SMAC the Internet:
App Economy & the Indian IT/ITeS Industry

Dr. Anupam Khanna. Chief Economist
Indian Telecoms Last Mile Conference
ICRIER, New Delhi, March 7, 2014
About NASSCOM

Represents IT, BPM, Products, ER&D Industry

Over 1,300 members – Includes Indian firms, MNCs and GIC units

- **Policy Advocacy** – Partnership with the Government
- **Industry Development** – Research, Events, Forums, Market development
- **Enabling Environment** – Entrepreneurship, Innovation, Resource building, Security initiatives, Infrastructure
- **Global Trade Development** – Policy advocacy, Market development, International Partnership, WTO/Bilateral engagements
- **Sustainability** - CSR initiatives, Gender inclusivity, Driving Inclusive Growth, Green IT Initiatives
IT-BPM Industry – resilient, growing, evolving

IT-BPM revenue break-up
USD billion

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2010</td>
<td>50</td>
<td>24</td>
</tr>
<tr>
<td>FY2011</td>
<td>59</td>
<td>29</td>
</tr>
<tr>
<td>FY2012</td>
<td>69</td>
<td>32</td>
</tr>
<tr>
<td>FY2013</td>
<td>76</td>
<td>32</td>
</tr>
<tr>
<td>FY2014E</td>
<td>86</td>
<td>32</td>
</tr>
</tbody>
</table>

- Industry expected to aggregate **USD 118 billion** in FY14. Growth reflects variable impact of currency
- **1.7X** growth in the last 5 years – **USD 50 billion** added; CAGR of **12.4 per cent** in last 5 years
- Software and services revenue in FY14-USD 105 Billion
- Revenues from **SMAC: 5-10 per cent** of revenues
- Reinforces India’s position as the one country from where you can do everything
Why India is a preferred destination

**SCALE & MATURITY**
- 25+ years of outsourcing
- 5000+ companies, 750+ MNCs
- 580 ODCs in 75 countries

**STRONG ECOSYSTEM**
- Largest no delivery locations: 50
- Training & certification
- Secure environment

**UNLIMITED TALENT**
- Annual tech talent output: 1Mn
- Established training engine: 2-3% of Industry revenues spent on training

**CUSTOMER CENTRIC**
- 30-32% revenues from verticalised BPM services
- Domain experts: 12% Consultative selling

**COMPETITIVE**
- 60-70% more cost efficient than source countries
- 15-20% lower than next lowest offshoring destination
## Services portfolio continually expanding

<table>
<thead>
<tr>
<th>IT Services</th>
<th>BPM</th>
<th>Engineering R&amp;D</th>
<th>Software Products</th>
<th>Internet &amp; eCommerce</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ADM</td>
<td>• Customer support</td>
<td>• CAD/CAM</td>
<td>• Enterprise solutions</td>
<td>• eCommerce platforms</td>
</tr>
<tr>
<td>• Infrastructure outsourcing</td>
<td>• Transaction processing</td>
<td>• Embedded design</td>
<td>• Platforms</td>
<td>• Online marketing</td>
</tr>
<tr>
<td>• Integration</td>
<td>• Knowledge, legal services</td>
<td>• Design and R&amp;D</td>
<td>• Apps</td>
<td>• Social media technology and solutions</td>
</tr>
<tr>
<td>• Software testing</td>
<td>• Data management</td>
<td>• Product engineering</td>
<td>• SAAS</td>
<td>• Content and search</td>
</tr>
<tr>
<td>• OSPD</td>
<td>• Analytics</td>
<td></td>
<td>• B2C products</td>
<td></td>
</tr>
<tr>
<td>• IT strategy &amp; consulting</td>
<td></td>
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</tr>
</tbody>
</table>

Only country in the world with the capability to provide complete end to end services in IT, BPM, Products and ER&D

Source: NASSCOM
Industry represents a heterogeneous mix of Indian and multinational firms

IT-BPM Exports Industry Structure, FY2012

<table>
<thead>
<tr>
<th>Category</th>
<th>Players (nos.)</th>
<th>% of Export Revenues</th>
<th>% of Total Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-sized</td>
<td>11</td>
<td>47-50% &gt; USD 1 billion</td>
<td>~35-38%</td>
</tr>
<tr>
<td>Mid-sized</td>
<td>85-100</td>
<td>32-35% USD 100 mn-1 bn</td>
<td>~28-30%</td>
</tr>
<tr>
<td>Emerging</td>
<td>~ 450-600</td>
<td>9-10% USD 10 million-100 million</td>
<td>~15-20%</td>
</tr>
<tr>
<td>Small / Start Ups</td>
<td>&gt; 4,000</td>
<td>9-10% &lt;=USD 10 million</td>
<td>~15-18%</td>
</tr>
</tbody>
</table>

ISP: Indian Service Provider, MNC: Multinational Company, GIC: Global In-house Centre
Source: NASSCOM
New emerging centres

Tier–2/3 cities in India

Tier–2/3 cities account for around 30 per cent of all operational IT SEZs

IT–BPM SEZ Unit Growth*

*Formal Approvals

Source: NASSCOM; SEZ, India; KPMG Analysis; ITP Division, MoEA, Govt. of India

Advantages offered by Tier–2/3 Cities

- Availability of Knowledge Pool
- Lower Operating Cost
- Government Support and regulation
- Developing Infrastructure
Emerging verticals - main growth driver at ~12 per cent

Vertical-wise* Break-up

100% (USD billion) = 68.8

FY2012

- BFSI: 40.9%
- Hi-tech/Telecom: 18.7%
- Manufacturing: 15.9%
- Retail: 9.8%
- Healthcare: 3.2%
- Const & Utilities: 3.2%
- T&T: 3.2%
- MPE: 3.3%
- Other: 2.0%
- E: Estimate; *Excludes hardware exports

FY2013E

- BFSI: 40.8%
- Hi-tech/Telecom: 18.4%
- Manufacturing: 16.0%
- Retail: 10.0%
- Healthcare: 3.2%
- Const & Utilities: 3.2%
- T&T: 3.3%
- MPE: 10.9%
- Other: 8%

Key Trends

- Mature outsourcing verticals - BFSI, manufacturing and telecom contributed over 75 per cent of exports
- Emerging verticals retail, healthcare and utilities - 2X growth from mature verticals
- BFSI at 10 per cent growth slightly below industry, pipeline strong

Source: NASSCOM
Entrepreneurial startups infusing energy and innovation

Diverse start-up landscape (Number of firms)

- Emerging players: ~1,000-1,200
- Small sized: ~15,000 players

Increase in start-ups focusing on solutions around SMAC

- Hardware and Devices: ~150-200
- Internet/Web: ~750-800
- SMAC: ~800-900

- ~3X growth in new firms set up post 2005
- Bengaluru – one of the Top 20 startup ecosystems globally
- Verticals- Education & retail gained significant traction

Collaboration between large companies and startups

Source: NASSCOM
The digital wave - defining India, defining business

### The SMAC Opportunity

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2016P</th>
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</thead>
<tbody>
<tr>
<td>Social</td>
<td>16.9</td>
<td>34</td>
</tr>
<tr>
<td>Mobility</td>
<td>0.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Analytics</td>
<td>18.4</td>
<td>44.2</td>
</tr>
<tr>
<td>Cloud</td>
<td>128</td>
<td>207</td>
</tr>
</tbody>
</table>

- SMAC reshaping businesses; consumers and all traditional approaches - the foundation for a Digital enterprise
- Consumerization of IT driving growth
- Start ups setting the pace in SMAC solutions

### INDIA: FAST GROWING DIGITAL ECONOMY

- 920 million telecom subscribers
- 40 million smartphones
- 213 million internet users
- India 3rd fastest growing app market
- 300 million+ app downloads
- INR300 crore+ app market
- Ecommerce revenues in 2013 - USD 13 billion
- 4 year CAGR growth - 36 per cent

Source: Gartner, IAMAI, IMRB, KPMG, McKinsey, TRAI, Secondary sources, NASSCOM
“SMAC” – Social Media, Mobility, Analytics and Cloud reshaping the future of the Indian IT Industry

**SMAC, is becoming a business reality**
- Social, mobility, analytics and cloud are reshaping the business, the consumers and all traditional approaches, Indian Industry has seen till now
- Movement towards the next orbit of innovation with consumerization of IT
- Opportunity to move to higher-margin business by offering creative solutions
- Help businesses grow dynamically instead of increasingly cutting margins for typical IT contracts
- Launching luxury product lines that comprise the SMAC suite of technologies to go the next level

**Huge potential for revenue generation**
- IDC Indian IT vendors expected to generate over $225 billion in SMAC related revenue by 2020

**Drivers/ factors contributing to the changing landscape of Technology**

**Transformation**
Remodelling business processes through harmonizing technology advancement

**Client- specific outcomes**
A meaningful change in the business requirements i.e., end-to-end solutions

**New paradigm for business**
Efficiency, Enhanced customer experience, Reduced time to market, Connectivity, IT Consumerization

**Impact is highly evident**
- Create a new digital operating model and transformation to a permeable enterprise
- Engagement with a growing digital ecosystem
- Empower enterprises to embrace emerging technology trends and to benefit from the value expectations of customers
- Innovative thinking in business and enterprise architectures

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**Journey to the Cloud continues; enthusiasm for Big Data, Mobility and Social Analytics also remains strong**

- Mobile payments
- Smart cities
- Connected Health
- Pivot merchandising
- mBanking
- mHealth
- Smart Buildings
- mGovernance
- Platform-as-a-Service
SMAC: Driving incremental growth

**SOCIAL**
- For a global communications and high-tech firm
  - Service provider designed a social networking capability, based on Salesforce.com Chatter platform

**Benefits**
- Better collaboration, easier access to sales-related content in real time
- Platform to share best practices; provided direct feedback mechanism
- Access to enhanced peer-to-peer networking and collaboration
- More client-facing time and improved reuse of existing collateral
- Improved performance and sales training programs

**MOBILITY**
- For a telecom service provider
  - Mobile wallet service for India market where banks and similar institutions have lesser penetration than mobile

**Benefits**
- Consumers can conduct transactions at various eCommerce portals
- Pay bills, recharge accounts and shop at over 7,000 merchant outlets
- Conduct transactions online through multiple channels (mobiles, IVR S, ATMs, POS)

**ANALYTICS**
- For a national bank
  - Create a credit card offering with rewards program to attract the young, professional demographic
  - Service provider applied analytics on big data from sources (call centre, customer service emails, social media) to better understand customer profile

**Benefits**
- Bank developed new rewards program designed to appeal to upwardly mobile professionals
- Provided information for targeted promotions, incl. strategically placed social messaging, monitoring

**CLOUD**
- For a rapidly growing chain of hospitals in India
  - All eight healthcare facilities connected by a private cloud

**Benefits**
- Enabled remote patient care - doctors remotely diagnose patients especially those in trauma without rushing to the hospital
- Timely diagnosis helping in getting immediate treatment to the patient
Enterprise Mobility - Overview & Trends

Mobility is setting new imperatives for operational efficiency and customer engagement

Enterprise Mobility – New strategic imperatives

- On demand channel for real time communication & connection between enterprises and customers in digital world
- Works with 2 strategic imperatives
  - Enterprises to improve asset productivity, profit margins, round the clock decision making, employee satisfaction and enhance brand presence
  - Empower the customers through engaging experiences and improved services quality through point of sale reach

Enterprise Mobility – A profitable market

- Estimated to reach around USD 140 bn by 2020, a CAGR of approx 15%
  - North America, expected to remain the largest market
  - APAC expected to grow the fastest at ~21%
  - Existing spend of less than 5% on EM, expected to grow to 10-12% by 2020

Enterprise Mobility – Growing opportunities for India

- India, expected to be a big market; capabilities need to be aligned in the right direction
  - Players need to build capabilities quickly – as market consolidates
  - Traditional IT players to add application development capabilities to offer more holistic end-to-end solutions
  - Need for consolidation to implement EM solutions across entire ecosystem
  - EM going forward, to be viewed from holistic approach of cloud + social + mobile + location powered with big data to explore new business opportunities

To a Sales organization, mobile computing keeps salespeople out in the field talking to customers

To a Retailer, the same device that navigates a customer into a store can redirect the final sale to the competition

To a Healthcare firm, a patient’s vitals and behaviours may be constantly monitored, to increase the effectiveness of treatment

To a Bank/ FI, the mobile phone solution is a new wallet that could make the credit card obsolete
Indian providers are creating new business streams, enabling consumerization and enhancing process through mobility

**Enterprise Mobility - Impact**

**New Business Streams**
- Mobile enabled business processes
- Creation of new revenue streams around mobile technology e.g., Surveillance and monitoring, e-governance, Patient Care, Supply Chain Management solutions

**Consumerization**
- Enhanced customer service delivery model
- Reaching customers at the point of sale through solutions like m-payments, m-commerce, m-retail, m-banking, mhealth and similar apps

**Process Enhancement**
- Enables faster decisions on “GO”
- Making available Real time data from Enterprise to Edge e.g., Sales force, Field service, CRM
- Improves Sales cycle, Enterprise resource planning, Business intelligence etc

**EM in Retail**
- Shopper stop - customer service through connecting devices
- Pantaloons - Store operations effectiveness

**EM in BFSI**
- CanvasM technologies - Enabling wider reach of banking to the remote areas through Saral Dhan

**EM in Healthcare**
- Attinad Software - offering first of its kind mobile patient management solution for cancer

**EM in Oil & Gas Industry**
- Attinad Software - Mobile version of the electronic permit to work for better performance and control on the process

As mobile technologies become more mature and pervasive throughout an industry, there is a gravitation away from standalone solutions focused on specific functions to more broad and comprehensive innovative solutions. mBanking, mHealth, mRetail and mPayment have become part of the daily vocabulary of consumers and enterprises.
Big data/ Analytics: Creating actionable and predictive analytics from diverse data-sets

- **Big data- a new era in data exploration and utilization**
  - Uncovers hidden patterns, unknown correlations and other useful information
  - Rising impact on decision-making as analysis of data is as essential as business

- **Unfold 4 main broad objectives**
  - Derive meaningful insights for **innovative decision-making**
  - Improve **efficiency in business operations** by predictive analysis through usage and interpretation of voluminous data
  - **Competitive advantages over rival organizations** and result in business benefits, such as more effective marketing and increased revenues
  - **Customer centric outcomes** through uncovering and evaluating customers behaviour and buying patterns

- **Estimated to grow at 45% annually to reach ~USD 25 billion by 2015**
  - Indian Big Data industry expected to grow from ~USD 200 million in 2012 to ~USD 1.0 billion in 2015 at a CAGR of over 83%
  - North America, expected to provide the major opportunity
  - Emergence of niche start-ups and technological developments fostering growth

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*Organizations of all shapes and sizes are in the midst of yet another technology-led evolution through Big data analytics*

Source: CRISIL GR&A analysis. NASSCOM, Primary research
Indian providers are adopting advanced analytics for distilling better intelligence from customer data for driving sales

- As per McKinsey report, a retailer embracing big data has the potential to increase its operating margin by more than 60%. Savvy retailers and e-commerce companies are turning to big data analytics to increase sales, better target customers, improve reach and gain competitive advantage.
- Other industries include financial services and insurance where usage of big data analytics is evident.

- Several IT services as well as BPM providers such as Infosys, Wipro, WNS, Genpact etc are offering Big Data services e.g., forecasting the market mood, offering market analytics to draw the vital picture of business landscape with higher color of returns and consumer satisfaction.

- A study from IBM shows that companies which excel at effective utilization of data and have more mature business analytics and optimisation, can experience 20 times more profit growth and 30% higher return on invested capital.

Looking at the current and potential benefits of Big Data analytics, service providers aim to expand into newer areas and expand data management and analytics services.
Cloud adoption leading to improvement in cost along with virtualization through dynamic abstraction of IT services.

**Services**
- Cloud consulting, system integration and cloud system operations capabilities
- Migration and integration of specific workloads onto the cloud and related process & integration design

**CADM**
- Applications development and management with focus on highly virtualized services
- Migration and enablement of traditional applications in cloud, custom development for cloud packages and applications maintenance

**Software (incldg. Products)**
- Shift from licensed to subscription based software deployment models
- Cloud enablement and software product development for ISVs
- Transition from basic service-oriented architecture to the way software is delivered (software as a service)

**Testing**
- Software testing services and management for complex testing environments and those requiring scalable test-beds

**Hardware**
- IaaS and cloud platform models
- Virtualized and cloud ready hardware as serve most on-premise needs

Impact is highly evident
- **Business processes:** BPM solutions are modified to self-service, platform models enabled by cloud, and automated service delivery mechanisms offering value add to clients through pay-per-use-model, leveraging cloud as Business Process-as-a-Service
- **CADM/ Application Development:** Application software delivered as a service on cloud is gaining prominence with the advent of innovative solutions offerings with suitable pricing models
- **ER&D:** Virtualization has enabled efficient use of infrastructure/ engineering elements with adoption of Infrastructure as a service, computing platforms, data centers etc
  - Cloud penetration in hardware will show a major shift from 2012 (8% - 10%) to 2016 (22% - 24%)
  - IDC predicts 2013 will be a year of big jumps in SMEs business cloud use. Ecosystems of solutions that cluster around PaaS — will appear as "the most valuable real estate in the cloud."
Productizing services and monetizing existing CIS services- enabled by cloud adoption

Enterprise’s core business processes run across different clouds, requiring complex business transactions to connect to and span multiple and heterogeneous clouds. There is a need for a cloud-integration and delivery model that takes into account orchestration across clouds:

- Ability to integrate applications built on various technologies (Java, .NET…) and collaboration between different protocols
- Managing transactions in a business process across different cloud environments
- Workload management and fail-over between Clouds. As cloud environments become more complex, customers can manage their cloud workloads better in an orchestrated environment

Illustrative Use Case: Enhancement of CIS through focus on core capabilities and rely on third parties for elements that do not constitute a competitive advantage

Illustrative Use Case: A new business model, enabled by cloud

Action

- Solution called TCS BaNCS adopted as a core banking solution with oriented architecture, making it amenable to the cloud
- C-EDGE is a joint venture between TCS and SBI to offer TCS’s core banking solution BaNCS as a service to Regional Rural Banks through handhelds acting as point-of-sales terminals
- Select functionalities of the BaNCS provided on a monthly charge basis

Result

- Core services like term deposits, loans and overdrafts, cash credits, agricultural credits and subsidies are provided to banks at a low and predictable monthly rate
- Trade finance, remittance and foreign exchange services are also included
- Cooperative banks like Andhra Grameen Vikas Bank, Uttaranchal Grameen Bank and Purvanchal Grameen Bank are among adopters

Source: Deloitte Analysis, Industry Press, Company websites- ATOS & TCS
Social Media Analytics- Overview & Trends

Social media analytics- New way to integrate, analyze and enable clients to act

- **Social Analytics**— segmenting big unstructured data (Social Media) on different dimensions
  - Offers differentiated ability of gauging customer opinion to support marketing objectives and customer service activities
  - Translate into a revenue mechanism that affects the profitability of the business
  - Bring together elements for thought process based on the behaviour and buying trends of customers

- Not a standalone activity, rather a part of digital marketing strategy
  - Emphasis on 4 main imperatives- Listen, Respond, Engage and Nimble
  - Influencer and follower model, positive as well as negative sentiments
  - Marketing campaigns and strategies link to the ROI
  - Build valuable leads of potential customers
  - Intelligently identify USPs for better customer connection

- An explosive growth opportunity for Enterprise Social Software with the market exceeding $6.4 billion by 2016
  - According to Forrester Research, spending on social business software is expected to grow at a rate of 61 percent through 2016

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**Brand Perception:**
- To know what consumers are talking about a brand or product or services
- It is about analyzing the new trends in consumer preferences and taking feedbacks to improve on brand image and service offerings

**Exploring Opportunities:**
- Social media provides valuable data for business, along with a medium for conversation
- SMA tools enables to spot trends, opportunities and get insights, and to act by participating in conversations that are increasing ROI and operational efficiencies
Current trends and future outlook

- Mobile subscribers were 1.6 million in 2000 and grew to 900 million by 2012, of which more than 44 million estimated to be smartphones.

- Mobile internet usage surpassed desktop Internet usage in May 2012. IAMAI estimated the number of mobile Internet users to be 87.1 mn as of December 2012, with a large chunk of this number accessing apps on a daily basis.

- Represents a quarter of all mobile connections in Asia Pacifica with 900 million mobile connections - expected to rise to 1.16 billion by 2017.

- With improved spectrum pricing and management, growth of mobile broadband service is expected to continue. 3G and 4G adoption projected to increase by 31% between 2013 and 2017.

- Smartphone penetration is 4 percent and is expected to grow to 25 percent by 2015.
Classification of applications - basic, generic and industry specific

1. **Applications**  
   Solutions that extend basic functionalities to the mobile  
   - Email  
   - Messenger  
   - Calendar  
   - Tasks  
   - Contacts

2. **Generic Applications**  
   Solutions which have applications across industries
   - B2E - Enterprise Resource Management  
   - B2B - Supply Chain Management  
   - B2C - Customer Relationship Management  
   - M2M - Location Based Services

3. **Industry Specific Applications**  
   Solutions that are domain and company specific, often custom built or highly customized for an enterprise

- **Retail**  
  - Mobile Commerce  
  - Point of Sale  
  - Coupons and Offers

- **Hospitality**  
  - Digital Concierge  
  - In-Room Automation  
  - Customer Service

- **Financial Services**  
  - Mobile Banking  
  - Loyalty Programs  
  - Financial Trading Systems

- **Transportation**  
  - Navigation / Telematics  
  - Airline Mobile Ticketing  
  - Automotive Apps

- **Public Sector**  
  - Government to Citizen  
  - Smart Parking  
  - Education / Advocacy

- **Healthcare**  
  - Clinical Trials  
  - Salesforce Automation  
  - Tablet Electronic Records

- **Media**  
  - TV Everywhere  
  - Social Television  
  - Interactive E-books

- **Telco**  
  - Content Delivery  
  - App Stores  
  - Messaging

Source: Deloitte Analysis
Mobile Ecosystem in India – Economic Impact

1. 5.3% of GDP in 2012
2. Direct employment for 730,000 jobs and indirect - 2 million jobs
3. Enabling an ecosystem of mobile product and service providers
4. Productivity gains
5. Social Impact in Priority Sectors

Source – GSMA: Mobile Economy report India 2013
Healthcare: Improving accessibility & efficiency

Key technology solutions for Healthcare

- Mobile Health Clinics
- Telemedicine
- Electronic Medical Record and Hospital Automation
- Automation of Peripheral Healthcare Services
- Picture Archiving and Communication System
- Managed Healthcare Services

Increasing accessibility of health services in remote areas
Increasing awareness about health-related issues
Increase in efficiency by reducing burden on doctors and optimising resources
Scalable and cost effective health services

Source: Evalueserve Analysis
Impact On Key Challenges - HEALTHCARE

Coverage / Access
- Saves travel time and improves retention rates for healthcare staff
- Remote diagnostic/treatment support
- Examples - Airtel’s Mediphone service, Apollo Telemedicine Networking Foundation, Tata DOCOMO ‘Sparsh’

Communicable diseases
- Public health surveillance
- Patient monitoring / compliance
- Examples - Operation ASHA

Maternal and child healthcare
- Reduce mortality rates
- Educating and informing community workers who attend births and advise expecting mothers
- Examples - CommCare mobile app—powered by Dimagi, Vodafone’s e-Mamta mother and child tracking initiative
Impact On Key Challenges – EDUCATION

Extending access to underprivileged communities

- Learning tools to empower teachers with new, engaging content - Vodafone Foundation with Pratham Education Foundation to deploy the ‘Learning with Vodafone’ Solution
- Self learning solutions - “hole in the wall”

Affordable education

- Providing content via the mobile channel
- Examples - Tata DOCOMO’s Tutor on Mobile service

Improved quality of education

- Mobile can offer certification opportunities,
- Improve employment prospects in places where college education leaves graduates with only low quality skills
### Banking and Financial Services: Increasing security and convenience for end users

#### Source: Evalueserve Analysis

| Benefit of IT-BPO Products and Services on Banking and Financial Services |
| --- | --- |
| Internet Banking | Mobile Bank Branches | ATMs |
| SMS/Mobile Banking | Phone Banking | Customer Care Services | Core Banking Solutions |

### Improving Security for both the User and the Provider
- Mobile and Internet Banking lower the requirement of cash handling
- Specialised security software ensure data privacy and security

### Improving Customer Service
- Ease of information access and issue resolution through call centers
- Convenience due to higher responsiveness of online and mobile banking

### Increasing Agility in Processes
- Enhanced efficiency in basic processes reduces number of trips to a branch
- User-friendly mobile/online payment solutions

### Integration of Different Services and Processes
- Enhanced customer convenience due to integration of applications
- Ability to demand customised solutions on basis of the past track record
## Mobile Banking

**India’s mobile banking customer base was 0.887 million in Sep ‘10**

**RBI guidelines have restricted the mobile banking transactions to INR 2,500 per transaction**

<table>
<thead>
<tr>
<th>Government as an Enabler</th>
<th>Industry as an Enabler</th>
<th>IT as an Enabler</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Licenses for semi-closed wallet being issued to non-bank entities like Bharti Airtel and ITZ Cash</td>
<td>- Mobile payment service providers (like Obopay) evangelizing the need for mobile money for banks like Yes Bank, Union Bank of India, etc.</td>
<td>- Mobile-based branchless banking platforms are being adopted by the banks, e.g. A Little World platform by SBI</td>
</tr>
<tr>
<td>- RBI considering a dedicated clearing house for m-payments</td>
<td>- Following the success stories like M-PESA in Kenya and M-KESHO in Africa, M-PESA has been introduced in India by Vodafone and HDFC Bank</td>
<td>- Large databases of information are available enabling automation of services like IVR</td>
</tr>
</tbody>
</table>

**Note:**

1. IMG - Inter Ministerial Group, MNO – Mobile Network Operators, POS – Point of Sale, IVR - Interactive voice response; SWIFT - Society for Worldwide Interbank Financial Telecommunication

**Source:** ASSOCHAM Report Mobile Value Added Services (MVAS) 2010; Zinnov Analysis
Impact On Key Challenges – FINANCIAL SERVICES

Increase access to financial services
- Access to poor
- Mobile micro-savings accounts

Government initiatives enhancing benefits for citizens
- Means of operating a secure, low-cost, time-efficient welfare disbursement system
- Facilitating e-Government and supporting disaster relief efforts

Potential impact and requirements for support
- Potential to serve 250 million people by 2020,
- Raising the adult financial inclusion rate to 65 percent
Retail Industry Growth Drivers

**Business Trends**

- Increasing maturity of unorganized sector
- Rising number of malls and supermarkets
- New players entering the market, existing players rapidly expanding
- Innovative store formats: community shopping, wedding malls, etc.
- Companies establishing presence on the internet/online platform
- Private brands/labels by big retailers

**Need for Technology**

- Ensure faster and efficient transaction
- Network all offices and outlets of the company
- Enable an efficient supply chain network
- Improve customer service
- Address security at all levels
- Finance & accounting and HR
- Provide remote training to employees

Note: 'NCR, Mumbai, Hyderabad, Pune, Bangalore, Kolkata and Chennai
Source: Zinnov Analysis
Consumer Trends

✓ **Payments** - Monetization of apps becoming easy

✓ **Information** - Easiest channel to disseminate information in short time – eg Mobond

✓ **Social** - Social connectivity through mobile app targeted as young population

✓ **Local** - Ability to reach remote and isolated areas - massive jump in number of smartphone users in tier-3/tier-4 towns in India
Policy challenges

**Ecosystem - Stakeholders**

- Consumer
- Developer
- Telecom companies
- Employers
- OEMs

**Policy Framework**

- Robust spectrum management
- Ensuring Universal Service Fund approach
- Aligning Radio Frequency exposure limits to global norms
Hypermobility…but only for some ??
Inclusive ITeS Innovation Examples

- Mobile Financial Services: EKO
- Mobile Phones for Data and Text
- Rural Development: Ekgaon, Nano Ganesh
- Health Diagnostics (Avoidable Blindness): 3nethra
- Public Health (Maternal & Child Health): e-Mamata
- Travel Services: iXiGO
- Unique Identification System: Aadhar
Blindness
A Global threat

Problem

- Blindness is a Global threat to health and productivity
- Of the 39 Mn blind people in the world 12 Mn live in India
- Africa has approximately 19% of the world’s blindness
- 80% blindness caused due to –
  - Cataract / Glaucoma / Refractive Errors/ Diabetic Retinopathy/AMD
- Of the 60 Mn Diabetic patients in India 20% will develop diabetic retinopathy

80% of blindness can be prevented if pre-screened

Challenges

- Scalability – Low Patient-to-Ophthalmologist ratio; 1:70000 in India
- Affordability – Expensive devices which require trained ophthalmologist
- Rural reach – Only 7-10% of the people are screened on time
- Awareness – Lack of awareness about detecting eye disorders early

An Effective Pre-screening tool is the Unmet need!
3nethra is an affordable multi-functional portable ophthalmic imaging system.
3nethra Pre-screening in Rural India

Studies uploaded to ForeCare

Doctor - 1

Doctor - 2

Doctor - 3

Cloud

NOTIFICATIONS:
1. by SMS
2. by EMAIL

ForCare

3nethra - 1

3nethra - 2

3nethra - 3

Doctors access Studies and provide Diagnosis

Report automatically sent to the right 3nethra

Report printed and given to patients at their door step

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Gleanings from Recent Academic Research

- How is Mobile Internet Different? *(Ghose et al)*
  - Ranking Effects Higher: Suggests Higher Cognition Load
  - Higher Benefits from Browsing Geographically Closer Markets
  - More Recent Posts More Likely to be Clicked
- Mobile E-Commerce *(Einav et al)*
- Mobile Money Services *(Gutierrez & Choi)*
  - Possible at widely different stages of Financial Development
  - Requires a Vibrant & Competitive Telecommunications Sector
  - Regulatory Framework Need Not be Very Sophisticated
  - Some Critical elements in Legal Framework
  - Electronic Signature Law Support for Retail Payment Services