STRATEGIC ISSUES IN TRAINING AND DEVELOPMENT IN THE IT SERVICE INDUSTRY AT KOLKATA REGION: A STUDY

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School of Management Studies
Indira Gandhi National Open University
New Delhi
India

Dedicated to

Tsunami Victims

And

My Beloved Parents

Who Are Always in My Heart and Soul

CERTIFICATE OF ORIGINALITY

This is to certify that the dissertation titled "*Strategic Issues in Training and Development in the IT Service Industry at Kolkata Region: A Study*" is an original work of the Student and is being submitted in partial fulfillment for the award of the Master's Degree in Business Administration of Indira Gandhi National Open University. This report has not been submitted earlier either to this University or to any other University/ Institution for the fulfillment of the requirement of a course of study.

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ABSTRACT

Present study deals with training and development strategies in IT service industry in Kolkata region. This study highlighted present trends and common practices in training and development activities in specific and in human resources management in general.

InfoTech sector is a thrust area of economic development in developing economies, like in India. Government and private joint initiatives make this sector a sunshine industry sector. Potentials of human resources explore in the professionally managed IT service companies. The training and development activities strengthen capabilities of IT service companies and help them to achieve excellence. Present study evaluated the heart of this knowledge industry, which centered on knowledge workers. Present study briefly elaborated the training and development practices of two top-ranked companies in Kolkata and found some unique modes of delivery of training. This study also pointed out that companies placed in higher value-chain have long-term vision as compared to ones in lower in value-chain.

PREFACE

This report is a modest attempt to study a sunshine industry in India and particularly in Kolkata region, within a limited timeframe and resources. The findings and observations are based on my understanding on the industry profile in respect to the training and development practices.

The companies operating from Kolkata are placed in different levels in value-chain, where the top revenue earning companies are placed in highest value-chain and others are moving up the value-chain. Similarly, different companies are targeted to different market segments, like, domestic market and international market segments. Thus, their training and development practices and policies are significantly different.

The companies surveyed here sometimes could not share information, which are confidential in nature. Also there is limited statistics with the respondents, as most training programmes are organised for the requirements of particular projects.

The information technology (IT) service industry sometimes refers as IT industry or software industry or InfoTech sector. The term is used here interchangeably.

The study report is presented here in chapters. The chapter one introduces basic concepts and industry profile in India and in Kolkata region. Chapter two states the objectives and methodology of this study. Chapter three represents analytical general discussions on results and findings, and depth study of two cases. These two cases represent some unique features of their training and development practices. These companies are placed in higher value-chain and thus their training objectives are much focused for the growth of the companies. Chapter four concludes the study and suggests a future direction for further growth of the industry in Kolkata. At the end a list of references and two annexures are appended.

CONTENTS

1.0 Introduction

In *The Third Wave*, Alvin Toffler [31] divided history into three major eras, or waves. The first wave, from 8000 BC to 1750 AD was termed the agricultural revolution, and was based on farming as the world's primary occupation. In the second wave, from 1750 to 1955, the rise of industrial civilization and the industrial revolution, manufacturing became the main occupation and the developed world was engaged in or moving toward mass production. The third wave, which began in the mid-1950s, is sometimes referred to as the information age or the information revolution and is based on the delivery of services. Important to note from Toffler's viewpoint is that all human society was profoundly transformed with each wave, and that the transition to the next wave was never easy.

What Toffler envisaged yesterday, we can see it today in proliferation of knowledge-based industries as well as service industries not only in developed countries but also in developing countries like India. Countries like USA, UK, Germany were ahead in third wave, which started after the World War II. Many knowledge-based industries emerged in these developed countries due to concerted efforts of advanced research, development and entrepreneurships. These nations nurtured talents and attracted creative and visionary people to establish knowledge-based economy. That is, the enterprises, which have superior knowledge resources, have tremendous growth opportunities in global markets. They became the trendsetters and followed by many others.

In India large-scale industrial growth started few decades ago mostly after independence. India's first Prime Minister Jawaharlal Nehru had futuristic vision to build-up a self-sufficient nation. He also initiated many science and technology institutions and research centres for making the nation superior in scientific and technological knowledge. In 1980s we have also observed the green revolution, which made India self-reliant in food grains. Though first two waves came in India

very lately, the third wave has already knocked the doors. But it is very limited to a few privileged states in India, particularly centered on metro cities, which have basic infrastructure to host the knowledge-based industries. Now, India is in transition to replicate the success stories of knowledge-based industries in every corners of the country. Government of India provides supports to state governments to establish knowledge-based industries in each state by promoting software technology parks, biotechnology parks, export-processing zones, and so on, beyond the metro cities. The IT industry in India is growing faster than other knowledge-based industries and manufacturing industries. On the other hand, the IT-enabled services (ITES) industry, which includes business process outsourcing (BPO) sector that deals with customer care, customer services, telemarketing, medical and legal transcriptions, back-office financial services, e-learning, etc., is growing much faster than other industry segments. But in terms of value-additions, IT industry is much superior than ITES industry. But ITES industry requires a huge pool of English-speaking manpower, which India has a plenty. IT industry also makes it possible of reverse brain drain. Earlier, a large number of graduates of India's top institutions used to choose jobs in developed countries resulting in wastage of government expenditure in such institutions. Now a day, a considerable number of graduates of such institutions get absorbed in companies based in India due to coming of the third wave in India. Employment generation is another key strategic issue in India that also can be efficiently addressed through establishment of service industries.

India is a hot destination for IT-based industries not only for cost savings, but also for talented human resources and their leadership capabilities. Indian IT companies undertake human resources development programmes through various training initiatives for knowledge and skills acquisition to their human resources. Most IT service companies have addressed strategic issues in human resources development more progressively to sustain in competitive global markets and also to retain their valuable talents for future growth. This industry adopts frequently changing IT environment that requires new sets of skills and

business intelligence. Thus, training and development in this industry is particularly very important. The IT companies in India spend a good amount of financial resources to keep their manpower update and to equip with latest skill sets and business knowledge. Sometimes this amounts to a percent of their revenue earnings. The top twenty Indian IT service companies spend about 5% of their revenues earnings on average [7].

The impact of third wave would be much greater than the other two waves. The knowledge-based economy is already established in some developed countries, which is not far away from India. According to a statement by India's minister of Communications and Information Technology Dayanidhi Maran in December 2004, "It is expected that IT software and service exports will account for 30% of all foreign exchange inflows in 2008 from the figure of 8% currently" [11]. It is also expected that the share of Gross Domestic Products (GDP) from service industries will exceed the manufacturing industries within next few decades.

1.1 Training and Development in IT Industry

Today's diversified workforce in knowledge-based industries witnesses its evolving job demands and its changing skills and knowledge that are quite different from manufacturing industries. Today's society is enmeshed in an information revolution and the goal is not to train workforce to adapt to existing jobs, rather the goal is to enable the workforce to adapt to changing jobs. Today's IT service companies have downsized and flattened organizational structures, that is, they have fewer middle-level managers. The IT professionals are more autonomous and the work environment itself is more exciting than other industries. Jobs descriptions tied to narrowly defined tasks become almost obsolete. Individual professionals are very quality conscious, and they know that quality is a key to sustain in the competitive global marketplace. These individual professionals need to be more responsive, faster at innovation, flexible and highly trained.

The way to respond to the demands of change is to create a learning organization. In the learning organization, the organization itself learns not only from its former errors but also from its past successes. In the learning organization, the rewards for success are high and the risks of failure are low, thus encourage people to try something new, something innovative. In the learning organization, individuals are empowered to do their jobs well and creatively. Individuals with this freedom are more committed to their jobs, take more initiative, and have a broader sense of responsibility in their work.

To create learning organization mandates, IT service companies invest a substantial amount to training and development function. Sometimes IT service companies impart high-end training to their key personnel, which cost them a portion of their revenues. This phenomenon also recognizes the IT professionals

as high-worth human capitals. The organizations measure the return on investments (ROI) for training and development function not only from the viewpoints of revenues earned, but also from viewpoints of the rate of retention and rate of attrition. If the high-worth human capitals cannot be retained on long-term basis, the particular company may have pessimistic impact on revenue earning and company image to the clients.

Training facilitates development in the perspectives of individuals as well as in the perspectives of the company. Individuals acquire knowledge and skills to be in forefront of the designing or implementing teams. Their knowledge and skill sets would become in much demand within the industry, so the individuals are going ahead in their career after training along with experience. Sometimes, acquired skills and knowledge become so precious, companies tend to retain these individuals and create space for growth across careers. Training leads the company in achieving clients' confidence through quality products and services. The latest development in the technological landscapes can be incorporated into clients' systems. This way, clients can fulfill their organizational goals and objectives after implementing the systems.

Training in the IT service industry is one of the essential functions that require focused strategies and policies. The IT companies want to create corporate culture in training and development in achieving organizational excellence. They undertake training needs assessment (TNA) process on regular basis. TNA means searching out and discovering who in the organization needs to learn what and with what priority. The questions that must be asked of people in an organization to identify learning needs must begin with business plans and projects and ideas about strategic direction. TNA requires a systematic approach to identify what the professionals of an IT service company need to learn in order for the company to achieve its goals. In most IT companies individual professionals have to develop their skill sets as and when needed. In some companies, individual professionals participate in training programmes on regular

basis.

Companies provide various kinds of training to individual professionals, like induction training, soft-skills development training, IT skills development training, quality assurance training, managerial skills development training. There are classroom training, on-the-job training, computer-based training (CBT), web-based training (WBT) and other training methodologies that are adopted across the organizations. But in India classroom training and on-the-job training are more popular. CBT and WBT are e-learning methods, which are becoming popular in IT service companies.

Some training programmes are conducted within the organization involving either internal trainers or external trainers or mixed of them. This is again conducted within a region or within the country or in a global office located abroad. Some big IT service companies in India have established training institutes for their respective organizations. Some of them are: Infosys Leadership Institute (Infosys Technologies), Tata Management Training Centre (Tata Consultancy Services), Wipro Academy of Software Excellence (Wipro Technologies), Relnis Academy (Reliance InfoComm), Cognizant Academy (Cognizant Technology Solutions) [8]. Most of them are engaged in providing training not only on core IT skills, but also on managerial skills to make the respective companies achieving their long-term objectives. These training centres conduct tailor-made training programmes appropriate for the organizational requirements.

Some IT companies organize training programmes through external training centres. These centres conduct training courses on behalf of these IT service companies adopting industry standards and engaging expert trainers. They sometimes conduct international certification programmes for specific skill sets, like, Oracle Certification, Microsoft Certification, Sun Certification, etc. Sometimes the IT service companies sponsor their professionals into short-term training courses and management development programmes conducted by

reputed institutions, like, Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), Indian Institutes of Information Technology (IIITs), National Institutes of Technology (NITs), etc. [9]. This way companies facilitate overall development and growth of the organizations and create new leaders to face the challenges in the competitive global marketplace.

1.2 Overview of IT Service Industry in India

India's IT service industry presents the case of an internationally competitive high-tech industry from a developing economy. This industry has both climbed up the value chain and grown in technological sophistication, and now spans a broad array of emerging services and technologies. India has competitive advantages over the other developing countries for IT services outsourced from developed nations. This leads to export-oriented growth in this sector, which accounts for about 10% of total export earnings [11]. From its genesis in simple coding and "body-shopping", India's IT exports have gradually climbed up the technological ladder even as they have diversified their geographical and market segments. More recently, opportunities in IT-enabled services and remote processing - from medical transcription to insurance claim processing, from payroll and human resource services to customer interaction services, data digitization and geographical information systems, call centers, digital content and legal databases and online education - have emerged as the most dynamic drivers of the technology-led services industry in India. Offshore back-office operations now encompass not only routing clerical tasks but also highly skilled professional activities drawing on India's large pool of skilled as well as semi-skilled professionals with relative cost advantage.

India has attracted top notch IT companies across the globe to establish their base for technology development. Almost all the major US and European IT firms have set up software development and R&D centers in India, especially in Bangalore. All major IT players found a mature place in India to develop their high quality, innovative, high worth IT products from Indian development centres. Some of the important multinational IT companies that have development centres in India are likely: Microsoft, Oracle, IBM, Texas Instruments, SAP Technologies, Siemens, Intel, Google, Yahoo!, Adobe, etc. On the other hand, many Indian

transnational IT service companies emerged in last three decades to offer world-class IT products and services across the world. These Indian companies intelligently utilise the positive network and reputational effects of the "brain drain" and the Indian Diaspora (especially in Silicon Valley) for getting businesses from the reputed organizations. These companies negotiate with the global top-notch companies for their IT solutions and support services. These companies develop high quality solutions and services from Indian development centres for their clients with relatively low cost.

Quality Assurance in India

The Indian IT service industry offers IT solutions to some top-notch global organizations to increase their productivity in order to generate more wealth. The IT companies adopt very stringent quality norms in IT development, so that they can offer high quality, very competent IT products, services or solutions to their client organizations. Otherwise the IT companies in India cannot sustain in the competitive global markets, where competition arises from other low-cost countries. Most companies operating from India have adopted international quality norms, and obtained one or more international quality assurances certifications, like, ISO-9001 family of standards. But, merely holding ISO-9001 certification does not ensure that the IT service company offers quality products or services to highly competitive marketplace.

Most significant measure for software development companies, is the Capability Maturity Model of Software Engineering Institute (of Carnegie Mellon University), which gets reduced to SEI-CMM, SEI-CMMi and SEI-PCMM. There are five levels of maturity, with a maturity level being a well-defined attainment that points toward achieving a mature software development and support process. The highest level is SEI-CMM Level 5. India claims to have had the first companies to achieve that level of maturity, and still have highest percentage of such companies. India's top 20 IT companies and few others have achieved *Level 5* quality compliance, either in CMM, CMMi or PCMM. These Level 5 companies in India have already moved up the value-chain [11]. Whereas other IT service

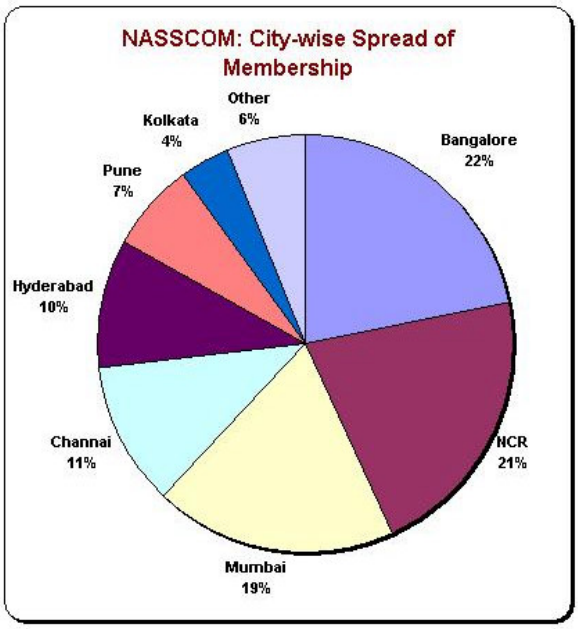
companies are comparatively low in value-addition but slowly moving up the value-chain.

India government undertakes many initiatives to promote IT service industry in the country; one such is establishment of software technology parks (STP) in various cities. More than 15 STP centres have already been established since 1990. STP is a 100% export oriented scheme for the development and export of computer software including export of professional services using communication links or physical media. The unique feature of STP scheme is the provisioning of single-point contact services for the member units enabling them to conduct export operation at a pace commensurate with international practices. This scheme facilitates software export industry in general and small and medium enterprises (SMEs) in particular, thereby accelerating the economic growth of the country by maintaining a competitive edge in the global market. Software Technology Parks of India (STPI) was set-up in 1991 to implement the STP scheme for the promotion and advancement in IT exports by providing general infrastructure facilities like ready to use build-up space, centralised computing facilities and high-speed data communication links [13].

National Association of Software & Service Companies (NASSCOM) is an umbrella organization for IT services companies and IT-enabled services companies in India. As on 31st March 2004, more than 860 IT companies in India are members of NASSCOM. The combined revenue of NASSCOM member companies constitutes almost 95 percent of the revenue of the IT software and services industry in India [23]. The membership profile ranges from privately owned companies to public sector companies. Membership includes domestic IT companies as well as multinational companies operating in India. The wide range of member companies gives NASSCOM the strength and diversity to represent the industry with authority. But, many small IT companies are not members of this association due to some reasons or others. Figure 1 shows the city-wise distribution of NASSCOM membership, which reveals that Bangalore has more

IT firms in India, followed by Delhi region (NCR) and Mumbai. On the other hand, Kolkata contributes only 4% of total membership. This Figure indicates only the head-offices of IT firms, not the location of development centres.

Figure 1



There is no single official statistics on IT service revenues in India. Ministry of Communication and Information Technology provides an official statistics, which is given in the Table 1 [13]. The Table shows that India is growing faster in IT service exports, especially in software and offshore services. NASSCOM asserts that its member companies are responsible for more than 90% export revenues [23]. On the other hand, STPI claim that its registered companies are responsible for more than 80% IT services export revenues [13]. This happens due to most companies are members of both the organizations. In 2003-2004 the Indian Top 20 IT Companies earned US$ 10.2 billion in revenues out of total revenues of Indian IT service industry US$20.4 billion [11]. The average annual growth rate of IT service industry in India is 24%, which is largest among the developing countries.

Table 1: Software Production in India (Financial Year)

Year	1998 - 1999	1999 -2000	2000 -2001	2001 -2002	2002 -2003
Domestic Software (Rs. Crore)	4,950	7,200	9,400	10,874	13,400
Software for Exports (Rs. Crore)	10,940	17,150	28,350	36,500	46,100

1.3 Overview of IT Service Industry in Kolkata Region

The development of IT service industry in India is not limited to a few cities, like, Bangalore, Chennai, Mumbai and NCR (Delhi Region). This industry proliferates in other cities, where state governments are making efforts to attract investments. It is true that Left-front-ruled Government of West Bengal was rather late to realize the importance of promoting IT service industry in West Bengal, particularly in Kolkata region. Now, they are attracting investments in IT sector, especially software development industry and ITES industry, by formulating investors' friendly IT policies. The government of West Bengal is pulling out all stops to showcase the potential of Kolkata as an IT destination. Banking upon Kolkata's low cost of operations, large talent pool, low attrition and wage rates, abundant power and excellent infrastructure, the West Bengal government is hopeful that it would be able to attract hordes of IT and ITeS companies to the city. Tata Consultancy Services (TCS), Cognizant Technology Solutions (CTS), IBM Global Services, Wipro Technologies, Siemens Information Systems, CMC Limited and The Chatterjee Group (TCG) have already established a presence in Kolkata and many of them have definite plans to expand their operations here. Although, national companies like TCS and CMC Limited came in Kolkata long before the government's awakening. The GE Capital, Wipro Spectramind and Reliance group are in the process of building facilities in the city. West Bengal is the first state in the country to declare the IT industry as a public utility service. Kolkata has more than 180 IT companies, consist of multinational companies and Indian companies, employing more than 15,000 IT professionals [15]. IT industry in West Bengal hopes to earn 10% of the country's revenue from the information technology sector by 2006-07 and 15% by 2010.

A software technology park (STP) has already been setup in Kolkata in mid 1990s. STP-Kolkata is a joint venture of Webel, an agency of Government of West Bengal and STPI, a Government of India agency. The IT industry is growing beyond Kolkata district in surrounding areas. Two new infrastructure parks are in the process of being developed in the state, which will together account for 140 acres of area for the IT industry. Now, we can have a glace of available infrastructure:

Saltlec: In the infrastructure sector for IT industry, the integrated *Salt Lake Electronic Complex* (*Saltlec*), at Salt Lake, Kolkata covering an area of 150 acres, provides a high-tech, pollution-free industrial zone. Over one hundred and sixty companies employing 12,000 IT professionals are located here. Presently, the total built up space in the *Saltlec* is around 7 lakh square feet. Another 15 lakh square feet is expected to be added in the complex in next two years [15].

STP-II: A *Software Technology Park-II* building, developed by Webel, with an area of 70,000 square feet hosts some IT service companies. An additional 6000 square feet will be added in *STP-II*.

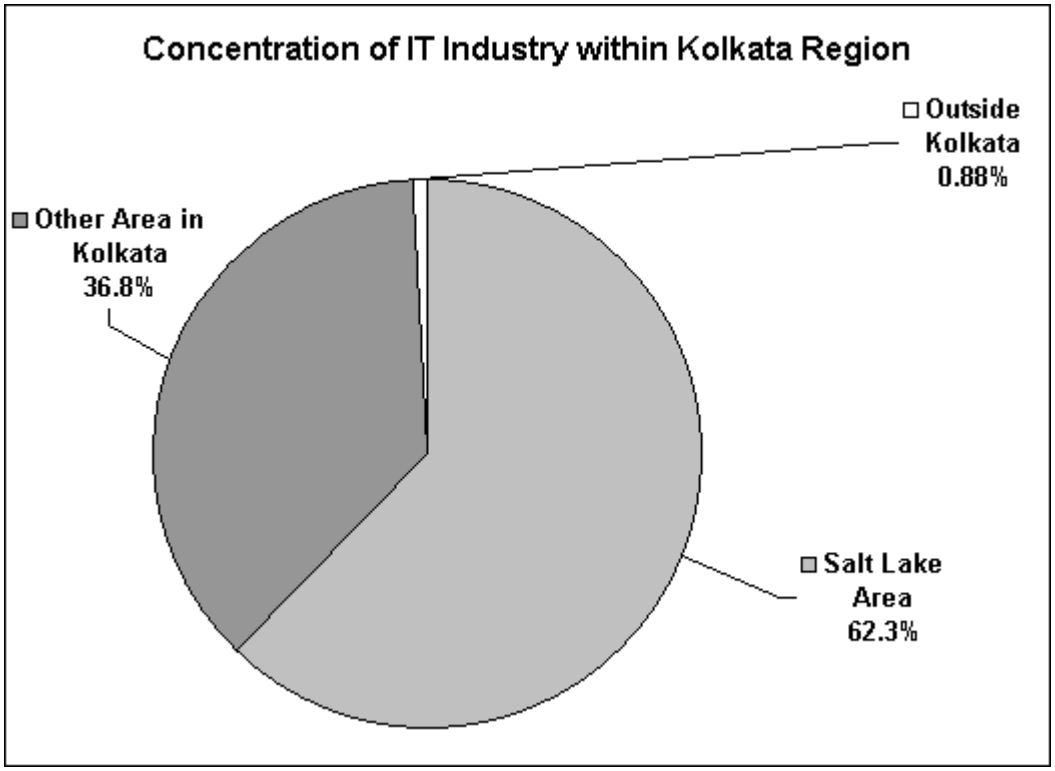
Bengal Intelligent Park: The first phase of *Bengal Intelligent Park* covering a total area of about 50,000 square feet hosts some other IT service companies. The Chatterjee Group of companies, like, TCG Software Services, Skytech Solutions, CA-TCG Software, TCGIvega and LavVantage, are operating from this park.

New IT Complexes: Many new IT complexes, which will support the entire range of IT related activities, are coming up near Salt Lake, Kolkata. These are developing very rapidly to meet the demands of office spaces for the IT service companies.

The Earth Stations, telecommunication linkages through optical fibre cable system, broadband connections, etc. are parts of the packages of infrastructure in Kolkata region offered to the IT service companies for high-speed connectivity to a wide range of end-users. Now, the industry proactively drives the development initiatives in Kolkata region much faster than a decade ago.

The Figure 2 depicts the concentration of IT industry (*STP-K*-registered) within Kolkata Region in 2004-2005, which shows most IT service companies are located at Salt Lake area. This figure will be definitely changed after five years, when new IT complexes in surrounding areas beyond Salt Lake will be fully operational.

Figure 2



Source: www.itwb.org (as on 31/12/2004)

The Table 2 shows the top ten IT service companies in Kolkata Region. This list is prepared by the Government of West Bengal in terms of number of employees and revenue earnings of the companies. Most companies present in this region are Indian companies having global presence. Compared to Bangalore, Kolkata has been chosen by a few multinational companies to open development centre there due to some reasons or others. Some other top ranked Indian companies, like Infosys, i-Flex Solutions, and HCL Info, have no presence in Kolkata. Some apparent reasons might be: low pool of highly talented and creative manpower; lack of leadership zeal; low pool of mentors in the region; medium pool of highly

proficient English-speaking manpower; *bandh-gherao* culture of political parties and trade-unions; late planning and policy making by the government; government's apathy in modernizing technical and higher education; negative growth in manufacturing industries; red-tapeism and lack of work culture in government offices; beside some others.

After two decades of IT brain drain, Kolkata has started nurturing talent of local IT professionals. Now some local IT professionals, who had to leave West Bengal, are coming back to Kolkata to engage in better jobs or to hone entrepreneurship skills. One can observe a reverse brain drain has already been started in this industry segment in Kolkata. Many professionals, after gaining experience in Silicon Valley in USA or other high-worth places, are presently engaged in Kolkata in some flagship IT projects.

Table 2: Top Ten IT Service Companies in Kolkata Region

Name of the Company	India Head office located at	Quality Level
1. Tata Consultancy Services	Mumbai	SEI CMM Level 5
2. IBM Global Services India Pvt Ltd	Bangalore	SEI CMM Level 5
3. Cognizant Technology Solutions Pvt Ltd	Chennai	SEI CMM Level 5
4. Computech International Ltd	Chennai	SEI CMM Level 5
5. UshaCom India Pvt Ltd	Kolkata	SEI CMM Level 5
6. CA-TCG Software Pvt Ltd	Kolkata	SEI CMM Level 4
7. TCG Software Services Pvt Ltd	Kolkata	SEI CMM Level 5
8. Skytech Solutions Pvt Ltd	Kolkata	SEI CMM Level 5
9. Ontrack Systems Ltd	Kolkata	ISO 9001:2000
10. NIIT Ltd	New Delhi	SEI CMM Level 5

Source: www.itwb.org (as on 31/12/2004)

Home-Grown IT service companies

Kolkata has been development centre not only for few multinational IT companies and India IT companies (originated from other cities), but also for home grown companies. Out of top ten IT service companies in Kolkata region five companies are homegrown, i.e., having head-office in Kolkata [Table 2]. This

also indicates that Kolkata region has entrepreneurship capabilities, which make the homegrown companies as much competent as its counterparts, say, Indian companies (originated from other cities) and multinational companies. Table 3 shows a list of NASSCOM member companies, which have head-office in Kolkata. This amounts to four percent of total memberships of NASSCOM [Figure 1]. The number of STP-Kolkata-enlisted IT service companies is nearly 160, including some ITES companies [15]. Most of them are homegrown. Some companies are also doing business with domestic markets, mostly in e-governance, corporate governance and ICT applications for various areas of development. But majority stakes lie in international markets. Most of them are engaged in IT service including software exports. The market growth rate in this region in IT sector is much higher than India's average.

The Table 3 shows the list of Kolkata-based NASSCOM member companies, nay, having head-office in Kolkata. This consists of only 4% of overall NASSCOM members [23]. Many top-ranked companies have set up development centre in Kolkata, but their India head-offices are located elsewhere. There is another concern that only few world-renowned IT companies have development centre in Kolkata. For example, Intel Corporation, Sun Microsystems, Microsoft Corporation, Oracle, SAP Technologies, Texas Instruments and many other top-ranked international companies could not turn up in Kolkata, although they have presence in India.

Table 3: Kolkata-based NASSCOM Member Companies

Sl. No.	Name of the Company	Specialization
1	**Aces Infotech Pvt Ltd** (www.acesinfotech.com)	School Computer Education (including Turnkey Projects); Corporate IT Training; Software Development; IT Courseware Planning & Development; Hardware Service / Maintenance & Sales
2	**Apt Software Avenues Pvt Ltd** (www.aptsoftware.com)	Software Development for hand-held devices and J2ME phones Internet based applications; Software testing and quality assurance; VLSI; CAD
3	**CA-TCG Software Pvt Ltd** (www.catsglobal.com)	Product Software Development; Product Software Porting; Product Software Maintenance (L2 Support); Product Software Testing
4	**Celcius Technologies Pvt Ltd** (www.celciustech.com)	Software Development; Application Services Provider
5	**Data-Core (India) Ltd** (www.datacoresystems.com)	Software Development; Data Processing and conversion; Turnkey Projects; Engineering Consultancy
6	**DPS Technologies India Pvt Ltd** (www.dpsindia.com)	Software Development; IT enabled services; Business Process Outsourcing; Transaction Processing; CAD and GIS services; Litigation support services
7	**eForce India Pvt Ltd** (www.eforceglobal.com)	Software Development; Onsite Services; Offshore Services, Consultancy & Projects; System Integration; Internet & e-Commerce
8	**Globsyn Technologies Ltd** (www.globsyn.com)	Training and Development; Software Finishing School; Infrastructure Development; Project Management
9	**Hamilton Research & Technology Pvt Ltd** (www.hamiltonresearch.com)	Turnkey solution for industrial control and communication system; Embedded controller adapted to different applications
10	**Infinity Infotech Parks Ltd** (www.infinityitpark.com)	Infrastructure provider for Software, Telecom & IT Enabled Services
11	**Infovision Software Pvt Ltd** (www.infovisionsoftware.net)	IT enabled services; Business Process Outsourcing; Transaction Processing
12	**Intrasoft Technologies Pvt Ltd** (www.itlindia.com)	Internet related services; IT-enabled Services; Web Content / Software Development; Back-end programming and Transmission of data
13	**Labvantage Solutions Pvt Ltd** (www.labvantage.com)	Laboratory Solutions; Software Development; Consultancy & Projects; Bio-informatics
14	**Lexmark International (India) Pvt Ltd** (www.lexmark.com)	Software Development; IT Enabled Services
15	**Manjushree Infotech** (www.manjushreeinfotech.com)	IT enabled services; Business Process Outsourcing; Transaction Processing
16	**MetalJunction.com Pvt Ltd** (www.metaljunction.com)	Internet & e-Commerce; IT Enabled Services; Application Services Provider
17	**Ontrack Systems Ltd** (www.ontrackindia.com)	Offshore Product Development; SAP implementation; Zope, Python Programming; SMS/MMS, Collaborative Software; ITES: Customized software projects & products development; Networking Solutions; Hardware Services and Support; ERP implementation; Portal Management

Table 3: Continued...

Sl. No.	Name of the Company	Specialization
18	**PricewaterhouseCoopers Pvt Ltd** (www.pwc.com)	Onsite Services; Consultancy & Projects; Products & Packages; Software Development; Offshore services; IT Training; IT Enabled Services; Internet & e-Commerce
19	**R S Software (India) Ltd** (www.rssoftware.com)	IBM Mainframe, Client-server computing; Datawarehousing; Work Flow automation; Web based application development
20	**Research Engineers Pvt Ltd** (www.netguru.com)	Real-time collaborative software solutions; Engineering Software products/solutions; IT Services; IT-enabled Services; e-Learning Applications; e-Governance Applications; Internet & intranet Applications; Project consulting; Product development & support
21	**Score Information Technologies Ltd** (www.kankariagroup.com)	System Integration; Application Development; e-Governance Projects; Smart Card Issuer and Merchant Infrastructure; Research and Development; e-Learning Services; Document Management Services
22	**Search Engine Ranking System Consultants Pvt Ltd** (www.1stsearchranking.net)	Search Engine Positioning; Affiliate Programme Consulting; Web Copywriting; Web Designing; ITES: Web sales and marketing
23	**SkyTech Solutions Pvt Ltd** (www.skytechsolutions.com)	Transportation and Logistics Software Solutions & Products
24	**UshaComm India Pvt Ltd** (www.ushacomm.com)	OSS/BSS for Wireless Communication, Wireline Communication, Broadband Communication, 3Q Communication, IP Services Communication
25	**Vedika Software Pvt Ltd** (www.vedika.com)	Packaged software; Internet web hosting
26	**Vision Comptech Ltd** (www.visioncomptech.com)	Content Conversion; Document Management & WorkFlow services & Solutions; Scanning & Digitization; CAD Services: Civil, Architectural, Mechanical -drafting, detailing, modeling; Reverse engineering; Software Development; Internet Technologies; Embedded Systems; Real Time Systems: RT Linux
27	**West Bengal Electronics Industry Development Corporation Ltd** (www.webel-india.com)	Data Base Management Applications; Real Time Software for Embedded Systems; Animation

Source: www.nasscom.org (as on 31/12/2004)

The present study deals with training and development strategies of IT service companies at Kolkata region. We must consider the described environment in India in general and at Kolkata region in particular, so that we can understand the situation with deep insights.

2.0 Objectives, Scope and Methodology of the Study

Objectives of the Study

- To identify the nature of training and development practices of IT service companies in Kolkata region
- To identify training and development policies and strategies adopted by the IT service industry in Kolkata Region
- To identify whether the present Training practices are professionally managed and systematically planned
- To evaluate the training and development programmes available at the IT service companies to cope up with international environment and clientele
- To evaluate whether training leads to career development of individuals
- To evaluate whether training leads to organizational development
- To compare training and development strategies of different types of IT service companies
- To identify whether the present training and development practices are adequate for the organizations
- To identify the key areas of training
- To plan long term human resources development initiatives
- To identify new areas of development.

Scope of the Study

This study finds out practices pertaining to training and development function, which is a part of broader human resources management. So, a relatively small area of knowledge is depicted here. This study is based on Kolkata region, which covers Kolkata metropolitan areas within West Bengal. This study may not be truly representative in predicting national trends. Present study deals with IT service industry in general and software industry in particular. IT-enabled service industry (ITES) is excluded from the study. The organizations engaged in IT service industry do not want to share confidential information, as there are a number of competitors in same market segments for the similar range of products or solutions. Some data collected and presented here could be biased, either by the companies or by the government. The researcher tries to make an unbiased and neutral approach.

Methodology of the Study

The information and data collected both through introduction of questionnaire and informal interviews held with HR professionals and IT professionals employed in the respective companies. Additionally, the researcher has studied some related publicly available documents and reports of the companies. Some cases were studied in depth and detail to get insights on the training and development function.

3.0 Analysis and Results

Present study is based on the information received through introduction of the structured questionnaire [Annexure I], supplemented by the inputs derived from the informal discussions subsequently held with the HR or IT professionals and company literatures. The data has been analysed qualitatively. The analysis and results of the study are discussed in the following two sections, namely, General Observations and Cases Analysis.

3.1 General Observations

The general observations from the study are discussed in this section, which also elaborate strategic issues as well as common practices in training and development in IT service industry in Kolkata region. The general observations are based on analysis of data collected through structured questionnaire [Appendix I], company literature and media.

Training Objectives

The IT service companies studied here have recognized the importance of training for their present requirements and future growth. Most companies have long-term as well as short-term training policies for their workforce. The companies consider training is a necessary input for their projects, as each project requires latest technical skill-sets as well as highest degree of domain knowledge. To impart necessary skill-sets and knowledge, IT professionals undergo training programmes on various modes and in various degrees. This ensures that all individuals have the competencies required to perform their tasks and assignments efficiently. This provides opportunities for technical and behavioural development to individuals. Training enables continuous upgradation of the skills of the workforce.

Prioritization of Training

The companies regularly conduct training programmes for their professionals, both IT professionals and domain experts. Administrative and supporting staffs also get trainings for skills development. The professionals employed in these companies usually have professional degrees, like, BE, BTech, BCA, MCA, ME, MTech, BBA, MBA, CA, MSc, etc. Additionally, a professional might have obtained an international vendor certification to be a certified professional, like, Microsoft certified professional. This certified professional has domain expertise

in particular products or tools.

The selection in training programmes is need based. The team member of a particular project gets training, if he does not have much exposure on the development tools selected for the project. Companies frequently undertake training needs assessment (TNA) tasks and record the training requirements of the professionals. Survey data shows that companies in Kolkata region usually undertake TNA annually or bi-annually, along with their annual or bi-annual appraisals.

Some companies sponsor their employees in executive development programmes (EDP) and short-term training programmes, conducted by premier institutions. They send their employees to refresher courses for adaptation of latest business knowledge. The selection is based on the position an employee holds, the business roles he plays, level of seniority and how much he has contributed to the company. The companies bear full costs of these programmes, which are usually much higher than internal training programmes.

But companies very rarely sponsor their staff in full-time or part-time higher education programmes, like, MBA, MTech, MCA and PhD. The companies insist them to undergo part-time or distance-mode higher education programmes. Again, this part-time or distance education usually does not incur costs to the companies. In some companies professionals face problems in getting leave during contact classes, practical classes, examinations and project works. Few big companies, like, TCS, IBM and CTS, have attempted to address such problems well. Table 4 represents level of priority for course sponsorship and flexibility of attending same, as replied by the respondents. On the five points scale, 1 represents least level of priority and 5 highest level of priority.

Table 4: Levels of Priority in Sponsorship in Continuing Education

Type of Course and Facility Offered	Level of Priority
Sponsorship in Executive Development Programme: Less than one month duration	5
Sponsorship in Executive Development Programme: More than one month duration	3
Sponsorship in Full-time Continuing Education Programme	1
Sponsorship in Part-time Continuing Education Programme	2
Supporting non-sponsored participation in Part-time Continuing Education Programme	4
Supporting non-sponsored participation in Distance Education Programme	5
Entitlement of leave during examination / contact classes / practical classes / project work	3
Flexible working hours during the courses	2

Thrust Areas

THE THRUST AREAS OF TRAINING DEPENDS ON COMPANIES' SPECIALIZATION AND EXPERTISE IN NICHE IT SOLUTIONS MARKET. COMPANIES ARE SPECIALISED IN ANY BUSINESS DOMAIN, LIKE, TELECOMM SECTOR, ENTERPRISE RESOURCES PLANNING (ERP), INSURANCE SECTOR, BANKING SECTOR, NON-BANKING FINANCE, AIR TRAFFIC CONTROL, AND SO ON. THE FOLLOWING TYPES OF TRAINING ARE IMPARTED TO THE PROFESSIONALS:

Technical Training

Technical Training would mean all such training, which is given to the employees to enhance their work-related skills in technical area of work. This training can be categorised mainly under the following heads

- *Systems Training* i.e., training related to software development tools, methodologies and languages viz. Java, C++, J2EE, SAP, Oracle 11i, dot Net technologies, Linux, WebLogic, data warehousing, data mining, etc.
- *Software Management Training* i.e., training related to managing software development activities viz. Project Management, System Analysis and

Design, Configuration Management, Requirement Management, Estimation and Planning, Quantitative Process Management, SDLC, etc.

- *Software Quality Related Training* i.e., training related to software engineering processes viz., Quality Assurance, Process Improvement, Testing, Review Methodology, Defect Prevention Techniques, Six Sigma Approach, capability maturity models, etc.
- *Domain Training*, i.e., training to impart domain knowledge to the non-domain experts, and refresher course to the domain experts.

Non-Technical Training

Non-Technical Training would mean all such training, which is given to the employees to enhance their managerial and leadership skills as well as to boost up their work motivation and morale. These training can be categorised mainly under the following heads

- Training programmes on *Individual skills development*, viz. Soft-skills Development, Team Building, Leadership, Time Management, Stress Management, Conflict Management, Corporate Ethics.
- Training programmes to initiate *change in organization*, like, training on Change Management and Business Process Reengineering.

The Table 5 depicts the reasons for conducting training programmes in the IT service companies in Kolkata Region in the order of importance and relevancy on Five points scale, where 1 denotes least level of priority and 5 denotes highest level of priority. The reasons with highest level of priority for conducting training are: to develop latest IT skills and to enhance performance of the professional, whereas the reasons with medium level of priority are: to promote the participant into a higher grade and to make the company a learning organization.

Table 5: Reasons for conducting training for IT professionals

Feasible Reason	Level of Priority
To develop skills in latest versions of IT tools or techniques	5
To enhance performance of the professional	5
To enhance quality and standards of products or services (TQM)	4
To develop latest IT skills	4
To reduce cost of operations	4
To promote the participant into a higher grade	3
To make the company a learning organization	3

The Table 6 illustrates the kinds of training activities and their level of priority. Kolkata-based companies have higher priority in induction training, on-the-job training and IT skills development training, and less priority in foreign language proficiency development training. Less interests in foreign language proficiency development probably indicates that most companies have less projects in non-English speaking countries.

Table 6: Kinds of Training Activities on 5 Points Scale

Kinds of Training	Level of Priority
Induction Training	5
On-the-Job Training	5
IT Skills Development Training	5
Soft-skills Development Training	4
Managerial Skills Development Training	4
Quality Assurance/ Quality Management Training	4
Language Proficiency Development Training (English/ Foreign/ Local Language)	3

The Table 7 shows formal training delivery methods. Most companies conduct training programmes either locally through internal trainers or through external training providers located in Kolkata. Some companies, which have India head-offices in other cities, conduct training through their national training centres or

head-offices. The e-learning mode of training is presently very rare in most of the companies. Some multinational companies have training facilities abroad. They seldom send their IT professionals to impart technical training.

Internal trainers belong to the respective company, with affiliation to either training department or another functional area. The trainer has acquired latest technical skills and knowledge through experience and continuous education programmes. Sometimes trainer provides training to internal learners in addition to his main role in the company. The classroom training is provided, where internal trainers design the curricula and training modules as per the requirements of the company. The company also undertakes training needs assessment (TNA) tasks on a regular interval, or before selection of team members for a new project. Accordingly training is planned, designed and delivered.

The external training provider is either a training institute or consultancy firm. The external training provider has dedicated, experienced, and professionally qualified trainers, in specific areas of technical skills or domain knowledge. The trainers are usually vendor certified professionals, having latest knowledge on development. They keep their domain knowledge updating. External training providers sometimes conduct training in IT companies' premises, some other times conduct training in their own premises. The training provider plans his lessons in modules and sessions. He prepares schedule to deliver the same. He makes the training sessions as interactive as possible, and cites cases from the real life situations. More practical sessions are designed to impart hands-on training. The trainer motivates the learners to explore and experiment using the new tool, so that they can confidently use it on later stages in business projects.

Table 7: Training Delivery Methods

Training Delivery Methods	Level of Priority
Through Training Centre/ Division located in Kolkata	5
Through Training Centre/ Division located in other city in India	3
Through Training Centre/ Division located abroad	2
Through External Training Providers	4
Through E-Learning Providers	1

Training Methodologies

In the following paragraphs some formal as well as informal training methodologies are discussed, as observed in the study. Most companies follow more than one methodologies that suit their purposes and requirements. The objects of training are also different from one to another.

Traineeship and Induction Training

Most IT service companies in Kolkata region usually recruit inexperienced IT professionals initially as trainees, who have been just completed their professional degrees. Recruitment of trainees is done through campus placements, summer placements, employee referrals and advertisements. Campus placements are organised in reputed institutions, where company representatives select some talented final-semester students, usually after interviews. Summer placement is provided by a company to some final-semester students of an institution to carry out their academic projects/ dissertations. Here, students get exposure to real-life business activities, and the company attracts these students and offers them full-time employment after completion of degree.

When a trainee joins the team, the first thing he needs to know about is the background to the work. He will also build up his understanding as he learns jobs-related skills and see things from different perspectives as he gains experience. To large extent, the background knowledge that trainees will be

needed to receive depends on their own subject background. Trainees who have some exposure to computing but no experience of business, for examples recent IT graduate, will need to be told about the business or commercial background. They will need to know how a company is divided into business functions and what each function does. They will need to understand the importance of finance, human resources management, production and distribution, sales and marketing. They will need to know profiles of clients and domain specializations of the company, so that trainees will be better equipped to see where IT solutions fit in and what problems they solve for the clients. Trainees also know the basic skills for the job they will do, and specific skills or tools for the job.

Trainee training generally lasts for three to six months intensively in companies in Kolkata. They use different training methods and allow plenty of time to gain experience and experiment with new skills. The company also decides the approach, whether as a general training programme for several trainees or as individual training plans for separate trainees, or some combination of the two approaches, always supported by visible learner support for the trainees.

Experienced entrants also need induction training. Experienced entrants bring experience of a different kind of work, sometimes the business perspective of IT. They must learn all about IT and its application in their new job context, company's work culture and work environment. They are also imparted training for new skill-sets, as required by the present projects and programmes.

Trainees are provided day-to-day and task-based support. Companies help trainees to integrate into the team and become more productive in their new role.

On-the-job Training

Sometimes no ready-made training solutions available, no courses, no self-study materials. Individuals learn the required skills, which take place on the job as part of the normal work. Main features of on-the-job training are:

- Training takes place in the work area
- Delegate carries out work tasks with guidance
- Action plan with specific tasks
- Progress against plan
- Delegate thinks about learning points

The essence of on-the-job training is that the individual carries out tasks to be learned, with guidance from someone else. The learner is encouraged to think about the task and how to carry it out, then go through the relevant steps, then think back and understand what happened and what he learned from it. To be effective, on-the-job are carefully planned in companies so that the training is integrated with job tasks and learning points are recognized. There is often a more experienced person acting as coach and helping the delegate to gain understanding and experience needed. The coach can be the team leader, or it can be a fellow team member. Here specific plan of exercises and activities requires to develop skills within the work context. It is good where the learning objective is relatively self-contained and well integrated into the normal workload and where there is a more experienced member of staff available to help with questions.

In IT service companies in Kolkata, on-the-job training is very common practice, since it does involve training-costs and time-loss of individuals (both learner and coach) when training. This helps the companies optimally utilise their knowledge resources within the organizations.

Mentoring

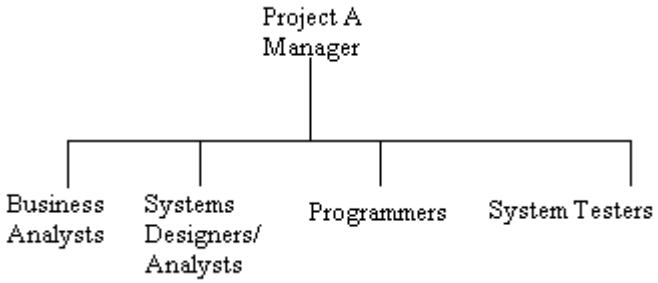
A mentor helps the individual to better understanding his role and aspirations, and to equip himself to fulfill his potential. At the heart of mentoring is the tutorial relationship between mentor and learner, in which the mentor guides the learner through a process of self-development. Mentoring forms part of ongoing learner support. Mentor, by discussing new concepts, can help the learner to develop his understandings. Mentoring is used to develop soft skills such as leadership, interpersonal skills, or political acumen. Mentoring has long-term commitment (typically 6-24 months) and definite purpose. Here relationship is nurturing.

A few IT service companies in India has formal mentoring scheme. Infosys Technologies and few other companies have started this scheme in India. In Kolkata, Cognizant Technology Solutions and few other IT service companies have initiated such approach of learning for their highly talented professionals to emerge as leaders in this sector.

Project-based Training

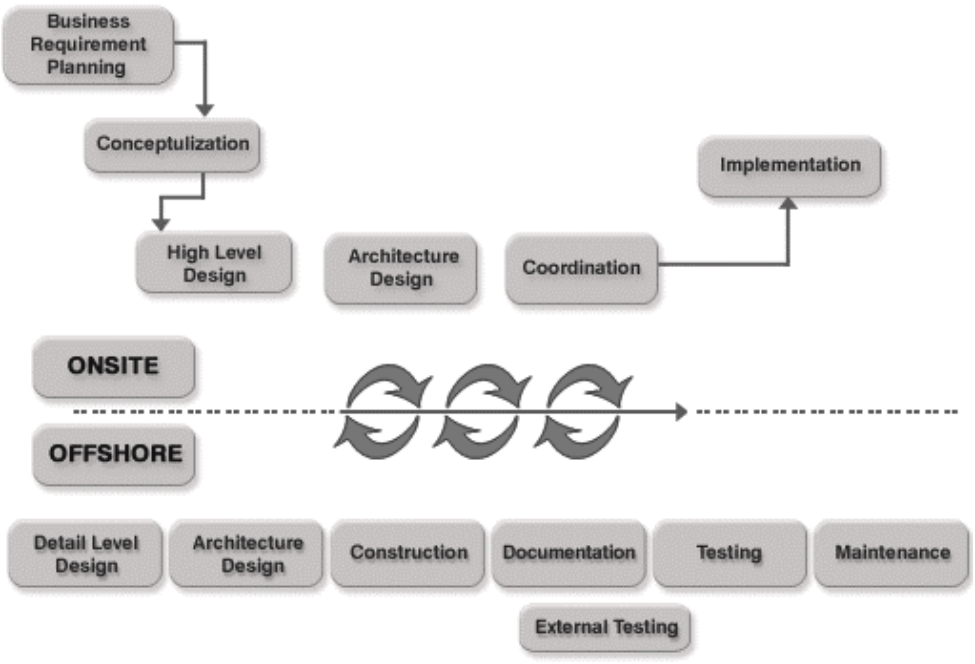
The IT service companies in Kolkata mostly have project-based structure. In a project-based structure, a department is divided into teams and they are grouped in project areas. Thus a department might have separate teams for distinct projects, for example one for each software product being developed. The different project teams may or may not have same internal structure, but most contain analysts, programmers and testing staff, to cover the development of the system from start to finish, i.e. from feasibility study to implementation [Figure 3].

Figure 3: Project-based Structure



Sometimes, a project team is divided into two separate sub-groups. One subgroup takes care of onsite development at client sites, another subgroup takes care of offshore development at Kolkata office. Some senior team members have to look after both subgroups to coordinate and integrate the things. The Figure 4 shows how two groups are integrated and coordinated.

FIGURE 4: ONSITE AND OFFSHORE DEVELOPMENT IN A PROJECT



The implications of project-based structure for training are somewhat different. Here, the project leader is the line manager for his people. Although his primary concern is getting the project delivered on time, he also looks after the welfare of

his staff including training. A project leader has greater scope for allowing his team members to learn something of the other roles within a development project. But, due to project-focused nature, a team member is allowed to learn only project-related skills. Thus career-related training needs are frequently postponed to a later date.

In this structure, each project typically has its own training budget to spend as required. The difficulty arises if one project finds it needs to organise more training than it had budgeted for (to cater for unexpected staff turnover or a new sets of software tools or any other reason), while another project needs less training than it had planned. There are some other problems in project-based training. The IT service companies in Kolkata always try to evolve certain solutions to overcome such problems.

Career Development

The IT companies in Kolkata explore beyond the short-term requirements of them to develop their employees to cope with future growth of the industry. The companies offer space for career development to their promising professionals. Mentoring is one such training methodology to develop future leaders. The companies also sponsor the experienced professionals for skills and knowledge acquisition from premier institutions. This helps to nurture talents within the organisations, to meet future requirements of leaders and managers. An individual learns from experience and seeks new and different ways of working with existing skills. He also develops himself within a role to find many different kinds of development activity that can be carried out within any role. As an individual's career unfolds, he moves from role to role, so his skill set expands and he broadens the range of tasks he can perform. Career development of individuals takes place with a definite direction.

The present study observes a general trend that most companies are interested not only to achieve their present goals but also aspire for their future growth. That is reflected in their training and development strategies.

3.2 Cases Analysis

In this section, a detailed observation is presented regarding training and development strategies in this industry. Two cases are discussed here, which are among the top ten companies in Kolkata region in terms of head-counts and revenue earnings. These two companies have futuristic training and development strategies that in turn attract the professionals to fulfill their long-term career objectives.

Tata Consultancy Services (TCS)

Formed in 1968, Tata Consultancy Services (TCS) is India's largest IT Company; Asia's largest global software and Services Company; and the sixth fastest growing consultancy organization in the world. TCS belongs to Tata group of companies, which is one of the largest industrial groups in India. Its headquarter is located in Mumbai. It has IT development centres in various cities in India and abroad. Set up in 1976, TCS Kolkata is the largest ISO certified software house in eastern India. TCS is responsible for some of the world's most complex applications and next generation information technology infrastructure, by combining in-depth knowledge of diverse business domains with expertise across various technologies. In 2003-04 revenues of TCS grew 19% to Rs.5,827 Crore, which is largest among the Indian IT service companies.

TCS at Kolkata

The Kolkata branch handles assignments in virtually all IT areas, including e-business strategy and e-architecture, ERP implementation, application development, porting and migrations, re-engineering, new software development, and maintenance of existing systems. In early 2000, TCS Kolkata was assessed at SEI - CMM Level 5, the highest achievable worldwide standard in IT service industry. The company currently employs about 2,000 professionals in Kolkata

occupying about 200,000 square feet office-space across the city. During the year 2002-03 the export turnover, as registered under STP-K was Rs. 342.50 crores. TCS also has sizeable export turnover, which is not reflected in the STP figures. TCS plans to grow progressively within Kolkata as it finds the city ideal for the IT industry, given the availability of land, power supply, excellent educational institutes, and matured IT policy of state government as well as the low attrition rates among the employees.

Learning and Training at TCS

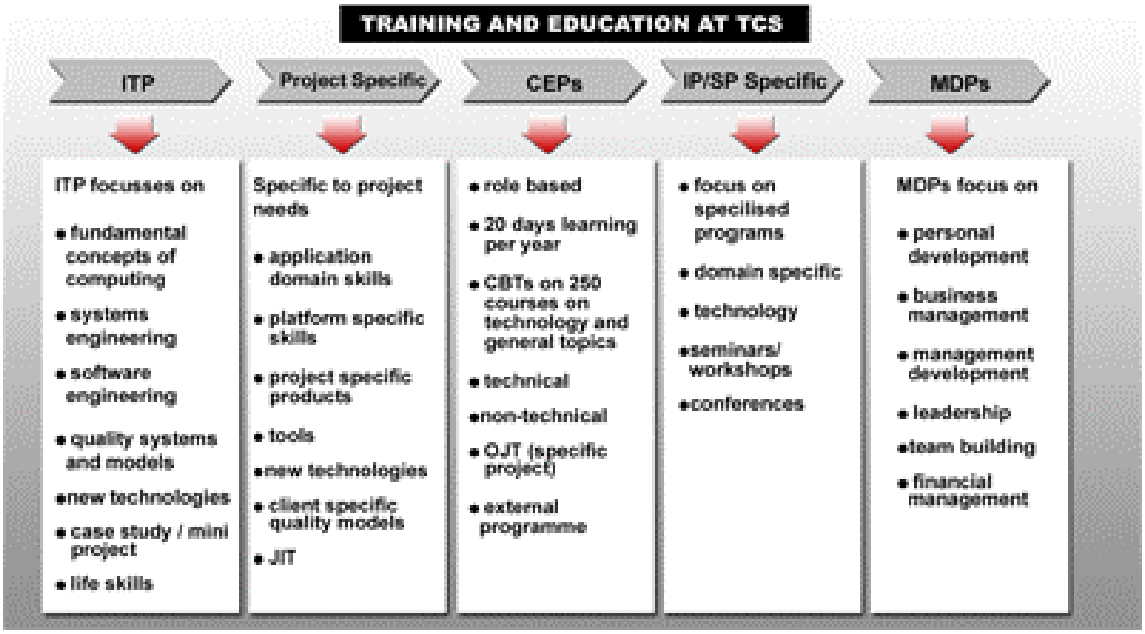
At TCS, the training is a continuous value-adding process. This approach hones, improves and enhances their skills — and makes the organisation stronger.

TCS invests about 4 per cent of its annual revenues in training. It has a state-of-the-art training centre in Thiruvananthapuram in Kerala. Its training modules have been developed to serve the specific needs of individual employees, and are based on their needs at various stages of development in the organisation. Its 'induction training program' (ITP) is made for all new recruits from engineering colleges. This is a specially designed, 77-day training course at the Thiruvananthapuram facility. The ITP is conducted with the objective of transforming engineers from diverse disciplines into software professionals. TCS also have 'continuing education programmes' (CEPs), which cover over 300 topics and can be delivered over a variety of channels: classrooms, computers, audio / video, contact sessions, seminars, conferences and workshops. TCS ensures at least 20 days learning per year per professional.

Its dedicated training centre in Thiruvananthapuram, established in 1998, sprawls over 58,000 square feet. The centre has 18 classrooms, a library, an auditorium, a conference hall, discussion rooms, and faculty and administrative areas. The facility has about 300 personal computers connected to servers. TCS has ten other centres in India, including one in Kolkata, fully equipped to conduct any type of training programme. Figure 5 shows a detail account of training at TCS, which includes 'induction training program' (ITP), 'continuing education

programmes' (CEPs), and 'management development programmes' (MDPs).

Figure 5



Cognizant Technology Solutions (CTS)

Cognizant Technology Solutions (CTS) is a USA headquartered IT services company catering to *Fortune 1000* and Blue Chip customers in the USA and Europe through its unique onsite-offshore model. *Business Week* ranked CTS among Top 5 IT services companies in India. Cognizant has about 70 percent of its professionals in its ten development centres in India: five in Chennai, two in Kolkata, one each in Bangalore, Pune and Hyderabad. CTS hires a chunk of its human resources from premier engineering colleges in India each year and moulds the new joinees into Cognizant's culture and unique business model. CTS has more than 12,000 associates in India. In 2003-04 revenues of CTS grew 59% to Rs.839 Crore, which placed it among the Indian top 20 IT companies in revenues [11]. Analysts expect to see CTS reach $1 billion in revenues and almost 25,000 employees in 2006. Incidentally, that is how big Infosys today.

CTS at Kolkata

The CTS is one of the first global companies to start operations in Kolkata in 1996. The CTS's Kolkata development centre is the 'retail centre of excellence' with a specialization mainframe, client-server, customer relationship management (CRM), dot Net, J2EE and various other technologies like RFID (radio frequency identification) and global data synchronization in retail supply chain. To test and validate some of the concepts and ideas Kolkata has set up an RFID lab at its premises. CTS serves its Fortune 1000 and Blue Chip customers from its development centres in Kolkata.

Learning and Training at CTS

The CTS is committed to facilitating continuous learning among its professionals. This commitment plays an important role in ensuring that the professionals keep themselves current with leading-edge technologies and executive communication skills so that they can perform their roles effectively and efficiently.

The CTS conducts all training programmes through *Cognizant Academy*, its in-house learning center located at Chennai. Through this dedicated center, it offers many conventional and leading-edge training programmes for its employees, both for new employees and lateral entrants (mid-career level professionals). The Academy offers nearly 50,000 person-hours of technical training yearly and an array of programmes to advance the personal, managerial and cross-cultural skills of its professionals. CTS also has training facilities in Kolkata equipped modern tools to meet some immediate requirements.

Some of the important training programmes at CTS are:

- Entry Level Training programme (compulsory 9-week programme for new employees)
- Continuing Educational programme (need-to-know basis and for continuous knowledge upgradation)
- Role-based Training programme
- Executive Training programmes (such as Effective Personal Productivity, Time Management, Acculturation programmes, and language programmes)
- Certification programmes (both external certification programmes offered by Microsoft, Sun, PMI, etc., and internal certification programmes such as IBM WebSphere, DB/2 and software engineering)

In addition to the internal training programmes, CTS sends its IT professionals across the globe for technology or management-specific training. Notable universities and colleges, which it sends its professionals, include Harvard University, Indian Institutes of Management, and Indian Institutes of Technology.

Training Methodologies at CTS

The CTS uses conventional and leading-edge learning methodologies. In addition to the formal learning in classrooms, Cognizant Academy takes learning to its employees' desktops. Included are multi-mode learning, and learning through Technology-Based Training (TBT) material.

The multi-mode learning centre is equipped with state-of-the-art workstations and a full-fledged library. The learning packages are available in a wide-range of areas, including emerging technologies. TBTs are used to facilitate learning amongst associates with different needs. It provides the associates the much-needed flexibility of choosing the topics and learning only what is relevant, and at their own pace and schedule.

The CTS encourages its associates to get certified across key technologies. CTS provides assistance through formal training and mentoring, and access to all certification material through its dedicated Learning Server. More than 2000 of its employees have formal external certification across technologies, including, Microsoft, Oracle, Lotus, Sun, Cisco, Novell, Project Management Institute and Quality Assurance Institute.

Apart from external certification programmes, CTS has an internal certification programme, where employees become *Cognizant Certified Professionals*, to systematically evaluate competencies. The following is the list of internal certifications included under the "*Cognizant Certified Professional*" programme:

- Certification in IBM Mainframe
- Certification in IBM Web Technologies
- Certification in AS/400
- Certification in Telecom
- Certification in e-Business
- Certification in Software Engineering
- Certification in Quality and Process Management
- Certification in Business Development and Client Management

Partnerships with the Academia

The CTS has entered into strategic partnerships and alliances with several premier institutions to help its professionals get trained in a variety of areas and also obtain higher degrees.

Some of the notable institutions with which it has alliances are:

- British Open University for distance education MBA programme
- Birla Institute of Technology and Science (BITS), Pilani for MS and PhD programmes
- Project Management Institute for Effective Personal Productivity and Effective Leadership programmes
- Venkateswara College of Engineering, Chennai
- Mepco Schlenk Engineering College, Tamilnadu
- Indian Institute of Technology, Kanpur
- Indian Institute of Technology, Chennai

CTS and the People CMM Model

The CTS has become the first software company in India to be assessed at SEI-PCMM Level 5 across all of its development centers in India. Certified by independent auditors, KPMG, the CTS was cited for its:

- Strong emphasis on learning and professional development, both at the individual and organizational levels
- Internal Assessment Centers that constantly measure performance and identify opportunities for improvement
- Culture that empowers individuals and promotes a participatory environment
- Effective professional mentoring programmes
- Emphasis on continuous improvement

Figure 6

The People Capability Maturity Model (SEI-PCMM) [Figure 6] measures how effectively an organization manages its professional force. Organizations that achieve Level 5 certification are not only implementing and benchmarking their execution of enterprise-wide workforce management practices, but are in continuous improvement modes, always seeking opportunities for improvement.

These two cases of Tata Consultancy Services (TCS) and Cognizant Technology Solutions (CTS) with special references to strategic issues in training and development, demonstrate that phenomenon growth of these two companies is proportionately to their strategic investments in human resources development.

4.0 Future Directions and Conclusion

Present study explores the reasons of phenomenon growth of Indian IT service industry than any other industry in India. Present study has found that IT service industry in this country is considered as a knowledge industry, where knowledge workers regularly refreshing their knowledge through training and learning. Where latest cutting edge knowledge is imparted to the professionals through training and development, more value addition is taking place. To move up the value-chain, IT service companies invest their resources in training and development for their people. The people are assets of the companies who enhance productivity of the clients by producing very competent IT solutions and also create wealth for their own companies.

India is the greatest choice to the Blue Chip and Fortune 1000 companies for outsourcing their IT services and solutions. Also reputed multinational IT companies have found India as a best place for establishing their research and product development centres. Proactive government policies, investor friendly atmosphere, and relaxed regulatory policies – all played a role for the phenomenon growth in the Indian InfoTech sector. India's success in this sector has implications for the country emerging as a significant player in tradable services more generally. It has given the country a greater measure of self-confidence.

Indian IT service industry has spurred competition among Indian states, keen to attract investments in this sector. Kolkata is one of hottest choice to the national and multinational IT companies as a promising IT development centre. Kolkata is also known for the entrepreneurship skills, as we come across the success stories of homegrown companies in Kolkata, which could touch the world with their much acclaimed IT solutions.

The present study observes that training and development strategies of IT service companies in Kolkata are at par the Indian industry standards. The Indian IT companies as well as their multinational counterparts provide training and

learning supports to their professionals not only for present requirements but also for future growth. Skills upgradation training is very common to the companies in Kolkata. Every company provides induction training to help new entrants adapt to company' unique culture and environment and to make them productive. Career development training is provided by top ranked companies to nurture their talented people and to make them future leaders. The companies already moved up in the high value-chain recognise the value of future-oriented training, but other companies only concentrate on the technical skills development for their undergoing or forthcoming development projects. Some Kolkata-based companies aspire to achieve the excellence, and train their people to realize it. Training of their professionals in cutting edge tools and techniques leads the companies to deliver high quality solutions to their international clients.

The greatest strength of Kolkata based IT service companies is their people's knowledge and it is their associates and managers who deliver the outstanding projects upon which Kolkata has built its reputation. Kolkata-base companies are committed to facilitating continuous learning among their professionals. This commitment plays an important role in ensuring that the IT professionals keep themselves current with leading-edge technologies and leadership skills so that they can perform their roles effectively and efficiently.

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ANNEXURE I

MS-100

Dissertation Proposal - Synopsis

Rationale for the Study

Typically in an Information Technology (IT) business, manpower is the basic asset. However, the manpower or its quality needs to be refined constantly so that they can comfortably take on the changed scenario. The fastest changing software and hardware environment have forced the IT service organizations to consider all round development of their human resources. Even top institutions, which produce the niche IT professionals cannot impart practical training in each specialized software or hardware skills. The professionals are inducted after some practical training programmes to cope up the current business environment as well as the software or hardware platforms. Those organizations, which want to tap global market, are well equipped with the latest knowledge base and skill sets by their well-trained upto-date manpower. The quality conscious clienteles of the Indian IT service organization do not compromise with the quality of the IT products and services. So training is extremely important to maintain international standards, quality and company image.

Technological Development: In every month new technologies, new platforms and new environments are coming up. Most corporate clients of IT service companies want to adopt the latest technologies. If Indian IT service companies cannot cope with the latest technologies, the other competitive nations will gain the corporate assignments from developed nations or multinational enterprises. Increasing global competitions in the software industry lead the IT service companies in adopting most progressive and aggressive training and development strategies.

Objectives of the of the study

- To identify the nature of human resource development strategies adopted by the IT service industry at Kolkata Region.
- To identify the nature of training and development policies adopted by the IT service industry at Kolkata Region.
- To identify whether the present Training and Development practices are adequate for the organizations
- To identify whether the present Training practices are professionally managed and

systematically planned.

- To evaluate the training and development programmes available at the IT service companies to cope up with international environment and clientele.
- To evaluate the employees' retention policies of the IT service companies by adopting Training and Development programmes.
- To assess the nature of participation by the IT professionals in Training and Development programmes.
- To assess the effects of such programmes in organizational development as well as the skills development of the IT professionals.
- To identify the key areas for improvement.
- To plan long term HR initiatives
- To identify new areas of Development

Research Methodology

The present study will be carried out in a number of IT service companies based at Kolkata, which have corporate clients in India or abroad. The Survey approach will be used in this study to gather contemporary data. We know, survey approach is systematically gathering information, from a sample of respondents for the purpose of understanding and predicting some aspect of behaviour of the population of interest. Here, management practices with special respect to Training and Development function of different IT service companies at Kolkata region will be evaluated using survey approach.

Data gathering technique: Questionnaire method to be selected as data gathering technique. A structured questionnaire will be prepared covering all relevant information on the programmes, policies and strategic issues. The same will be circulated to the HR managers/ executives of the concerned companies. If required, some interviews of the HR managers of various companies can also be taken to get depth insight into the training and development programmes and policies of the companies.

Selection of the sample: Due attention must be given to the selection of the sample, as this is crucial step. Findings based on the sample must provide a reasonably accurate picture of the population so that the generalization can become acceptable. In the present study, samples will be drawn from the representative companies, which should have some common characteristics, like, IT service export experience, have qualified IT professionals in their payrolls, have been in this industry at least for two years, etc.

Once data has been collected, then it must be checked for completeness, consistency, reliability and comprehensibility. The filled up questionnaires will then be analyzed. Analysis of data will be concerned with (a) coding the responses or entering each item in the relevant category; (b) tabulation of data; and (c) carrying out of statistical computations. After analysis of data, interpretation of the findings will take place. It involves drawing of conclusions from the data collected and analyzed and arriving at generalizations. At the end of the study, a dissertation report will be written incorporating all the results and findings.

The expected contribution from the study

The present study will identify the current trends in the training and development function in the knowledge industry, which has invested a considerable amount of resources for human resource development. The IT service companies are offering IT solutions to its clienteles. To maintain the international standard and quality level, the companies should have forward-looking human resource planning. Present study will evaluate the different policies practiced at Kolkata region, and suggest the areas of improvements in the training and development to achieve individual companies' corporate goals. Integration of other areas of managerial functions with training and development will also be evaluated and present study will suggest the points of improvements. The present study will definitely focus the necessary measures to be taken in order to achieve corporate goals of the IT service companies and regional development in this industry segment.

Limitations, if any

The present study will deal only Training and Development function. The other areas of Human Resource Management may have link with the present area, but that would not cover. The questionnaire may have limitations incorporating all related information, however, relevant information will be covered. The Kolkata region may not be representative of the national trends. The national trends may be different from this region. There is a chance of biased information from the respondents, if the respondents do so.

Direction for future research

This study would be useful to explore more narrow areas, like, training needs assessment, etc. The other service industries also have extensive training and development programmes, that may undertake similar study. The comparative study or case study of big IT service companies may be undertaken in order to get more detailed information on the trends or practices of training and development. The future researchers may use the technique and approach of the present study, for updating information and to explore new areas of study.

ANNEXURE II

QUESTIONNAIRE ON TRAINING AND DEVELOPMENT IN IT SERVICE COMPANIES

Introduction: This questionnaire is part of a research study titled '*Strategic Issues in Training and Development in the IT Service Industry in Kolkata Region: A Study*' being conducted under the aegis of the School of Management Studies, Indira Gandhi National Open University, New Delhi. Your reply to this questionnaire is highly valuable and extremely important to assess and evaluate the state of the Training and Development activities in Kolkata. Information given here will be kept confidential and used for academic purposes only. Individual's identity will be kept confidential, if so desired.

ADMINISTRATIVE QUESTIONS

(I) About the IT Service Company

1.1) Name of the Company: .....

1.2) Global Headquarters located at: .....

1.3) Indian Head office located at: .....

1.4) Offices located at: In India: ....
Outside India: ....

1.5) Kolkata Office Address: .....
.....
1.6) Telephone Number: .....
Fax Number: .....
E-mail: .....
URL: ....

Are you a member of Software Technology Park (STPI), Kolkata? Yes/ No

Certifications Awarded to the company (example: ISO, etc.) : .....
.....
.....

(II) Training and Development Programme and Policy

2.1) Do you have a Training and Development policy for your IT workforce? Yes /No

If yes, please briefly describe the same, like eligibility of the participants, thrust areas, objectives, etc.

2.2) What is your Training Budget: In the financial year 2003-04: _____

In the financial year 2002-03: _____

2.3) Please Rank the reasons for conducting Training and Development Programmes in your organization in the order of importance and relevancy.

___ To develop skills in latest versions of IT tools or techniques
___ To develop skills in new IT tools or techniques to be introduced soon/ introduced
___ To enhance performance of the professional
___ To enhance quality and standards of products or services (TQM)
___ To make the company a learning organization
___ To promote the participant into a higher grade
___ To reduce cost of operations
___ Other reasons (please specify) .....

2.4) Do you have Training Centre/ Division within Kolkata? Yes /No

2.5) How do you undertake Training programmes for your IT workforce (Please Tick)

____ Through Training Centre/ Division located in Kolkata
____ Through Training Centre/ Division located in other city in India
____ Through Training Centre/ Division located abroad
____ Through External Training Providers
____ Through E-Learning Providers

2.6) What kinds of Training Activities are conducted in the company? (Please Tick)

____ Induction Training
____ Soft-skills Development Training
____ Language Skills Development Training (English/ Foreign/ Local Language)
____ Managerial Skills Development Training
____ Quality Assurance/ Quality Management Training
____ IT Skills Development Training

2.7) Please mention Top Five Areas/ Topics of Training Programmes conducted in the company during last financial year (2003-04):

Name of the Area/ Topic	No. of Batches	Total No. of Participants

2.8) If you conduct Training courses for your IT Workforce through External Training Providers, do you design the Training Courses as per your requirements? Yes/ No

2.8.1) Do they conduct as per their Official Curriculum/ Vendor Certified Curriculum? Yes/ No

2.8.2) List names of Top Five of External Training Providers you are associated with during last financial year (2003-04):

Name of the External Training Provider	Main Area of Training	Location	Total No. of Participants

2.9) If you conduct Training courses for your IT Workforce through E-Learning Providers, do you design the Training Courses as per your requirements? Yes/ No

2.9.1) List names of Top Five of E-Learning Providers you are associated with during last financial year (2003-04):

Name of the E-Learning Provider with their URL	Main Area of Training	Mode of Delivery (CD-ROM/ Intranet/ Internet)	Total No. of Participants

2.10) If you have company's Training Centre/ Division in Kolkata, how is it organized?

____ Headed by professional Training Manager

____ Assisted by professional Training Executives. How many? _____

____ Coordinated by Subject/ Domain Experts. How many? _____

Number of Internal Trainers/ Consultants: _____

Number of External Trainers/ Consultants: _____

(III) Continuing Education and Executive Development Programme and Policy

3.1) Do you sponsor your professional employee in the Full-Time Higher Education Programme, like PhD, M.Tech., MBA, etc.? Yes/ No

3.1) If Yes, does the person have to sign a bond? Yes/ No

3.1.1) If Yes, What are the terms/ conditions? _____

_____

3.2) Do you sponsor your professional employee in the Part-Time Higher Education Programme, like PhD, M.Tech., Executive MBA, etc.? Yes/ No

3.2.1) If Yes, does the person get flexible working hours? Yes/ No

3.3) Do you sponsor your professional employee in the Short-term Training Programme or Executive Development Programme conducted by the premier institutions, like, IIMs, IITs, IIITs, etc.? Yes/ No

_____

Signature of the Respondent

Name:

Designation:

Date:

When complete please return this questionnaire to the address below:

ANUP KUMAR DAS
73/20, GOLF CLUB ROAD, KOLKATA – 700033, INDIA
EMAIL: ANUPDAS2072@HOTMAIL.COM
TELEPHONE: +91-33-24734766 (R) / +91-9899831842 (M)