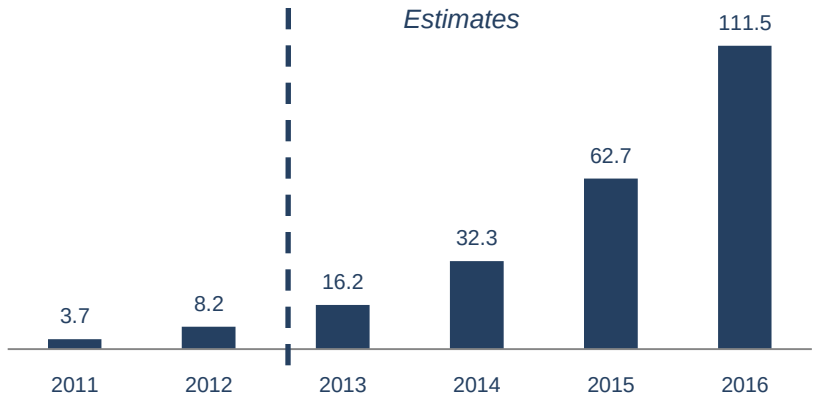
Growth in Tablet PC (India) [1]



Growth in Mobile Data Traffic - India (TB/month)[1]



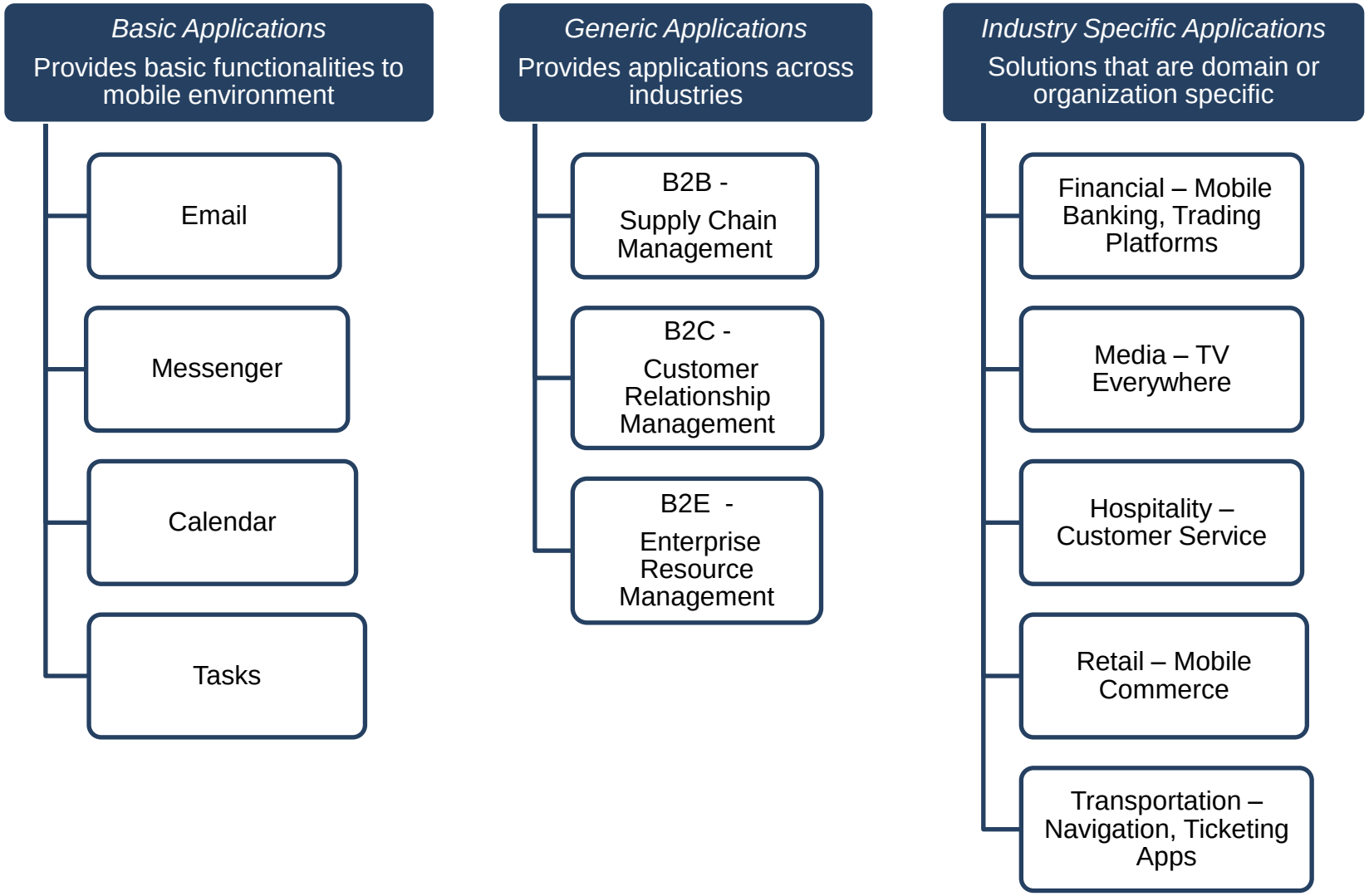
Growth in Business Mobile Data Traffic –India(TB/month)[1]



1. NASSCOM

MOBILE (CONT'D)

Applications: Types of Applications



MOBILE (CONT'D)

Use of Mobile Applications

B2B App : TVS Automobile

Used B2B app on dealers mobile to update sales, service & spare parts availability details

Resulted in dealer productivity improvement by 300%

B2E App : AFL Courier

Consignment delivery executives were provided with a mobile app used to update the delivery status

Resulted in significant reduction in delivery to cash cycle

B2C App: Basix India

BASIX Krishi adopted a mobile advisory system to provide farmers with timely and contextualized information such as market prices and weather conditions

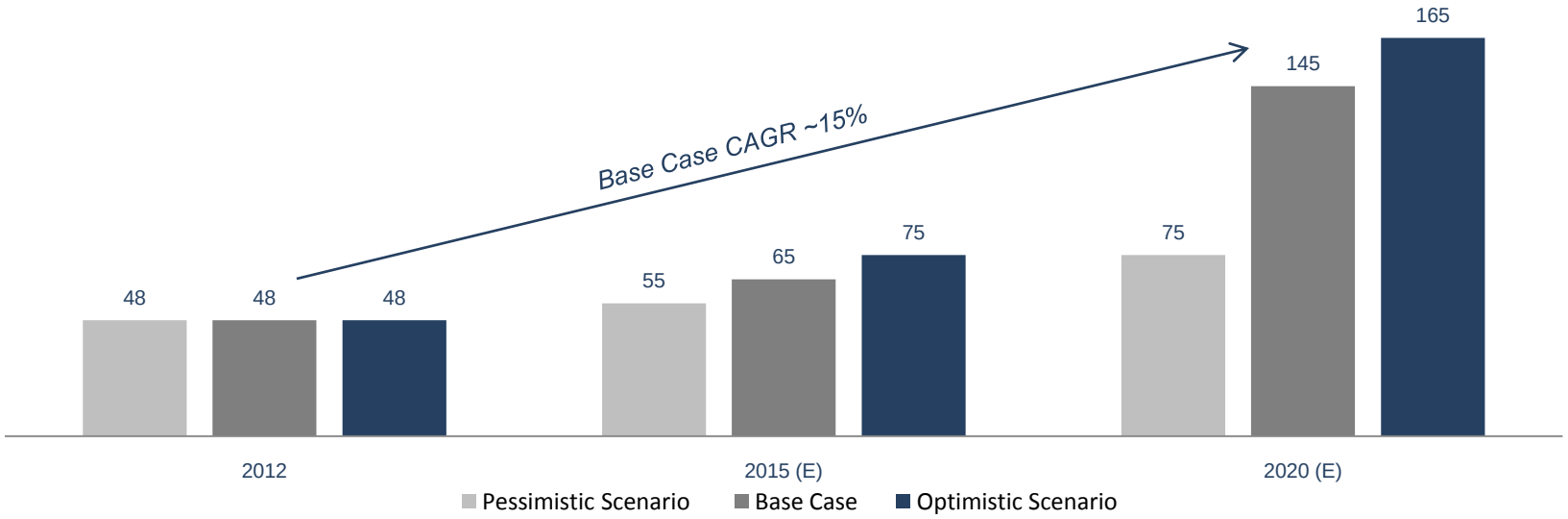
Increased efficiency and reduced human resource cost

MOBILE (CONT'D)

Global Enterprise Mobility Market Opportunity

- The mobility market is expected to experience continued growth and many enterprises will be interested in deploying mobility solutions to tap into the rapidly growing user base
- NASSCOM estimates that an additional 10% IT spend will be incurred by enterprises to deploy mobility solutions by 2020, the mobility market opportunity is estimated to be worth about USD 140-150 billion globally
- The transition to mobility is expected to ramp up significantly from 2015-16 after widespread client understanding of mobility technologies, maturity in vendor solutions and proven examples become easily identifiable
- For this to materialize, technological concerns around data security, solution reliability and inter-operability and need for strong broadband backbone infrastructure need to be put in place
- The Asia Pacific market is expected to have the highest CAGR , 21%, during the 2012-20 period driven by opportunities in developing vertical specific apps and integrated development of consumer and business apps

Global Enterprise Mobility Market Estimates[1] (USD in Billions)



1. NASSCOM

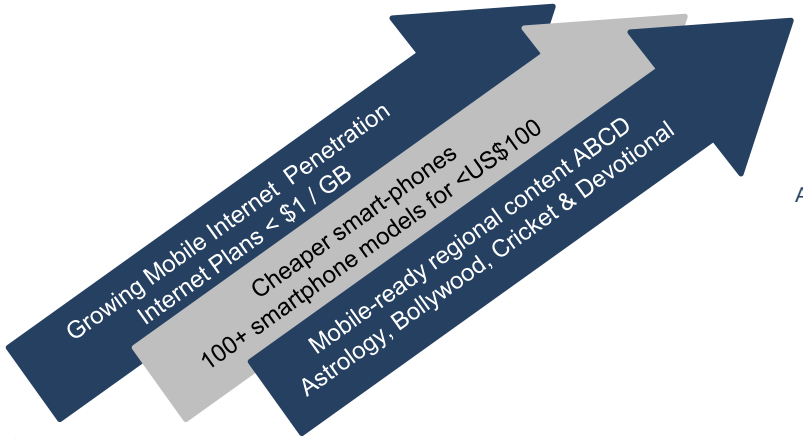
MOBILE (CONT'D)

Rise of India as an APP Superpower

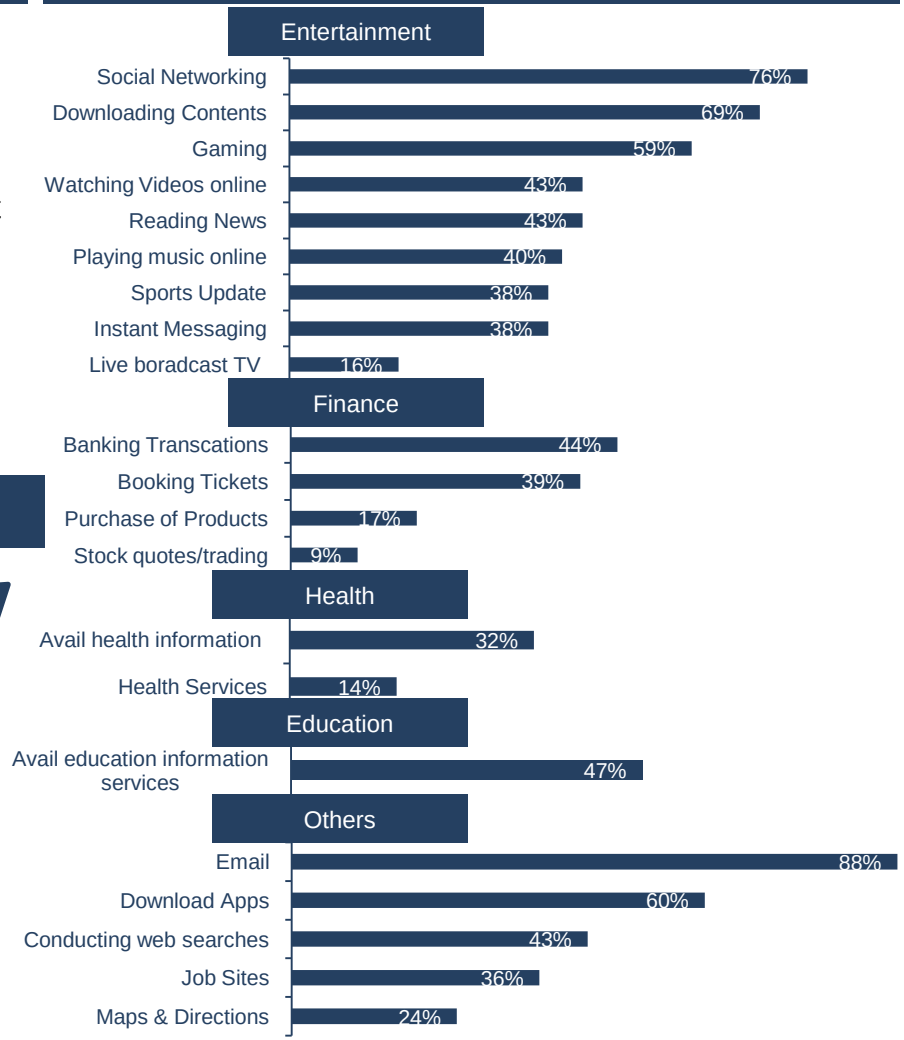
The App Market

- The global mobile application development software market is estimated to reach from estimated $ 9.05 billions in 2012 to $10.28 billion in 2016[1]
- The Indian application development market, which is the 3rd fastest growing market was estimated at $227mn in 2012[1]
- Total apps downloaded in India is expected to reach 9 bn in 2015 from 1.56 bn now[2]
- More than 9,000 app development startups in last 3 years

Growth Drivers



Purpose of Mobile Internet Usage in India[3]



1.Gartner
2.Mint : News Article dated 4th March, 2013
3.WCIR

MOBILE (CONT'D)

How Indian IT Players can make the most out of Enterprise Mobility

Small Players

- Develop skill set & industry knowledge for niche positioning
- Leverage partnership opportunities

Mid-Sized Players

- Develop solutions for few top platforms
- Develop industry specific white label solutions

Large Players

- Develop cross-platform, domain-specific capabilities
- Co-innovate solutions with customers & have productized solution portfolio

Partnership & Collaboration

- Partner with mobility product firms operating in niche domain
- Collaborate to develop industry standards & data protection policies

Re-Engineer Thinking Process

- Re-engineer services thinking to mobility landscape
- Educate clients about benefits of adopting mobility solutions
- Identify & drive new channels to target upcoming segment

Building Skills & Capabilities

- Acquire smaller players who have demonstrated exceptional capabilities
- Invest in in training & development of existing resources

Mobility Centre of Excellence

- Create an ecosystem of innovation through centres of excellence
- Convert emerging ideas to viable business opportunities

ANALYTICS (BIG DATA)

ANALYTICS

What is the need for it?

- 2.5 billion gigabytes of data is generated everyday
- 90% of the data available today has been created in the past 3-4 years
- The amount of data generation is primarily driven because of the use of click stream, mobile apps and social media
- Facebook generates 500 terabytes of data everyday and Twitter generates 12 terabytes of data everyday
- Organizations across the globe are now looking at this pool of data to determine how best it can be mined and gauge their customers' likes and dislikes
- As data from weblogs, social media posts, sensors, images, emails, audio and video files emerge as sources of insights, it presents a huge competitive opportunity for businesses

The digital unit scale

Unit	Symbol	Size
Bit	b	0 or 1
Byte	B	8 bits
Kilobyte	KB	1,000 B
Megabyte	MB	10^6 B
Gigabyte	GB	10^9 B
Terabyte	TB	10^{12} B
Petabyte	PB	10^{15} B
Exabyte	EB	10^{18} B
Zettabyte	ZB	10^{21} B
Yottabyte	YB	10^{24} B

The need to derive predictive and actionable insights from this data for improved business operations and better decision making is what drives Big Data analytics

ANALYTICS (CONT'D)

Introduction to Big Data

- Big Data relates to rapidly growing, structured and unstructured datasets with sizes beyond the ability of conventional database tools to store, manage and analyze them
- There are 3 main characteristics of Big Data :

Large quantity of data which may be enterprise specific or general and public or private

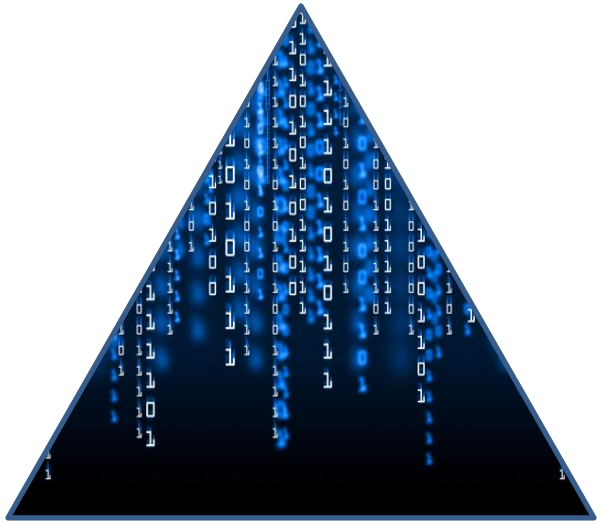
Volume

Current Market Leaders

IBM

hp

TERADATA



Key Platforms for Big Data

hadoop

NO SQL

Variety

Diverse sets of data being created, such as social networking feeds, news, videos and audio files, emails, sensor data

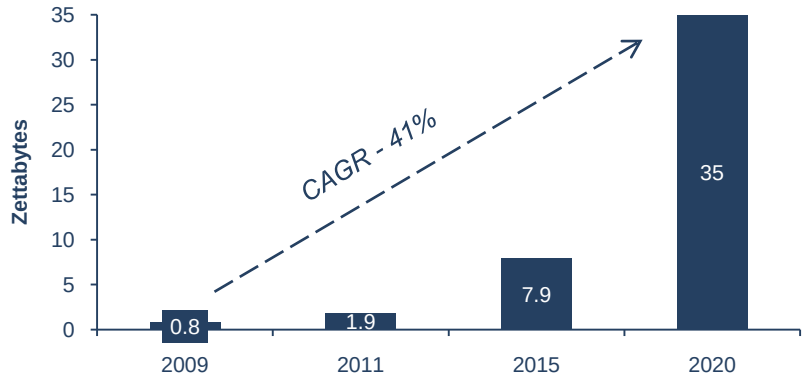
Velocity

High speed of data inflow as well as rate at which this fast moving data needs to be stored

ANALYTICS (CONT'D)

Drivers for Big Data

Growth of Global Data (2009-20)[1]

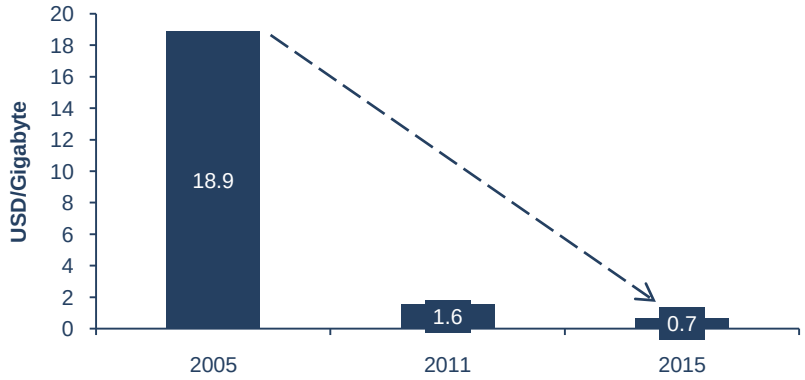


- The proliferation of the internet and the mobile era has increased the rate at which data is created and stored; hence, there is a need for tools and techniques to analyze data at an equal speed
- 80% of the data available today is unstructured and includes raw text, audio/video files, click-stream data, blogs, social media, location coordinates, weather patterns
- Organizations are increasingly realizing that unstructured data, if analyzed, can provide a competitive edge

Implications for an organization

- Need for **large storage capacity**
- Need for **quick retrieval of data**
- Enable informed decision making by effectively leveraging large datasets
- Example:-
  - Turn 12TB of tweets created each day into improved product sentiment analysis
  - Convert 350 billion annual meter readings to better predict power consumption

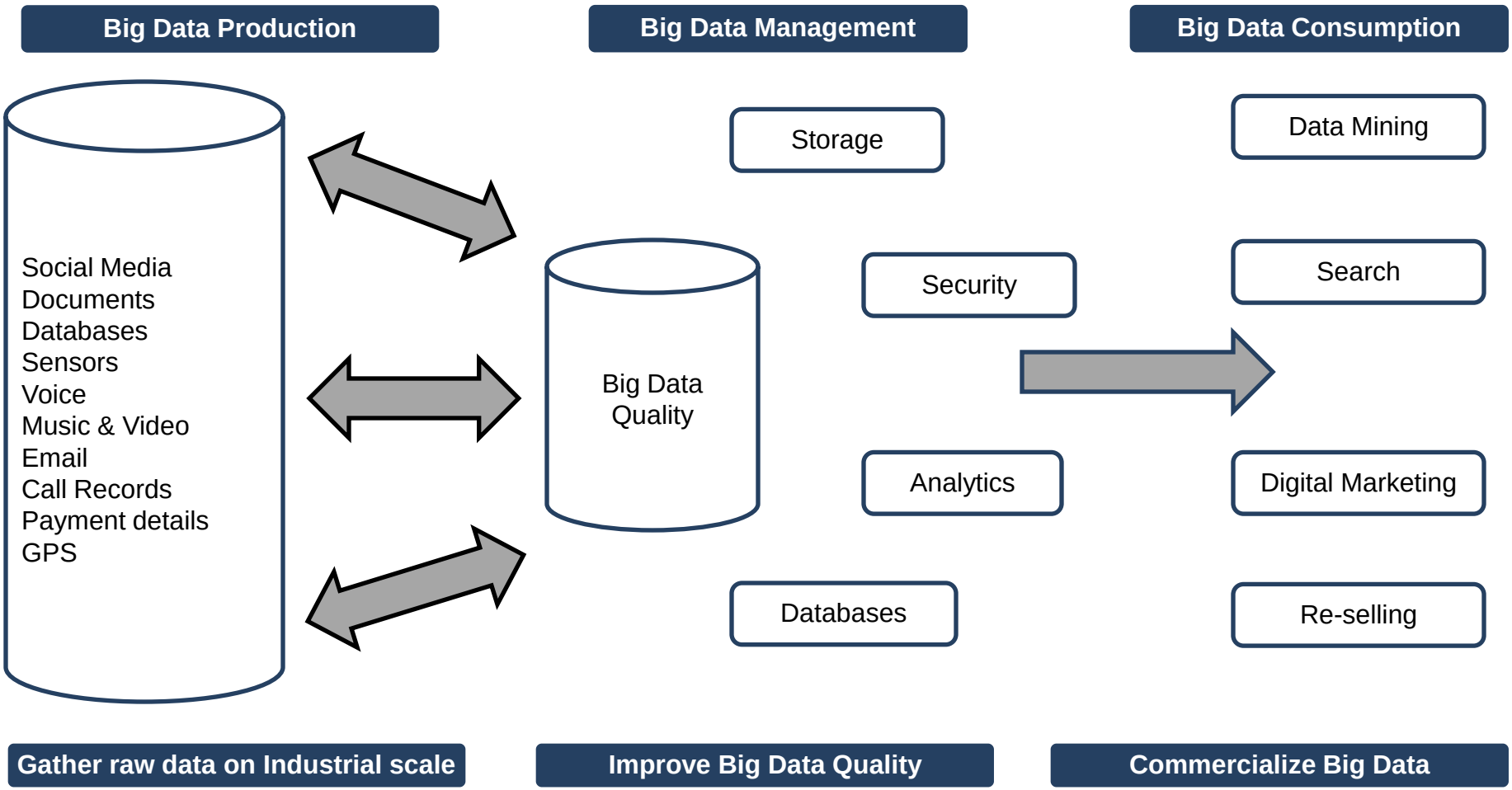
Decline in storage costs, (2005-15)[1]



1. NASSCOM

ANALYTICS (CONT'D)

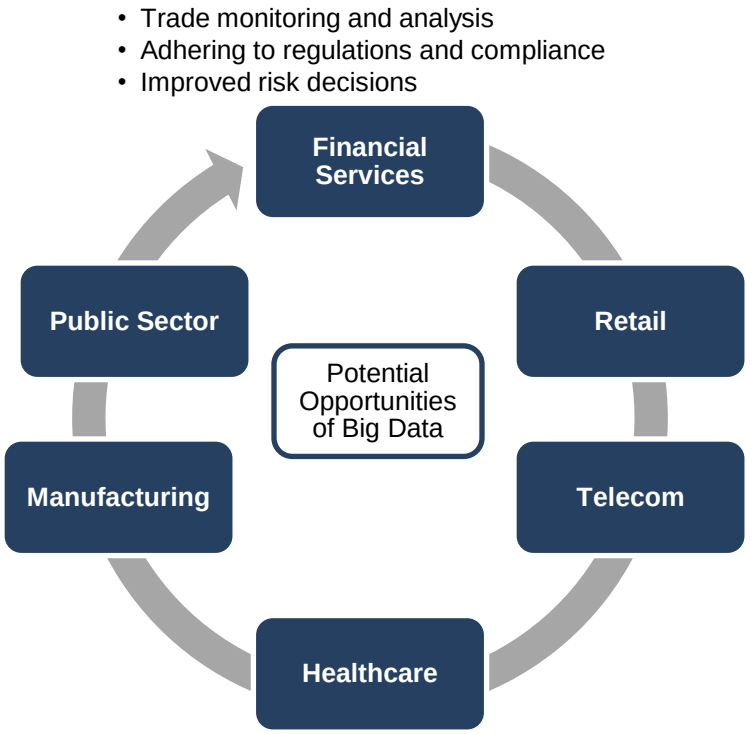
How it all fits together?



ANALYTICS (CONT'D)

Big Data Analytics

- Big Data analytics is the process of applying advanced analytics and visualization techniques to large datasets to uncover hidden patterns and unknown correlations for effective decision making
- Big Data analytics helps businesses **make better decisions** by analyzing large volumes of structured and unstructured data, **predict and identify change** and **identify new opportunities** such as new business segments, best suppliers, associate products and sales seasonality. The uses of Big Data analytics vary across sectors and have been highlighted below:



- Trade monitoring and analysis
- Adhering to regulations and compliance
- Improved risk decisions

- Real-time analysis of purchase behavior and buying patterns
- Enhanced customer segmentation and customer loyalty

- Network planning and optimization
- Failure and fraud detection
- Customer analysis

- Analysis of correlation between treatments and outcomes
- Real time data from medical devices for better patient care

- Demand forecasting and operational analytics
- Supply chain responsiveness
- Open innovation through crowd sourcing

- Intelligence to counter national threats
- Forecast economic events
- Traffic management
- Environment, energy/waste monitoring

ANALYTICS (CONT'D)

The value of Big Data analytics : Cases and return estimates

IBM, the market leader in Big Data, advised **Vestas,** the world's largest windmill manufacturer, using Big Data analytics software to model past, present and future wind patterns—a process that involves huge amounts of data—to optimize the location and design of sites resulting in **fewer power disruptions and more predictable revenues for utilities**

As per PWC, leveraging Big Data and related analytical techniques, an Asia Pacific bank analyzed a portfolio of **30 million complex cash flow instruments across 50,000 different scenarios in less than eight hours**

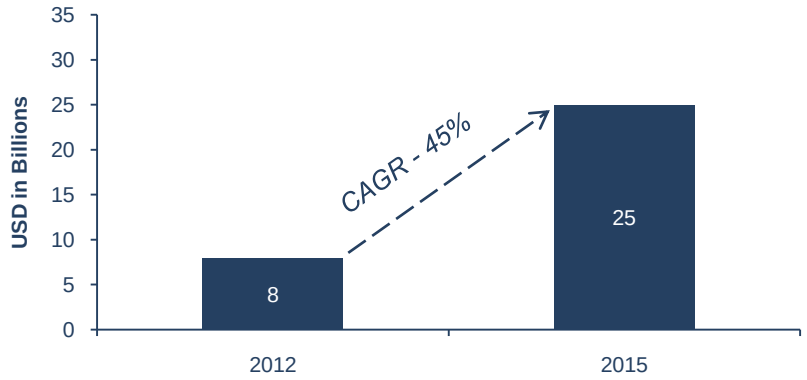
About 53% of the 1,217 global firms surveyed by TCS, had undertaken Big Data initiatives in 2012, and of those 643 companies, 43% predicted **a return on investment (ROI) of more than 25%**

The median spending on Big Data by Indian companies is expected to rise from the current $9.5 million to $12.5 million by 2015

ANALYTICS (CONT'D)

Big Data Market Opportunity

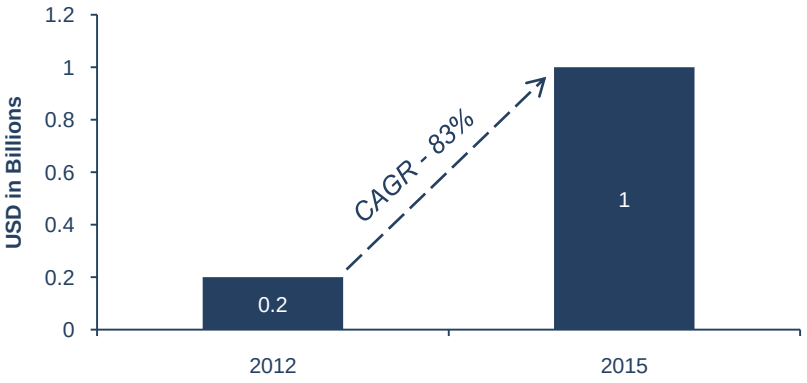
Global Big Data Market[1]



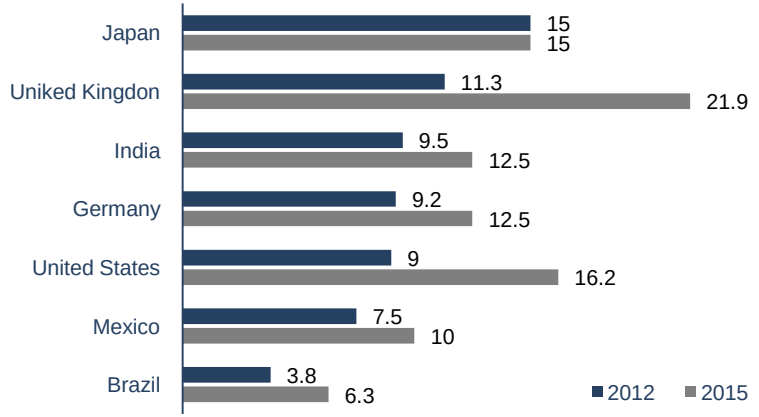
Key Growth Drivers

- Rapidly increasing sources of data e.g. Click stream, mobile apps, social media etc.
- Exponential growth in speed of data generation and complexity
- Need to store, analyze and consume unstructured data for business insights
- Enhanced prospects for innovation, improved agility and increased profitability
- Need to analyze in real time to achieve better competitive advantage

Indian Big Data Market[1]



Median Spending on Big Data[2]



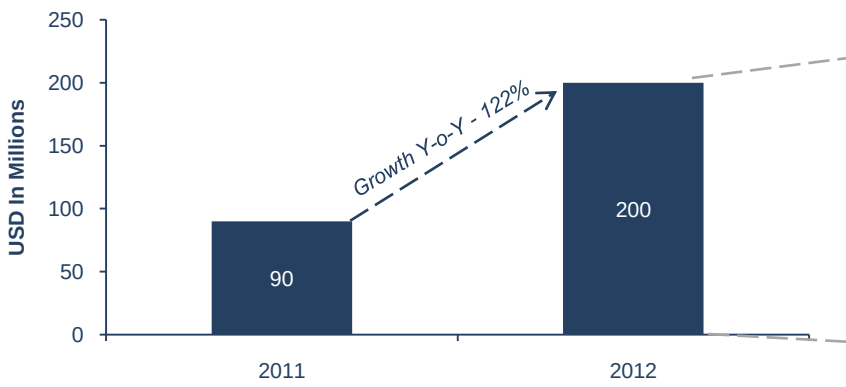
1. *NASSCOM*
2. *TCS*

ANALYTICS (CONT'D)

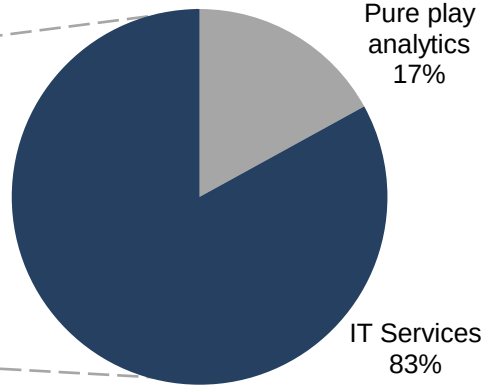
Opportunities for Indian Players

- Capitalizing on its already well established IT/BPO and knowledge service outsourcing industry, India is rising to play an important role as a key outsourcing destination in the overall Big Data landscape for services relating to Big Data technology, implementation and analytics
- India's domestic Big Data market is at a nascent stage, hence offering outsourcing services holds the key for Indian enterprises
- Although immense amount of data is being generated across all industry verticals including financial services, manufacturing, retail, healthcare, telecom, logistics, and others, financial services and telecom are early adaptors of Big Data technologies

Current Indian Big Data Market[1]



Break down by Service Type



1. NASSCOM

ANALYTICS (CONT'D)

Key Players

- The IT services segment which primarily comprises of the Big Data technology implementation, including data collection, integration, and designing of Big Data architecture and data analytical tools, comprises of 83% while the Big Data analytics services accounts for 17%
- The Big Data outsourcing market, though still at an embryonic stage, is being tapped aggressively by the global in-house centers (captive centers of MNCs) as well as Indian service providers comprising of IT/BPO players, pure-play analytics firms and knowledge service providers
- The potential shortfall of **1.5 million data-savvy managers and ~1,50,000 data scientists in the US by 2018 as per McKinsey** also provides a great opportunity in outsourcing for the Indian staffing companies

Key players in Indian Big Data space

Global In-house centers	Pure-play analytics	Integrated IT–BPO players
JPMorganChase	absolutdata Research&Analytics	Infosys
McKinsey&Company	Mu Sigma	HCL
Google	NUEVORA	TATA Consultancy Services
hp	Fractal	GENPACT
DELL		WIPRO Applying Thought
Merrill Lynch		
IBM		

ANALYTICS (CONT'D)

Recent Deals in Indian Big Data Space

- The Big Data space is witnessing a string of M&A driven by the need to quickly ramp up capabilities and also have a complete set of capabilities to service clients who are keen to have Big Data implementation
- Leading technology players such as Oracle, IBM, SAP, and EMC are aggressively acquiring smaller service providers to strengthen their Big Data portfolios
- HP's acquisition of Autonomy in 2011 for ~$10 billion, till date remains the biggest transaction in the Big Data Space
- M&A continues to drive the consolidation in the global Big Data space with **IBM alone spending $16 billion on 35 Big Data and analytics acquisitions since 2005**

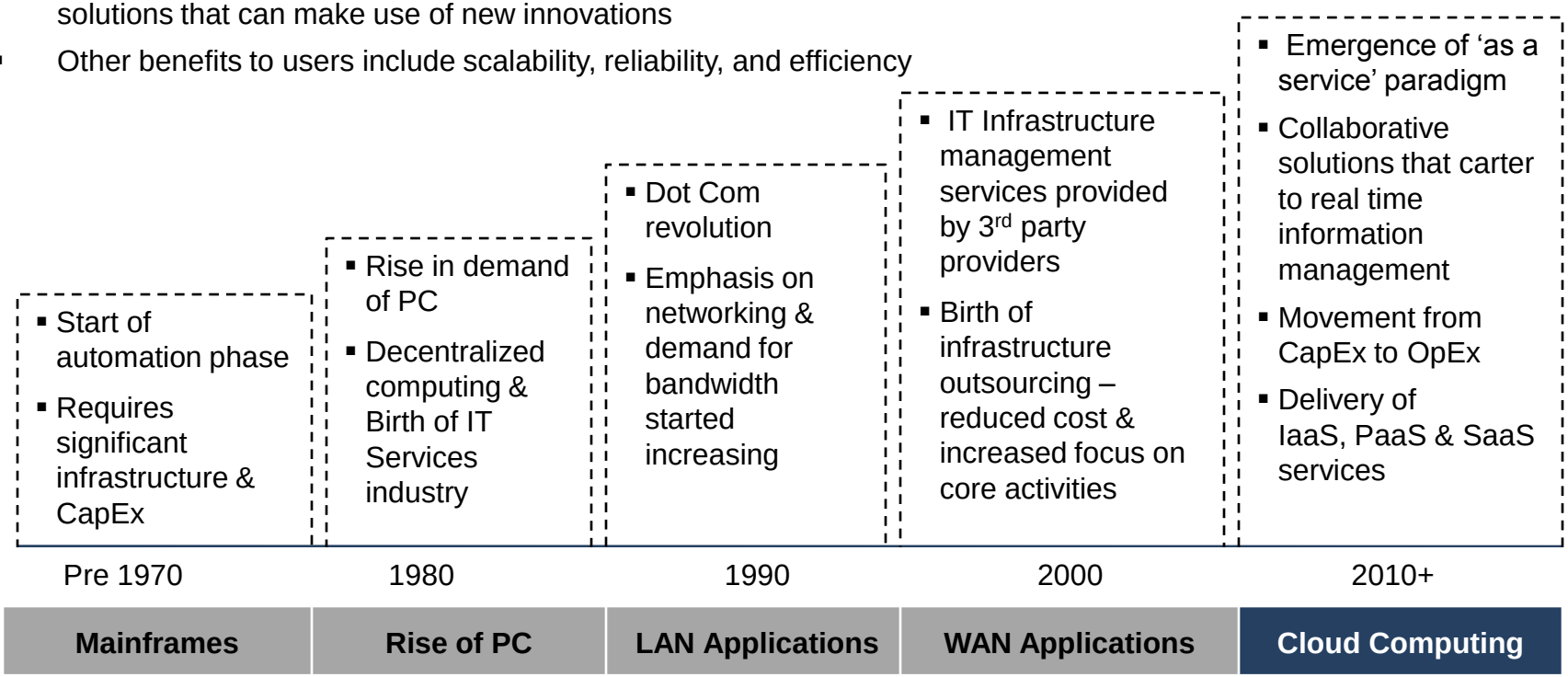
Date	Acquirer	Target	Deal Value (USD in millions)	Rationale for the Deal
May 2013	WIPRO Applying Thought	OPERA SOLUTIONS	30	Help Wipro to expand in big data analytics space as it combines Opera's (US based) machine learning expertise, pre-discovered predictive signals and algorithms with Wipro's proven domain and technology expertise
April 2013	CHARLES RIVER VENTURES; LIGHTSPEED VENTURE PARTNERS	Qubole	7	This is series A funding for the company which is in process of developing a cloud based platform for Big Data analysis
Feb 2013	MasterCard Advisors	Mu Sigma	45	Mu-Sigma is one of the fastest growing Big Data companies in the world. The stake sale of less than 5% valued the company at above $1 billion

CLOUD

CLOUD COMPUTING

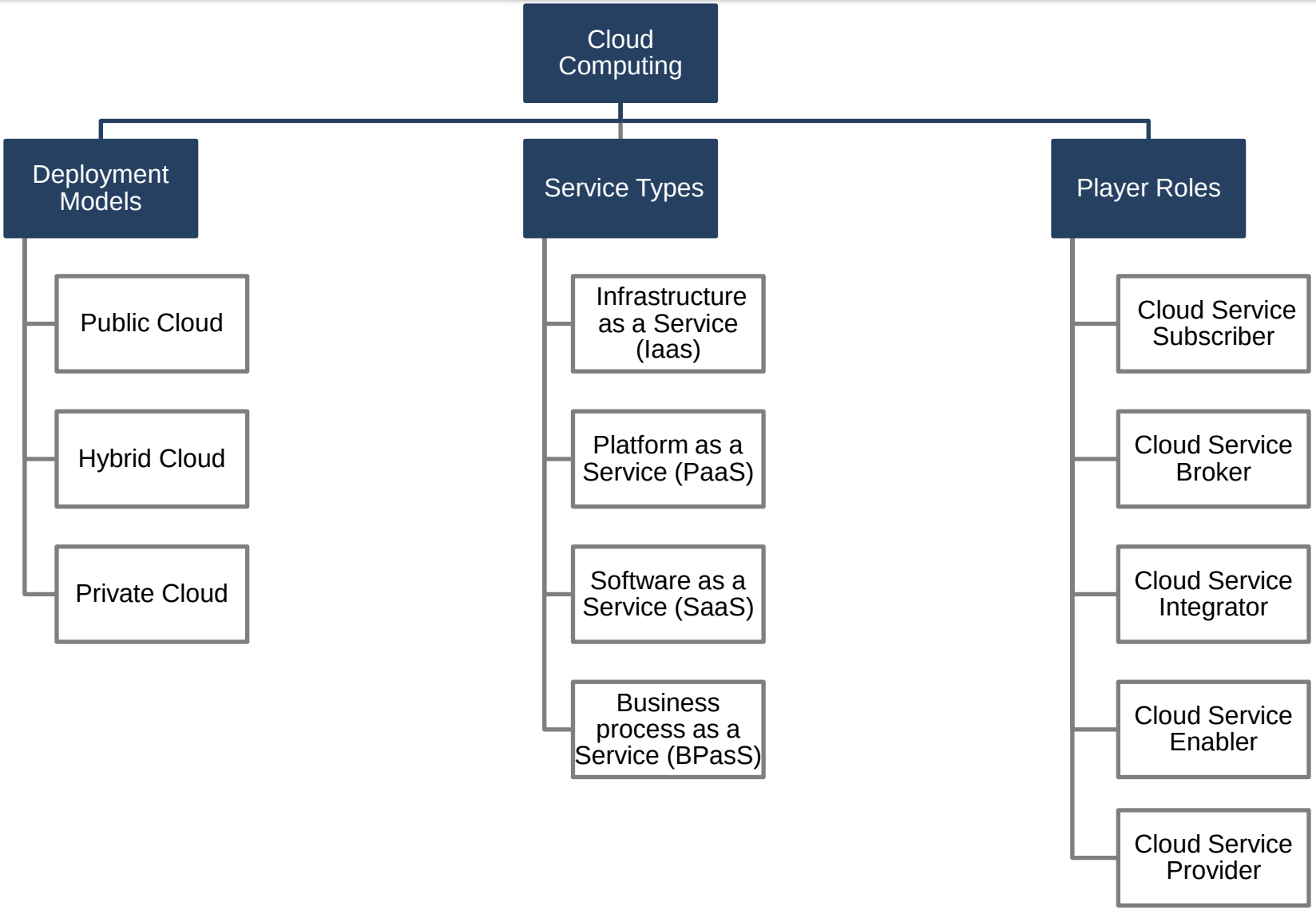
When & What

- Cloud computing is the delivery of computing services over the internet which allows individuals & businesses to use software & hardware that are managed by third parties at a remote location. It provides a shared pool of resources including data storage space, networks, computer processing power & specialized corporate/user applications
- Cloud services are popular because they can reduce the cost and complexity of owning and operating computers and networks as cloud users do not have to invest in information technology infrastructure, purchase hardware or buy software licenses
- The benefits are low up-front costs, rapid return on investment, rapid deployment, customization, flexible use and solutions that can make use of new innovations
- Other benefits to users include scalability, reliability, and efficiency



CLOUD COMPUTING (CONT'D)

The Structure



CLOUD COMPUTING (CONT'D)

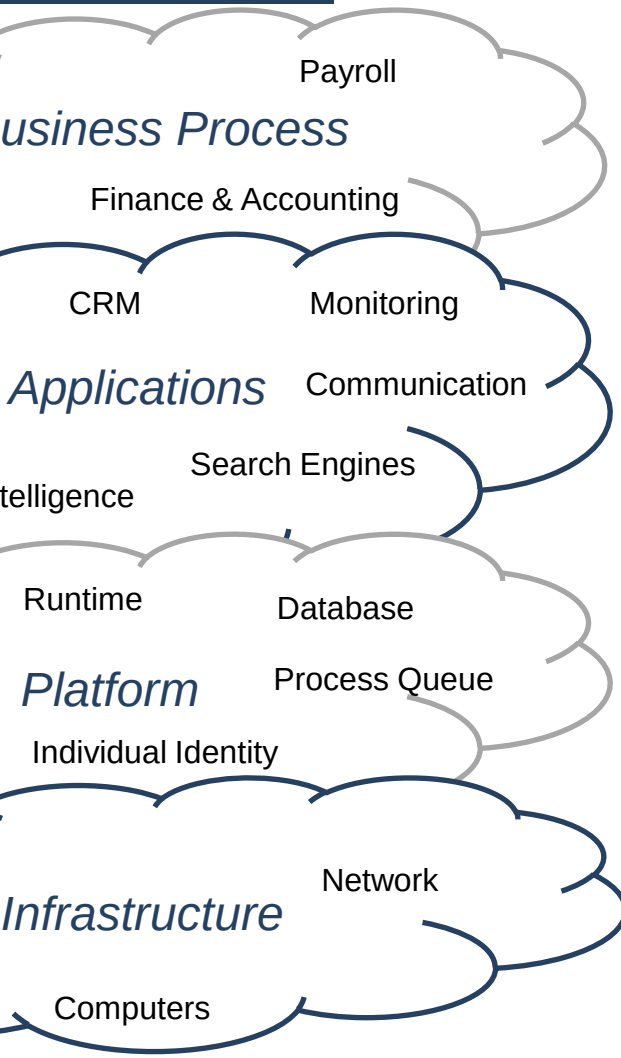
Deployment Models

	Private Cloud	Public Cloud	Hybrid Cloud
Defination	Internal & delivered on client premises, accessed and shared only with the enterprise	External to a client's premises and accessed through internet/private network & shared among multiple users	Custom Cloud solutions leveraging public & private cloud/ traditional IT infrastructure
Pros	▪ Privacy ▪ Customization ▪ Access Speed ▪ Stronger SLAs	▪ Pay-as-you-use cost for clients ▪ Off-premise management ▪ Optimized utilization	▪ Better integration and security than public clouds (with on premise IT solutions)
Cons	▪ IT management overheads ▪ Scalability Concerns ▪ Utilization Management Complexity	▪ Limited Customization ▪ Security & Privacy Concern ▪ Lack of network & access reliability	▪ Some IT management overheads ▪ Network Latency ▪ Access Defination Limitations
Sample Vendors	WIPRO, Infosys, CITRIX, solarwinds, Microsoft	rackspace, Google, amazon, IBM, CSC	amazon, verizon, vmware

CLOUD COMPUTING (CONT'D)

Service Types

Service Users	Cloud Structure	Service Types



Business process as a service (BPasS)

BPO solutions hosted on remote infrastructure and managed by cloud providers

GENPACT

Software as a service (Saas)

Application from the cloud licensed on a subscription basis and pay-per-use

salesforce.com

Platform as a service (PaaS)

Delivery of a computing platforms and solution stack as a service

Google

Infrastructure as a service (IaaS)

Provisioning servers, storage and database services on Cloud infrastructure to scale computing and storage requirements in real-time

IBM

CLOUD COMPUTING (CONT'D)

Player Roles

	Scope	Focus Area	Sample Players
Cloud Service Provider	Provide private and/or public cloud solutions often with implementation & management expertise	IaaS, PaaS, SaaS, Cloud based industry specific soultions	WIPRO, Infosys, amazon
Cloud Service Enabler	Provide technologies, products and solutions which enable development of cloud solutions by provider	Virtualization, Network infrastructure, telecom solutions, hardware	airtel, CISCO, Microsoft
Cloud Service Integrator	Enable Cloud solution integration with client's existing IT infrastructure, process & systems.	Handling API interfaces, network & utilization management, analytics	IBM, Infosys, Capgemini
Cloud Service Broker	Aid customers to source, deploy and manage cloud solutions and relationships	Design and architecture, vendor/solution selection, SLA definition, compliance risk, solution security	apigee, STRIKEIRON, accenture
Cloud Service Subscriber	Access and use IT services on a cloud hosted either partially on premise or remotely	Innovation, cost reduction, increase utilization of IT, scaling based on business need	NYSE, Disney

CLOUD COMPUTING (CONT'D)

The New Gold Rush : The Cloud Advantage

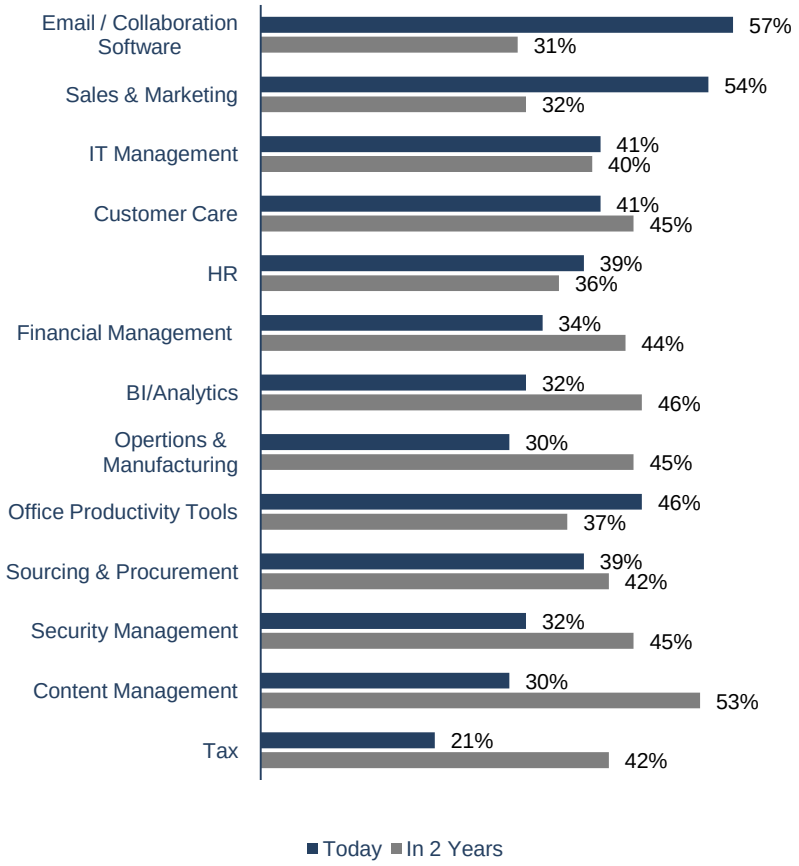
	Types of Services (As executed by outsourcer-service provider)	Traditional Delivery	Cloud based Delivery	The cloud advantage
Time	Testing Cycle Time	11 days	3 days	Down ~70%
	Deployment of clients/Server ERP system onto a cloud delivery system	~42 days	4 days	Down ~ 90%
	Migration of enterprise business application from one datacenter to second datacenter a couple of thousand miles away	~60-90 days	~ 2+ minutes	Down ~ 99+%
	Deployment of projects (e.g. Set up a new project, including sourcing servers and hiring staff)	43 days	~36 minutes	Down~99+%
Price, Cost & Volume	Desktop Outsourcing: Per Desktop Seat	~$1,000 per year	$55 per year (Excludes hardware maintenance cost of clients)	Down ~ 80%
	Deployment of sales force automation	~$1.5 million to $ 3 million per engagement	~$250,000 to $ 30,000	Down ~90%
	Revenue Per head count	~45,000 per FTE for IT services (offshore model)	~250,000 - ~30,000 and increasing	Up ~500+%
	Server consolidation via virtualization	~1,100 + servers	~ 150 servers	Down ~ 85%

Source: Deutsche Bank

CLOUD COMPUTING (CONT'D)

Migration to Clouds

Function/Processes that are migrating to Cloud



What is driving this migration

- The pace of cloud adoption shows no sign of slowing down as more and more functions are migrating to cloud services
- Apart from reduction in IT costs, benefits derived from migration to cloud in terms of innovation in processes, products & services across various sectors is also driving this growth
- AS per a survey by KPMG, 59% of providers say that cost reduction is the customers' main reason for using cloud. Other important reasons for shifting included Speed to adoption (31%), Business Process Transformation (30%) & improved interaction with customers (26%)

"It was much nicer before people started storing all their personal information in the cloud."

Source: KPMG

CLOUD COMPUTING (CONT'D)

Cloud in use

Using Cloud to Scale Operations – Groupon case study

The Need

Company :-

- Groupon was started as an online coupon website
- Depending on the deal of the day offer, it experiences sporadic traffic, unsuitable for large on-premise IT
- The website crashed in August 2010, due to demand increase from an earlier high of ~2,000 orders to ~ 3,00,000 orders

How Cloud Helped

- CRM to streamline order processing deployed on Amazon EC2 for scalability
- Additional optimization through workflows and analytics using Force.com custom applications

Result

- The company has managed to scale its business owing to the speed, redundancy and efficiency provided by Cloud solutions
- Sales optimization and scalability enabled Groupon to increase its service base to ~35 countries worldwide and ~40 million users
- Groupon has experienced rapid growth of over 200% YoY

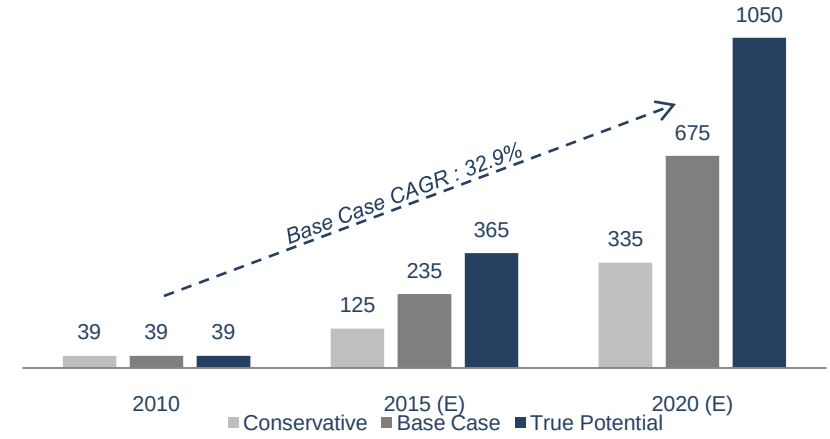
Cloud in our daily life

Source: NASSCOM

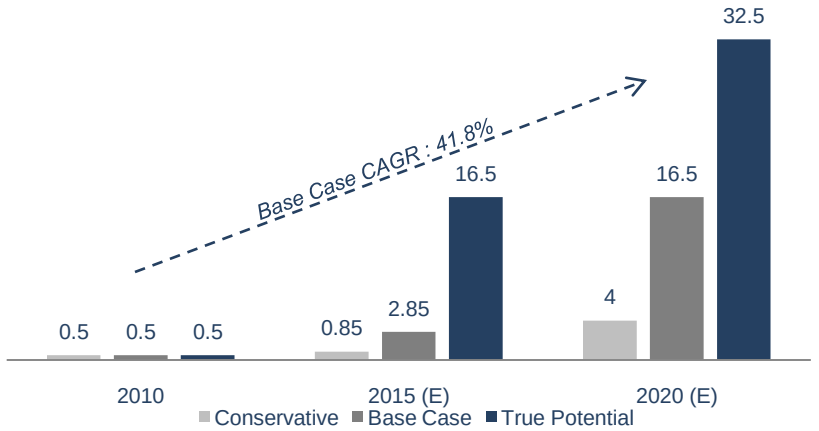
CLOUD COMPUTING (CONT'D)

Market Size & Growth Estimates

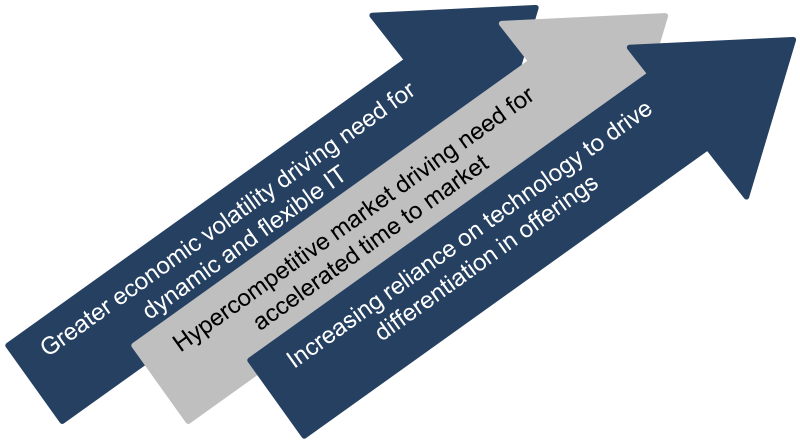
Global Cloud Computing Forecast (USD in Billions)



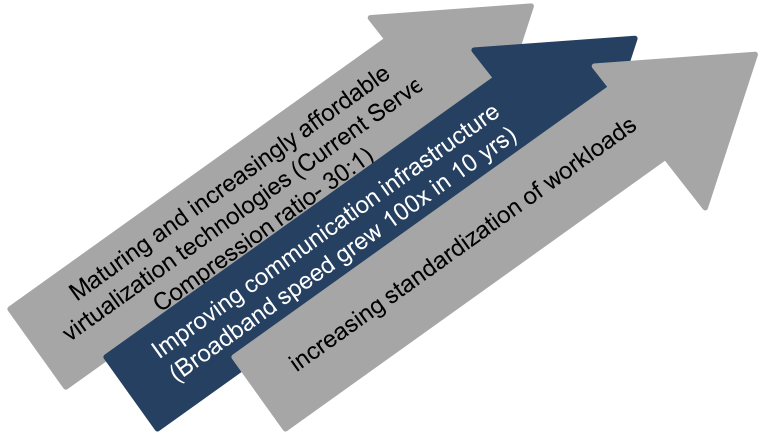
Domestic Cloud Computing Forecast (USD in Billions)



Demand Side Growth Drivers



Supply Side Growth Drivers



Source: NASSCOM

CLOUD COMPUTING (CONT'D)

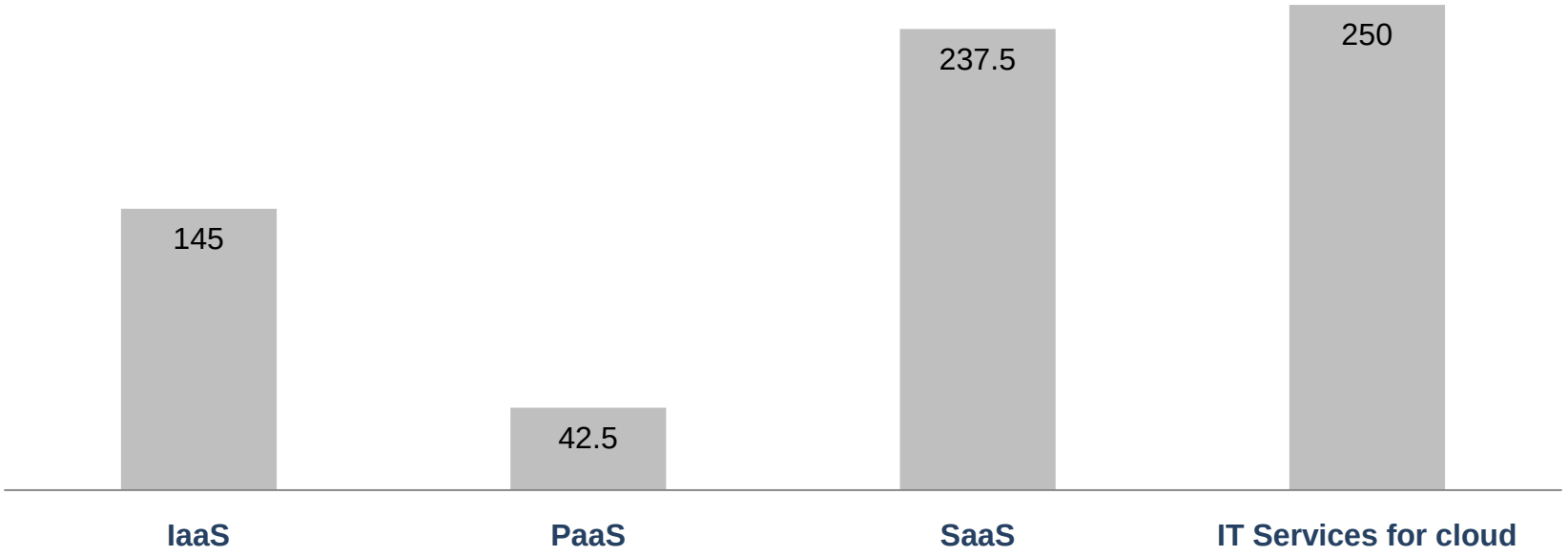
Trends & Expected Global Market Size in 2020 (USD in Billions)

- IaaS is marked with increasing commoditization and decreasing revenues for Storage & Network Equipment Vendors
- Price & Quality of Services (QoS) will drive the competition

- PasS market can be broadly segmented into generic & specialist
- Generic market will be dominated by handful of global players
- Specialist players will emerge with limited scope but with greater depths in their offerings

- SaaS will see an explosion with various players catering to specific needs depending on industry, business processes and geographic need

- IT Service segments like Consulting & System Integration are the key growing segments and will have the largest market share
- Segments like Information system & testing will need modifications



Source: NASCOM

CLOUD COMPUTING (CONT'D)

Opportunities for Indian Players

	Player Roles		Opportunity for IT Service Players
IaaS	Regional Players	High	▪ Mid Sized infrastructure service providers can re-architect their portfolio to become strong regional players ▪ Large IT players with global footprint should consider global play, either directly or in partnership with global majors ▪ Traditional datacenters can be re-architectured to make them cloud enables
	Global Players	Medium	
PaaS	Specialist PasS	High	▪ Generic PasS is most likely to be dominated by global players like Microsoft, Google, Amazon. ▪ Indian IT players should focus on building specialist language, business or functional PaaS solutions built on various platforms ▪ Players should also focus on building cross platform solutions to mitigate the risks
	Generic PasS	Low	
SaaS	Segment Standardized	High	▪ Most Indian IT Service players can productize (Cloud-enable) their solutions ▪ Large Players can build cloud solutions to position themselves as an one stop shop for enterprise clients ▪ Smaller Players should look for niche play
	Standardized Specific	Medium	

How Dinodia Capital Advisors can help

With our deep understanding of the SMAC industry and our professional network, we can help you:

- Indentify SMAC businesses to be acquired or sold
- Bring strategic and financial investors into your SMAC business (Domestic and International)
- Help your business find the most suitable technology partners
- Provide advice on any related transaction terms, valuation and pricing

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