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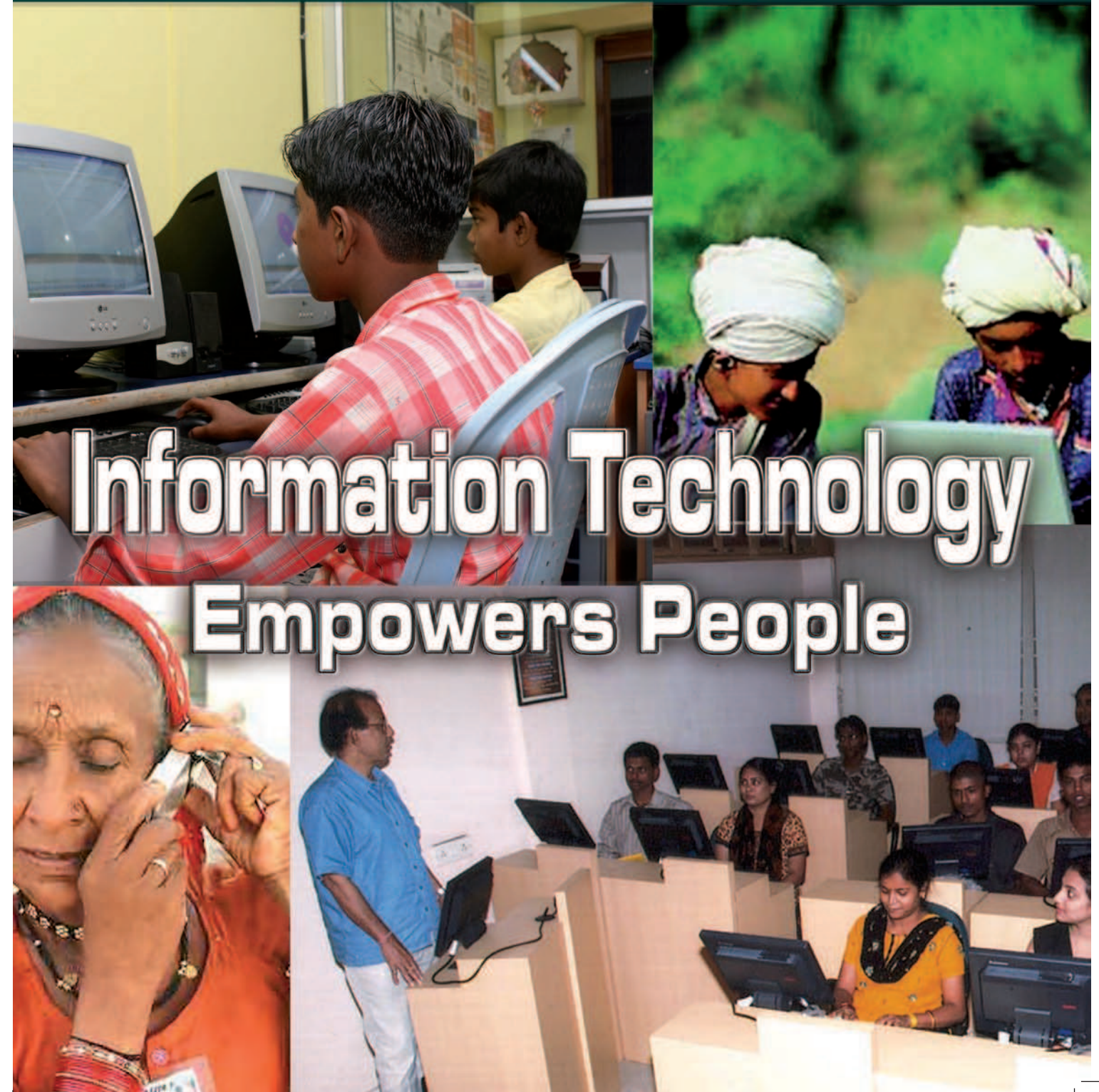
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EDUCATION

CHILDREN & YOUTH

ENLIGHTENMENT



Information Technology Empowers People

Indian IT at Crossroads



India is now finding a place in the gallery of IT powerhouses. She is yet to make a definitive mark but the journey into the haloed portals of the info age has been a steady stride propelled by a strong skill base, proficiency of the lingua franca English and business cost advantage.

Innovators, Service Providers or Agents of Change?

■ **Sangeeta Mahapatra**

We are living in the Information Age. Never before has the adage “knowledge is power” been truer than now. The medium of this intellectual power is not books but bandwidth, not pens, but pen drives. Today we mostly talk of empires in terms of Google and Microsoft. India is now finding a place in the gallery of IT powerhouses. She is yet to make a definitive mark but the journey into the haloed portals of the *info age* has been a steady stride propelled by a strong skill base,

proficiency of the lingua franca English and business cost advantage.

Heralded as the sunshine sector of India, IT is also one that brings qualitative improvement to other sectors of the industry. Through its Custom Development Application and Maintenance (CDMA), Software testing, Consultation, Infrastructure Management Services, Application Management

and a host of other services, it has helped businesses to streamline and make their operations smoother, more efficient, economical and helped them in maintaining their operational database. The web services have harnessed human potential in an unprecedented way by connecting the world and leading to a crosspollination of ideas. Time and space are no longer constraining forces on human interaction. IT is revolutionary and has the power to transform societies. The big question is: How best has it been utilised to do so?

Diffusion of technology parsed of all technicalities implies democratisation of technical advantages. It cannot be the province of the few. The benefit of the society is the precondition of a vital sector such as IT. But this is a process

of mutual propagation of which education is a necessary component. The more the educated people, the more able are they to access the benefits of technology. They become more aware of things and develop the proficiency to get the best out of technology. So the gainers become the developers of technology. Jobs are created, wealth is generated.

Number Crunching

Riding the beast of recession, the world IT market is slowly gaining the upper hand. India has posted a modest growth. The country’s largest software exporter in terms of revenue, the Tata Consultancy Services (TCS) has had a 7.1 % growth in net profit and the next in the rung, Infosys Technologies



IBM Building, Kolkata

Limited around 7.5% in Q 2. This has brought a smile to the INR 2.8 trillion (almost USD 60 billion) outsourcing industry—the face of India's IT success.

By expanding into different service verticals and setting up operational bases across the country, the sector has scripted a strong

growth story with its revenue accounting for 5.5 % of GDP in FY 2008-09. NASSCOM's figures of IT-BPO sector growth by 12 % and IT-BPO exports by 16 % in FY 2009 leaves one in no doubt about it being the fastest growing services market in the Asia-Pacific region. The domestic IT market is growing and has posed a growth of 5.3 %, standing at USD 24.3 billion in FY 2008-09.

Human Capital

Its command over English, a good government policy and a prized cache of technical workforce (estimated at around 4 million) has worked in India's favour. The country controls about 65 % of the outsourcing industry that has more than 22 active players. It continues to ward off rivals like China, Malaysia, Philippines, Russia and Eastern Europe and tops A.T. Kearney's list of the most sought after outsourcing and off shoring business locations.

The seven IT and ITES clusters of India are located in Bangalore, Hyderabad, Mumbai, Pune, Delhi, Chennai and Kolkata. More than 1832 educational institutions and polytechnics continue to equip over 67,785 computer software professionals. The IITs and IIMs that produce talents to serve the industry. Then there are the potential recruits who first taste the marvels of technological possibilities through the internet. In India, at present, there are around 60 million net surfers. The ambitious *Goal 511* of the Manufacturer's Association of IT (MAIT) sets a target of 500 million internet users, 100 million broadband connections, and 100 million connected devices by 2012. The sale of PCs is set to grow by 7 % in 2009-10. Rural connectivity is a reality according to the Internet and Mobile Association of India (IAMA) as there are around 3.3 million active internet users and some 5.5 million have used the internet at one time or the other.

This is our strength. But have we bolstered this to realise the potential of a technologically competent population

that can use technology and derive maximum benefits from it? We have been slow to invest on our talent pool and have barely scratched the surface of internet connectivity.

Inflexion Point

The economic crisis hit the IT and BPO industry hard with many people laid off and the companies' profit margins dipping. Big spenders like the Banking, Financial Services and Insurance (BFSI), manufacturing, media and entertainment services, construction and utilities, healthcare and retail cut down on their budget. Telecom that is often perceived as the second largest spender brought some relief. But jobs, hiked salaries and perks came with a hefty condition of concrete result-oriented performance.

The outsourcing industry had to contend with the challenges of the Satyam scandal, the concerns about data security, delay in decision making cycles, and better prices being offered by competitors from Russia, East Asia and Europe to their clients.

Self-critiquing is going on in the sector. Some important questions have been raised: Do we diversify service verticals or cut down on them? Do we focus on existing clients that account for the bulk of our revenues but might have reduced their spending or do we seek out new clients? Do we shift our priorities when it comes to business destinations and seek new markets? Do we concentrate on the domestic more than the export aspects of our market? Questions are galore and the sector is struggling to find the answers.

Then there are those proponents of distributive economics who feel that the IT revolution was an elite one that left the bulk of the populace untouched. While few made a lot of money, society at large did not taste the fruits of our IT success. The economic crisis has shown that a society that allows disproportionate income distribution is hurt the most in times of trouble and its recovery is only superficial if measured in terms of numbers and not according to the criteria of human security and development.

So the industry is at a crossroads. It faces challenges both to the way it operates as well as on the larger issue of how it contributes to the economy and the society. The economic crisis has brought out shortcomings within the IT sector. It has the power to change the society for the better like no other sector. Will it turn a crisis into an opportunity to strengthen its operational capabilities and reach out to many?

The Next Level

Business acquisition and the better use of manpower have stood the IT biggies in good stead. The comparatively smaller but no less enterprising companies have started to use M&A in their lexicon.

Seeking out new customers has helped as old clients are

still holding tightly to their budgets. For instance, TCS won 10 deals worth over USD 100 million in the last recorded quarter and added 11 new clients. For Infosys, revenues increased with 35 new clients. Mergers and acquisitions in developed countries like France, Germany and Europe will reduce the sector's dependence on the US market, which accounts for 60 % of the revenue for India's software companies. But even in the US, as Forrester Inc. predicts, that the US companies will start spending on IT from the December quarter. Companies have also entered into strategic partnerships like HCL with South Africa's UCS group's enterprise solutions SAP practice on retail sector. Cognizant has agreed to acquire UBS India Service Centre Private Limited (UBS ISC).

So the pickings are in no way slim. The value of the rupee has ensured a stable price guideline for deals and transactions with foreign exchange contributing to growth. These deals will enhance our global delivery capability, productivity, quality and operational efficiency.

Many IT professionals, especially from the sales and marketing divisions, fear that they will be axed if they fail to win contracts. This cut throat manner might actually harm the competitiveness of the sector and might be unproductive as people might resort to unethical practices to swing a deal. Performance incentives and stable salary motivate the workers. Big

companies have done this and are now hiring more workers. For instance, TCS will take in around 8000 trainees in the October-December quarter and Infosys plans to have 18,000 new employees for India.

The renewed focus on domestic market is also yielding dividends. The Indian industries have started spending heavily on IT services and products with some deals worth USD 50 to USD 100 million. Business enterprise solution providers can also cash in on this tendency to target the domestic customers. Springboard Research as estimated that the market for enterprise networking equipment will grow to USD 1.7 billion by 2012. Hardware revenues have also increased.

Corporate governance has added a new and a pretty big customer to the IT industry: the government. From maintaining its database to getting into its every day work

operation that impacts people's lives like internet banking, booking travel and hotel stays online to relaying one's grievance directly to one's political representative via the net, has widened the scope and impact of technology in our daily life. The government is a bankable credit-worthy client once it signs a deal.

An interesting trend is the change in perception of Indian IT as the leader of lower room back-end operations to an innovator. How much are we investing on R&D? Our products can offer the client value for money and reduce operational costs. Knowledge Process Outsourcing (KPO), Engineering Service Outsourcing and Legal Process Outsourcing (LPO) have become extremely lucrative endeavours. Some other trends to watch out for are as follows:

We (Indian IT Industry) are a 20 year old guy earning 50 million dollars and contributing 6% to GDP, and having a family size of 2.3 million people.

— *Suparno Moitra, Regional Manager (East), NASSCOM*

- The shift away from fixed traditional pricing model to outcome based pricing where technologies, processes and supporting infrastructure are priced under one scheme
- Rise of Indian IT multinationals
- Moving away from cost arbitrage to enhanced value global delivery model
- Domestic concentration: The coming up of Tier II and III cities like Chandigarh, Ludhiana, Jaipur, Kota, Gandhinagar, Ahmedabad, Vadodara, Surat, Nagpur,

Vishkhapatnam, Mysore, Mangalore, Madurai, Coimbatore and Thiruvananthapuram as IT and ITES locations that offer higher savings in terms of administration costs, real estate and infrastructure costs, resource availability and low cost of living while having a good skill base.

- Retail, manufacturing and healthcare increasing their spending rather than BFSI
- Developing high-end products to rival the best in the world market
- Proper protection of Intellectual Property Rights bringing in confidence and trust

Microsoft, IBM and GE have already started to increase their workforce in the country. R&D is getting a boost with local and foreign (SAP, Oracle, etc) companies having



A BPO Centre

research divisions in the country. Dell, Cisco and Intel have also committed to increase their investment in the country. The breadth of services on offer, the ease of scalability and the global and 24/7 delivery capability have added to India's appeal as a destination to set a main base.

But infrastructure needs to be built to accommodate the needs of the sector. Any delay due to slow government decision-making or inadequate infrastructural facilities will lead to opportunity costs for the companies. Some other state or company will lure away clients. Software Technology Parks of India and Special Economic Zones have to be well-thought out and protected against disruptive politics. Tax and regulatory costs must not be such so as to undermine the competitiveness of Indian industries. Proper foreign trade policy, FDI and export promotion schemes will facilitate its functioning.

IT unlike other sectors is always on-the-go industry as it seeks to overcome technological obsolescence and maintain an edge in the highly competitive and rapidly changing industry. Innovation is the key and determination to produce brains and capability to innovate is the action plan. This brings in the social dimension to the forefront of list of priorities.

Increasing Access

The hotly debated issue on who gets to own spectrum and how transparent should be the tender process to contract its use made one thing clear: this is a vital resource where we all as gainers of information and participants in the connective social realm have a stake. Web services are a crucial component of IT. The proposal to roll out 3G is late but hopefully, this will spread throughout the country. Social networking sites have grown in popularity because they respond to people's desire to connect whether for business or for personal matters. Education through net has made specialized courses available to many who were denied these due to geographical, monetary and other constraints.

But there is a growing dissatisfaction within IT companies that have produced few products of their own. If we equip more people with the knowledge and an environment conducive to research and don't skimp on funds, we will be able to produce our own patented software and sell this to the world. Then we will truly be an information power. Otherwise we will lose our best brains to the West and other countries that offer them better opportunities.

Making internet available as well as technological know-how will connect the country and make e-governance a success. This will ensure quick work and accountability. The challenge is to educate people so that they can use these facilities. They can utilise technology to enhance the productivity of their work, especially rural communities can benefit as it will increase their reach and enhance their output. This will lessen income disparity and inequality. There are serious bottlenecks like divisive politics, regional disparity, lax governmental policies, corrupt local governance, etc. But the point is of technology as it recognises no difference. Instead, it reduces this as it gathers information, stores them and makes them available for use for anyone who wants it. Who controls the technology can create inequality. But if this is made available to all, the inequality is removed.

So how do IT companies battle their inherent problems and become prosperous again? What reputation do they need to build: as innovators or simply back office service providers? How do the benefits of technology percolate to the people? Answering or even attempting to answer these questions will lead to one assured result: If knowledge is power, technology will empower the people. An empowered people will lead to a powerful nation. Herein is the revolutionary potential of technology. ■



Global Networking

INTERVIEW

Ease comes from e-Sahaj

When people think rural, they should think Sahaj.

When rural people dream of something impossible they should think of Sahaj.

These are the key words of your organisation. So what are the domains of operation of Srei Sahaj?

Srei Sahaj has taken up the task of eliminating the undemocratic digital split between rural and urban India, under the NeGP of the Government of India. The organisation believes achieving its targets would create a better India and generate better economic avenues for deprived social groups.

The Government of India has a project called Common Service Scheme (CSC). According to this there should be one Panchaet for six villages or 10 thousand people tentatively, to make available one CSC within three kilometers from each village. To materialise these schemes Private Public Partnership (PPP) is the mode adopted. Private companies namely Srei Sahaj is opening centres in rural areas even in remote areas to facilitate connectivity and services to rural India.

How has e-village facility from Sahaj improved the quality of life in villages?

Rural people face harassments to avail facilities from government. If a rural person has to register his name for NREGA projects, he has to go almost 30 Kms. from his home, and to collect the payment he has to go to a bank say another 20 Kms. in another direction. Again for taking a birth certificate of his baby he has to come across a long way to BDO office. To make their life easier, Srei Sahaj e-village offers these kinds of facilities under one roof.

It offers digital device to provide current updates so that the people are not deprived. Suppose a poor farmer can come down to the centre to know the current market price of crops. Again people can study and get degrees through IGNOU, since we have collaboration with them and many more.



Lt. Col. Basant Sinha
COO Srei Sahaj e-village Ltd.

He spoke to BE about the activities of e-governance in rural India

A Common Service Centre (CSC) is operated by a Village Level Entrepreneur (VLE).

This centre makes sure that the villagers receive all the services with which their urban counterparts are already familiar. It is also an employment-generation opportunity that gives a full-time job to the VLE, thereby addressing the pressing unemployment problem of the country.

In each CSC, SSEVL is providing IT Hardware equipments like Laptops, Accessories, Multi Functional Devices, Hi-Speed Digital Cameras, DG Sets and UPS.

Rural India is going to rule India in the near future. You have a strong rural base in India.

What are your future expansion plans?

We want to scale half of India. Already we have 13000 centres and we have planned to launch another 28000 centres.

How would you compare e-Choupal of ITC with e-sahaj with Srei Sahaj?

E-Choupal of ITC follows procurement process for its own purpose while e-sahaj is based on a service model. The operating range and the degree of penetration in rural area is much higher.

Can the villages afford the services?

Why not? Most of the services are need and demand specific with a nominal service charge, and with saving of time and money for the rural individual.

For example – If an individual goes to the nearest district town for any service like railway reservation, any government certificate or submission of bills, he has to bear the transportation cost and many hours also. If the villager is a daily wages worker he will lose his one day's income also. That's why CSC comes into the picture which may help him in a better way. ■

How do you see the future of IT five years from now?



**R Chandrasekaran, President and MD
Global Delivery, Cognizant**

Technology will continue to be used in different ways. Like it was the manufacturing industry a couple of decades ago, it is the services industry that is going to drive the growth of the global economy in times to come. Information technology is going to play a very important role in service delivery. There is enormous growth opportunity for organisations that come up with innovative solutions leveraging technology. One of the greatest success stories of IT lies as much in our ability to carry or deal with data from anywhere in the world, as it is in the many ways of putting such data to use. For example, today's cardiogram machines and CT [computed tomography] scan machines have such a huge capacity to store images, and, once collected, these images are available for tele-diagnostics from anywhere in the world. Just as there are Internet kiosks today, it is conceivable that in the near future, you will have some of these clinical kiosks at roadside corners. You just walk in, get your scan done, and then be diagnosed by an expert sitting anywhere around the globe.

The next five years will be an extension of this power in areas ranging from telemedicine to remote diagnostics. All functioning equipment will be able to communicate constantly. There will be increased convergence between content, communication, and mobile access and delivery; with the result that content will be more ubiquitous. The other big change will be in the areas of cloud computing and virtualisation, which will open up numerous opportunities for increased collaboration, efficiency, high utilisation, productivity, and innovation. There is increased awareness today about the environment and sustainable development. This will lead to increased activity in the sphere of "Green IT" or environmentally sustainable computing or IT. We are already working towards servers that use far less energy than today. These efforts will yield compact servers or green tech machines. With less power requirement, huge data centres and centralisation will no longer be required.



**K Nanda Kumar
CEO, SunTec**

Convergence is the highlight today and we are seeing convergence of industries like Banking and Telecom to provide convergent services. This will lead to convergence of business systems to address the needs of growing businesses.

Service Oriented Architecture (SOA) has in the last year confirmed its status as a defining technology for the next decade. Research shows that more than 60% of the Fortune 500 organisations are



**Kamesh Ramamoorthy
COO, Ramco Systems**

Five years from now, Internet will be the medium through which all IT deliveries will happen. "Use IT anywhere, everywhere" is going to be the mantra.

There would be a very thin line of differentiation between hardware and software; every thing will be packaged in a single unit for convenience. "Software as a Service" which is the buzz these days would be a common phenomena and subscription model will take over the licence model.

Going forward we will not even realise that we are using IT services, it would just become the way of life and will penetrate in every aspect of our life right from cooking to watching TV.

either in initial planning stages of SOA implementation or will implement SOA in the next 10 months.

IP Multimedia Subsystem (IMS) architecture in IMS is one of the key drivers of convergence. IMS represents a key platform for future service provisioning and a long term investment future-proofing operators from risk in increased service sophistication and capacity requirements.

The line of differentiation between products and services is blurring. Software-as-a-service (SaaS), cloud computing are examples of hybrid solutions that are pitched as being less expensive and buyers are wanting them for more long-term strategic reasons like transparency into the cost structure of their IT delivery and less dependency on dedicated assets are key long-term benefits.

Products and services are more oriented towards customer preferences and personalisation. Value management will gain precedence with customer value, transaction values being the decisive factors for products and services offered by IT companies. I also envision an increased consumerisation of IT in the next five years.



Rajeev Gupta – President, Fujitsu Consulting India Ltd

Recent past has shown a tremendous surge in the Indian IT business. This has generated an optimistic environment in spite of the economic slowdown across the globe. India has not only maintained its position as the leading provider of cost effective quality IT services but has also shown a positive growth in recent years.

With expectations on the increase and the markets getting competitive by the day the industry needs to look at innovative ways in which to sustain and increase its revenues through larger geographic as well as technology spread.

The Indian IT industry will generate a significant employment in the coming years. Talented skilled workforce coupled with high end training institutes makes it easier for organisation to hire candidates who have the knowledge to deliver quality services. India also has a demographic advantage as compared to other emerging markets. The generation brings in innovative ideas, high levels of motivation and drive to deliver quicker results. Organisations can collaborate with the institutes to further customise trainings to suit the future needs of the industry. It's a change that needs to be implemented at earliest.

Simultaneously the government will have to step in as an enabler to address the infrastructure, supporting FDI's, rebates and subsidies where required especially in the rural sectors. We do see a positive step in this direction; however it needs to double up to meet the demand supply curve.

Many developing countries are using India as role model to grow its IT sector. India as a destination for IT offshore services is established and can just ascend here on. Its exports may have declined to US due to the sluggish market, but has explored new markets in the West Asia, South and Southeast Asia, Africa and local domestic markets. With urban India bursting at its seams, a lot of organisations see a potential in rural areas. This is exponentially a viable option to high infrastructure and manpower costs that are borne in the metro cities. With the right government support this may just happen sooner than planned.



**Harsh Hada, Executive Director,
'Web Development Company'**

What we have seen till date is just the tip of the iceberg in terms of IT applications influencing our day to day lives. Apart from the BFSI and Telecom sectors, not many domestic institutions have adopted technology to affect end consumers in India. The government of India is now embarking on various projects which shall see technology / IT impacting our daily lives in a much bigger way with the Unique Identification Number being one such project.

The IT Services industry is very developed thanks to the off shoring of work from large US and European corporations to India. 5 years from now, I expect the domestic market for IT services to be as big as or even bigger than our total IT exports. 3G roll out in India will see a huge convergence of the IT and Telecom industries and the consumer will truly be able to use his cell phone as his extended workstation.

What steps can be taken to ensure deeper penetration of IT among the rural people?



The biggest challenge to the growth of IT penetration in rural India is inadequate computing infrastructure. It is not impossible to surmount this. We all know what the PCO booth movement of the 1990s did to the cause of telephone connectivity across India. The promise of relevant and up-to-date information provided through multimedia services can transform these booths into happening info centres. Be it education and career opportunities, exam results, government schemes and services, health and legal advice and services, news, land records, market prices, weather forecasts, bank loans, and so on, there is enough and more demand for information in rural areas. This can be easily harnessed for viable social enterprises revolving around IT, which will facilitate IT penetration among the rural people.

The mobile phone revolution in India, which has helped technology reach the masses in a significant way, also needs to be tapped for improving rural access to information. With 450 million mobile subscribers—and counting—and 10-15 million subscriber additions per month, the highest anywhere in the world, the mobile revolution has well and truly taken over the Indian populace in astounding force. Mobile phones have managed to penetrate pockets where computers have not reached yet, so much so that the rural mobile subscriber base is expected to double in the next few years.

It is heartening that the government is actively complementing the mobile phone revolution by investing in WiMAX, the low-cost technology that overcomes the last mile barrier in providing high-speed, wireless broadband connectivity, especially in remote, sparsely populated areas. This will offer a substantial leg up to the efforts of the government to provide a range of e-governance and self-service applications aimed at making a meaningful difference to the rural population.

On its part, the private sector has undertaken several initiatives to take IT to the rural and underprivileged sections of society. However, the involvement of corporate organisations, both big and small, needs to increase. The initiatives need to outgrow their standalone isolation and

expand their demographic as well as geographic reach and scalability. It is equally important to measure and evaluate the outcome of these initiatives and make continual improvements and broad-base some of the benchmarks and best practices. This must be accompanied by efforts to build technical as well as functional capacities. Broader and more focused public-private partnerships can help accomplish this.

More IT services need to be targeted for sectors like agriculture with simple to use, easy interfaces through user-friendly devices (eg. Handheld devices for online banking) and better connectivity (WiMax, broadband).



As internet becomes an integral part of everyone's life, all mobile phones, including basic models should have internet accessibility by default. IT can be easily accessible via internet and is the most convenient and affordable way to create impact of IT application among rurals. Today mobile is reaching every nook and corner of India, the continuing penetration of mobile connectivity would bring IT and its real benefits in rural people's life as much as its there in urban scenario. The affordability and accessibility of mobiles would help penetrate IT in rural India and will help them in transforming their lives.

This apart, IT should be an integral part of school curriculum, it should be taught right from beginning to have the real time implications when it comes to its effective usage.

Government and organisation together will play a significant role in making rural India a major player in the future of IT industry. As IT sector is completely dependent on tele communications, high end infrastructure and manpower. In order to go beyond just internet cafes, the government needs to mobilise services like education, transportation and power. Encourage



usage of computers in schools and colleges, initiate public-partner relationships in developing new initiatives like e-choupal, learning programs can further enhance the usage and penetration of the digital medium in the rural areas. Encourage usage of IT in commercial sectors like banking and rural development schemes. With the emergence of mobile and WiMax technologies, we have the potential of further reducing the divide in Internet connectivity. This is a Herculean task and cannot be left to the government alone. This will need coming together of large conglomerates to recognise the potential of rural India and optimally use it.



The PCO booth needs to be replaced by Internet Kiosks across India. Also the Govt through the Sarva Shiksha Abhiyan programme should aim to make all children computer literate. By this I don't mean to suggest training each Indian child to be a Software Engineer, but providing basic computer education so that the child is computer friendly. This alone I feel can bridge the divide and ensure in 15-20 years that rural India adapts to technology.

E-Choupal brings light in rural life



S. Sivkumar

"ITC e-Choupal's mission is to improve the quality of life in rural India. We are able to build a winning solution for rural India, which leverages the capability of Monster in the employment solution space and ITC e-Choupal in the service delivery space. We have over 6,500 e-Choupals in 100 districts, spread across 10 states. While we have operationalised

60 districts in the pilot phase, we intend to expand to 5000 e-Choupal in 80 districts very rapidly with key states being Uttar Pradesh, Rajasthan, Madhya Pradesh. I believe this market will grow explosively in a couple of years." ... S. Sivkumar, Chief Executive, ITC Agri Division.

For software services, India has Wipro and Infosys, for social enterprises, it proudly presents two champions- Srei's E-Sahaj and E-choupal of ITC. Soyabean farmers in India have traditionally sold their products through ineffective and frequently dishonest physical marketplaces (mandi). Farmers are generally poor and often illiterate and are forced to be "price-takers" after an arduous journey to the mandi. They also have very limited access to information and education on farming techniques. E-choupal reaches right up to the primary producer, the farmer. Today 4 million farmers use e-Choupal to advantage – bargaining as virtual buyers' co-operatives, adopting best practices and matching up to food safety norms. Linkage to futures markets is helping small farmers to better manage risk. E-Choupal has been specially cited in the Government of India's Economic Survey of 2006-07, for its transformational impact on rural lives.

"Before ITC introduced us to e-Choupal, we were restricted to selling our produce in the local mandi. We had to go through middlemen and prices were low. ITC trained me to manage the Internet kiosk and I became the e-Choupal Sanchalak in my village. Today we are a community of e-farmers with access to daily prices of a variety of crops in India and abroad – this helps us to get the best price. We can also find out about many other important things – weather forecasts, the latest farming techniques, crop insurance, etc. e-Choupal has not only changed the quality of our lives, but our entire outlook" said Abhishek Jain, Soya Farmer and e-Choupal Sanchalak of Madhya Pradesh.

E-choupal	Now	Next 5 years
States Covered	10	15
Villages Covered	40000	100,000
No of e-choupals	6500	20,000
Farmers E-empowered	4 million	10 million

Source : ITC

Do you think IT application can be widened in India to develop agriculture on top of communication?



We see some encouraging early steps in this direction, like ITC's e-choupal initiative that is helping farmers avail of the best price for their produce, the latest farming techniques, crop insurance, and so on, or villagers in a part of Madhya Pradesh using local cyber-kiosks for market updates and landholder records, or sugarcane farmers in a district of Tamil Nadu using a Wireless Local Loop system to check their accounts with a local sugar mill and market prices of fertilisers and pesticides. However, more needs to be done to harness the full potential of IT in the Indian agriculture sector on a large scale.

Be it facilitating precision farming at the farm level or providing support to policymakers for efficient decision-making, IT can be leveraged optimally for the agriculture sector only through a concerted collaboration between industry, government, and educational institutions and research centres. It is imperative to encourage IT-based agricultural services alongside the development of IT communication infrastructure in agrarian segments. Only once this happens would it be possible for us to unlock the benefits of information systems, productivity-enhancing

applications and Internet-based technologies for the field personnel. Mobile telephony is leveraging the power of IT to realise agricultural applications centred on requirements such as weather and pricing. This is a trend that is likely to gain further momentum in the coming years as farmers derive tangible gains from these initiatives.

Yes we need to widen the application of IT in India especially in the agriculture sector using the ICT infrastructure. The biggest challenge is the mobilisation of human resources for formulating and execution. Besides the technological benefits, I feel IT would play a major role in mitigating corruption. We need to consider how political and economic institutions such as the panchayats, women's self-help groups, and farmers' water cooperative societies could be utilised for the purpose. But having understood and prepared viable project plans as part of various states' e-governance initiatives, IT application can bring a win-win situation for many governments, and help them penetrate into the rural community as well.



Few sectors in rural India like Punjab are using IT services in the agriculture sector. Its consistent effort to increase its GDP has been commendable. Certain sections within the agriculture industry like the dairy industry have seen a high usage of automated processes. The entrepreneurial initiatives in the agriculture sector per se have opened doors to innovative ways to optimising resources and at the same time increasing efficiency and productivity. In the domestic market, agriculture alone can be a large consumer of IT services in the coming years. It will use high end services right from ERP to largely automated machinery.

Already the e-Chaupal project of ITC is impacting rural India. With the complete roll out of this project as well as other similar projects (Srei Sahaj - e-Village project) more of rural India will see IT impacting their daily lives. If each and every village of India can have one single Internet Kiosk, the agricultural sector can really be impacted.



Yes. Enterprises should focus on creating more and more software and services, which would increase the efficiency of agricultural activities such as trading and production. Recently we have provided a solution for Warana Sugars, a leading sugar factory in Maharashtra, which helps them in their cane accounting process. Such initiatives will take agriculture industry to the next level. IT will bring in the process and systems and will help the farmers in reducing the manual dependency. We need to enhance the efficiency in agriculture sector and the effective usage of IT applications is one of the fastest and easiest ways to do so.

In addition, more companies should replicate the initiatives like ITC e-Choupal (supported by Ramco Systems), which enables direct trading by farmers to get the best returns for their produce. Over 300 plus concurrent users and 450 named users are benefiting from this software. Following the enthusiastic response from farmers, ITC has planned for the extension of e-Choupal to 15 states across India, over the next few years. ■

— As told to BE's Abhijit Ganguly



Ashish Kr. Sen
Executive Director, Acclaris

How do you see the future of IT five years from now?

I see a great future of IT because it is no more restricted to serving the developed nations but playing a crucial role towards economic upsurge of the developing countries too. Since, information is the base for the success of all sectors - be it Social or Commercial; Research or Educational, IT's role will be more and more critical over passing of time. It's widespread use

is expected to generate more employment, lift up basic education, enhance overall living standard, so on and so forth. I would like to see IT taking a lead role in minimizing the environmental threats across the world by enhancing automation in various fields, saving human life and wealth by accurate EWS, combating global security threats with robust Security Management systems.

What steps can be taken to ensure deeper penetration of IT among the rural people?

IT explosion is not likely to sustain only through urban based resources. Therefore, penetration of IT in rural base is an absolute necessity and that could be done through Awareness, Education and Exposure. This requires adequate support and collaborative efforts from the Government,

Institutions and Corporate Houses. Enhancement of IT base in Tier -3, Tier 4 cities surrounded by villages seem to be another logical step for penetration of IT amongst rural people.

Do you think the application of IT can be widened in India to develop not merely communication but such sectors as IT?

If I understand your question correctly you wanted to know whether the scope of IT can be widened beyond communication and impact other sectors or not.

Information is the base for decision making, forecasting, driving operational proficiency. IT embraces the



technologies that are capable of generating, manipulating and presenting information in most desired and fastest possible way.

Therefore, no sector can achieve desired success without internalising IT. The applications of IT has already spread over sectors like Education, Healthcare, Infrastructure, Construction, Entertainment, Manufacturing, Services etc. and contributing largely is to derive efficiency as well as scaling up operations. ■ BE Bureau