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Leadership Challenges in Indian Software Industry

by

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Leadership Challenges in Indian Software Industry

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Abstract

Indian software industry has had a phenomenal growth for the last fifteen years and is expected to sustain its growth momentum at least in the near future. Abundant supply of low cost manpower has been one of the major factors contributing to the growth of Indian software industry. However, the high rate of growth has also been the cause of increase in manpower cost, high attrition and disturbed work-life balance. The study based on 27 case studies by practicing software professionals identifies thirteen clusters of problems and also the reasons for those problems. The paper makes recommendations to over come these problems to sustain the growth of Indian software industry.

Keywords: Indian software industry, Leadership, Growth management.

1.0 Introduction

The Indian IT industry has achieved an iconic status in the Indian economy, and is considered a highly significant economic growth engine in India's success. The Indian IT and IT-enabled services' (ITES) share in National GDP has moved from 1.2 percent in FY 1997-98 to 4.8 percent in FY 2005-06. The total revenue from the industry exceeded USD 36 billion for FY 2005-06 with an increase of 28 percent over the previous year. The industry being prominently export oriented has significantly contributed towards the Indian export and foreign exchange reserves. The industry currently provides direct employment to about 1.3 million people and in addition creates additional 3 million job opportunities through indirect and induced employment (NASSCOM, 2006). NASSCOM McKinsey Report suggests that the industry is targeting US D 60 billion in exports by FY 2009-10 and will create an additional one million jobs (NASSCOM-McKinsey, 2005).

2.0 Indian Software Industry: Literature Review

Most of the comparative advantages of the Indian software industry are based on the availability of qualified and talented manpower at much lower costs compared to other developing destinations in the world. However, it has been argued that a number of structural problems afflict Indian IT industry, mostly because of its heavy reliance on external mechanics and the lack of attention in developing domestic markets (D'Costa, 2004). Further, the weak domain experience of the Indian firms lead to lower productivity and lower revenue per employee. Software export earnings per person from India while on the rise have not been particularly high when compared to other software economies such as Ireland and Israel. For example, India's revenue per employee is much lower being US $ 20 –30,000 as compared to Ireland's per employee earning of US$ 60-80,000. (Arora et al, 2001).

The growth of industry has been fueled primarily by customized software solutions and maintenance services, requiring increase in the number of professionals deployed for increase in revenues (Krishnan and Prabhu, 2002, Arora et. al., 2001). McKinsey Global Institute study suggests that only 25 percent of engineering graduates from India have necessary skills to be employed without prior training. In countries such as Poland and Hungary, fifty percent of the engineering graduates and in Malaysia 35 percent of engineers are suited to offshore IT jobs (NASSCOM-McKinsey Report 2005). Indian software projects are mainly time and material based and are positioned on the low end of the value chain (D'Costa, 2004). Researchers have been arguing for the need for the

Indian software industry to grow up on the value chain (Ojha and Krishna, 2004) and also move towards development of software products (Krishnan and Prabhu, 2002).

While India's record on information security ranks better than most locations, FY 2005 did witness a surge in the incidence and visibility of cases involving loss or misuse of data across the world. The concerns about information security hit the roof last year with the high amount of direct loss caused by just the few incidents reported in India. Though the accused were identified and dealt with swiftly, it has led to some grave concerns about management of information security at the offshore operations. (NASSCOM, 2006).

Agrawal and Thite (2003) had carried out an exploratory study based on in-depth interviews of stakeholders from a representative range of Indian software organizations to understand human issues and challenges related to Indian software industry. Some of the challenges, identified in the exploratory study were high rate of voluntary attrition, reluctance to make a transition from technical to managerial positions, lack of managerial skills, difficulties with team work, work preferences of software professionals and challenges of managing work-life balance.

Indian software industry, being predominantly export oriented and in service domain, works on projects that are small by international standards. Hence, the industry has to continuous look for new projects and new customers. The existing customers base of the industry is about 2,127 (NASSCOM, 2006). Hence, the industry needs a large number of software professionals who could handle leadership responsibilities much earlier in career. Indian software industry being young does not have many experienced software professionals. Hence, software professionals with 2-3 years of work experience are expected to handle leadership responsibilities. (Agrawal and Rao, 2002). Another study by Agrawal and Thite (2006) identified seven clusters of learning needs for software professionals: self related, leadership related, managerial role related, business domain related, customer related, project, process management related; and organization and role related.

It is in the above context that this study was designed as a qualitative research study to further understand in greater details leadership challenges being experienced in Indian software industry.

3.0 Objectives and Methodology

Though the Indian software industry is comparatively young, the purpose of this study was to go beyond an exploratory study. The study was designed to develop a deeper understanding of leadership challenges and causal factors for those challenges in context of Indian software industry. The study aspired to give meaning to the social phenomena occurring in context of software industry by describing, decoding and translating them (Van Mannen, 1979). Qualitative research methods provide opportunity to combine rational with the intuitive approach to knowledge creation. In addition, they tend to be more holistic and benefit from serendipitous findings (Hari Das, 1983).

Everd and Louis (1981) suggest that view from the inside is experiential, actor-focused, interactively emergent, and relevant to the situation; and the data and meaning are interpreted in a context. Hence, we wanted to use the method, which brings the view from within. Eisenhardt (1989) argue that multiple cases are powerful and better tools to generate theory, as they allow replication of observations, thereby enabling the researcher to validate and ratify hypothesized propositions. Dyer and Wilkins (1991) contend that in unduly focusing on developing quantifiable constructs, it is possible that one often misses out on the rich background that each case so deeply provides, and hence such a research methodology is unlikely to bring forth new insights as does the thorough, detailed and in-depth study of a single, comprehensive case. Their criticism is based on the view that a multiple-case approach results only in peripheral surface scanning; unlike detailed single-cases, which provide an intimate understanding of the context that facilitates theory generation. Eisenhardt (1991) counters Dyer & Wilkins' (1991) argument by reinforcing that multiple-case comparative logic permits replication and corroboration of

theory, and defended her approach stating that the analysis of multiple cases is richer and provides the requisite rigor to generate generalizable theory.

Hence, we decided to use multiple cases from different software organizations and also use the insiders to get context rich data. Accordingly, software professionals who have been part of the Indian software industry for a minimum period of two years were requested to write mini cases in small teams of 2-3 persons per team based on their experiences in context of the organization. We felt that multiple cases written by software professionals from different organizations would facilitate capturing the totality of reality as existing in Indian software industry. Further, the data from different organizations would help in generalizing the findings. Moreover, the case-based narrative approach seems superior to us in an exploratory study of organizational leadership challenges, for narratives implicitly codify a wide-ranging array of facts about diverse organizational experiences (Pentland, 1999), which is perhaps otherwise not easily captured.

4.0 Sample Size and Details

The data for the study came from 27 experiential, narrative case studies written by 54 participants of the Executive Post-Graduate Programme for software industry executives at the Indian Institute of Management Bangalore (IIMB). The average work experience of the participants was 6.5 years with a standard deviation of 2.5 years; and the range being from 2 years to over 15 years. Majority of the case writers (82%) were from companies that provided software products services (41%), software services (35%) or combined products-services (6%) portfolios. The remaining case writers were from firms that offered both products and technology solutions (6%) and companies that had a diversified portfolio of products, services and technologies (12%). The proportion of respondents from large corporations employing more than 5,000 employees was 56% (15 cases); the medium-size organizations, employing 300 to 5,000 employees was 26% (7 cases) and small companies, employing less than 300 employees was 18% (5 cases).

Most of the participants (82%) were graduates, with post-graduates constituting 15 percent of the sample. There were other professionals like chartered accountants too. Only 26 percent of the respondents had qualifications in computer science/engineering, which partly reflects the reason for the industry not being able to grow up on the value chain. Professionals from a non-computer science/ engineering background came from electrical, electronics and communication engineering streams.

Eighty-eight percent of the participants were in leadership roles; 55 percent of them being team/module leads and 33 percent were project managers. Only 12 percent were working as senior software developers. Eighty-eight percent of the case writers were male and the remaining twelve percent were female. All women in the sample were in team leadership positions.

A remarkable 68 percent of the case writers had switched companies at least once, 44 percent had switched at least twice, 15 percent have changed jobs more than thrice, and 3 percent had switched jobs at least four times in their careers. The average work experience per company was 3 years and ten months. The switching times varied from the shortest switch time of 2 months to over 12 years. Thus the sample was representative of the Indian software services in terms of profile of companies, profile of participants and their typical behavior of frequent change of organizations.

Two teams of two researchers each team independently analyzed each of the cases and identified the problems emerging from the cases. While the first team identified a total of 43 problems from twenty-seven cases, the second team identified 45 problems. Both the teams discussed the list of problems and agreed for a total of 47 problems emerging from the cases. Each of the problems was identified with a key word/phrase and then 44 problems were clustered into 13 broad themes. Three problems were generic in nature and hence were not allocated to a cluster and were listed separately.

5.0 Findings and Analysis

The cluster titles along with the serial number of cases in which the cluster-related problems were discussed are listed in Table-1. The serial number of the cases along with the case title is listed in Annexure-1. All the numbers in the brackets refer to the cases listed in Annexure-1.

Team Dynamics: (1, 9, 11, 13, 17, 18, 19, 21, 22, 25, 27)

Indian software industry essentially works in project management structure using teams. A large number of problems in software teams seem to be consequence of lack of match between personality and role being played by leader and team members. Many of the software project teams come into existence or get enhanced on a short notice. Due to time pressure, many times members get selected with out having adequate competencies or preference for a particular role.

> *Rajeev and his team work with a highly demanding customer on a technology, which is comparatively new in the market. The project started with just three people who got trained initially. However, there came a time when the inflow of customer demands started accentuating that Rajeev had no option, but to scale up the resource strength in no time. "I had no option at that time but to pick the guys who were just average in their competency. I cannot sit and wait for the best resource to come. I will lose the business (9).*
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> *Kapil was selected to be a project manager for a project that required Microsoft technology. Kapil had worked for Java technology and had no clue about Micorsoft technology. He heavily relied on Ram and Shyam who were expert in the technology, were technical leads for the project. When the project schedule slipped, Kapil started wondering "Was it correct on my part to trust Ram and Shyam completely? My team has let me down" (11).*

Team members who work at the same level find it difficult to accept that one of the colleagues becomes their boss.

> *Tiwary after promotion found that he had to manage two of his colleagues who had competed with him for the post of project leader but without success. They were not very happy working with Tiwary as a leader and were not too keen to see him succeed in the new role. He was also not comfortable acting as a leader for these two colleagues. It always led to conflict and after six months, the two members left the organization. Another team member in Tiwary's team was highly competent but always wanted to work only on technically challengingr work (10).*
>
> *Suresh and Nanda were new to the organization and did not know each other. They were sent to Toronto, Canada on the client site for the proof phase of the project. Mr. Prashant, the project manger made Suresh based on his technical superiority as client coordinator for the company before leaving Toronto. Prashant advised them to work together as a team and ensure that the client was happy. However, soon Nanda started finding faults in the way Suresh used to work and they really had tough time to work as a single team. Even client could notice the conflicts between Suresh and Nanda (17).*

Table-1

Clusters and the number of problems emerging from twenty-seven cases

Sl. No.	Cluster Title	Serial number of cases in which the cluster-related problems were noticed	Total number of cases in which the cluster-related problems were noticed.
1.	Team dynamics	1, 9, 11, 13, 17, 18, 19, 21, 22, 25, 27	11
2.	Challenges of managing knowledge workers	7, 12, 13, 15, 16, 18, 22, 24, 28	9
3.	Onsite-offshore delivery model	1, 2, 7, 8, 14, 18, 27	7
4.	First time leaders: promotion of technocrats as leaders	6, 10, 17	3
5.	Over promises and breaking of psychological contract	9, 26	2
6.	Software professionals as contract employees	19, 23	2
7.	Lack of customer orientation	1, 6	2
8.	Lack of career and succession planning	20, 22	2
9.	Work-life balance	15, 16	2
10.	Pain of giving performance feedback	6	1
11.	Women executives in software industry	9	1
12.	Dress code and etiquette at work place	9	1
13.	Estimation of time for projects	4	1
14.	Miscellaneous	5, 7, 10	3

Indian software professionals generally find it difficult to work at the same level. Some of them find some reasons to create a hierarchy amongst the team members and then like to behave superior as compared to other team members.

> *Samtek Computers Limited (SCL) is an authorized agency for ERP implementation. SCL decided to implement ERP package for different in-house functions to benefit from the package as well as get first-hand experience of implementation. The in-house implementation team consisted of ERP consultants, key users, quality coordinators and programmers. They had different skill sets and had different levels of experience. Being members of the same team, they had similar status. They were expected to interact and facilitate each other to effectively perform their respective roles. Sunita, one of the team members from the user departments felt that internal ERP consultants perceived themselves to have higher status in the team because they had the product knowledge. Further, they seemed to have a tendency not to listen to the viewpoint of key users. Sunita used to prepared detailed process notes after each interview. However, she found that ERP consultants did not take those process-notes seriously (22).*

When a software project moves from development phase to maintenance phase, many team members tend to lose interest in the project. The nature of the work changes from development work to maintenance work. Hence, team members plan to move to another project or to another organization disturbing the balance of the team and its performance.

> *Nipun was responsible for a project, which was in the field of new product development. Every body was very keen to be part of his project team. However, when project moved in maintenance phase, with in a year, the project lost five members. Three members joined another project in the same company and two members resigned from the organization. Nipun had to quickly get people on the project. He tried contact employees, took a fresh graduate from outside, and got an onsite member to join the team. While he got the numbers, the team dynamics got disturbed. He found that some team members did not have necessary skills to work on the project and most of them found difficult to work along with each other. Nipun was worried that it would reflect on his 360 degrees performance appraisal (19).*

Creation and enhancement of a project team on a short notice, movement of team members to other projects and high attrition are major factors that lead to a software project team having a large number of new members. These members need to be educated about the project, domain and technical knowledge. However, it seems that project teams do not have systems and processes to ensure that team members could learn what is required for being effective team members.

Challenges of Managing Knowledge Workers (7, 12, 13, 15, 16, 18, 22, 24, 28)

Every young knowledge worker in software industry seems to be interested in working on software development and, current and new technologies. They get bored easily with the maintenance and legacy work. As perceived by software professionals, a typical maintenance project does not provide enough learning opportunities, requires bug fixing or time-bound enhancement and hence is not considered to be very significant or a challenging task. Continuous monitoring and change requests from customers add to work pressures and tensions; and do not give a sense of autonomy to people working on such projects. Hence, many young knowledge workers working on such projects request for change to another project or move to another organization at the earliest opportunity. However, Indian software industry predominantly works in maintenance domain with about 60-65 percent of the total revenue coming from maintenance of legacy system. Hence, Indian software organizations do not have too many options for moving people to other exciting projects.

> *Karan felt very excited when he was asked to take over as project lead for "Mariner", a 16-bit window based configuration suite. The project being a live project with around 200 devices support across 100 live locations, direct customer interaction and direct impact on the bottom line of the company had high visibility. What else could have Karan asked for his career then? With in six months there were first few requests for project change and then there were more. The reasons varied from "I can't take the pressures anymore"; "It's a monotonous job"; to "I think this project is a crap". The frustration in the team grew with time, and with more hectic schedules and deliveries, the motivation level was dwindling. The management even tried going extensive on awards, recognition and salary hikes, but motivation was back to square one within weeks. Controlled transition, added fuel to fire but more importantly, affected the deliverable (12).*

> *Greg has joined a product and service company after completing his post-graduation from one of the national information technology institute. During the selection interview, he had shown his preference for working in product development group. However, due to work exigencies, he was posted in service support group. He had raised the issue of transfer to product group after being in the company for about a year and a half. Dev, his boss explored the possibilities of transfer options with development managers. However, development managers felt that Greg might not be suitable, as he had already spent about a*

year and a half in a functional role. This coupled with lack of policy clarity and lack of convergence on the inter-group transfers meant the issue never got a serious consideration. In the next six months, he resigned from the job. After the resignation over a cup of coffee, he told his boss "__ I have no issue with you. But I am loosing out. My career is getting stuck here. My classmates are already team leads. They are getting rupees six lakhs, plus perks and overseas stints. Although I am not too keen about foreign trips, it does give one an opportunity to make a lot of money. Here, there is not much money. Outside, consultants of eEnterprise are in great demands. Two – You know, I always wanted to do coding/development. The present offer I have gives me the scope to work on coding. I will be primarily into customization where both my functional skills and technical skills will be used. Three – If I have to shift, I should do it now. Else, no one will give me a chance to code. I will be too 'old' for coding" (7).

Arun was part of a product testing team. As automation of the product was not yet fully planned and Arun was the experienced tester, Kishore, his boss wanted Arun to take on manual testing tasks. But Arun refused the same saying "I am not interested in this click-click kind of work. I would like to do some high end work like automation or installation scripting" (13).

Learning needs of knowledge workers and their desire for autonomy can be better handled by enhancing internal flexibility through HR systems and processes. Most of the project teams, due to fast growth and heavy attrition, are perennially experiencing shortage of manpower. Hence, line managers tend to hold on to the existing team members rather than allowing them to move internally with in the organization to the role of one's choice. Short duration work experience leading to labeling of a knowledge worker; and reluctance to job rotate them, reinforces the views of knowledge workers that they would have to do what ever is required to get to a right role. This further alienates them from the role and the organization and adds to attrition in the Indian software industry.

Knowledge workers also refuse to share their work and knowledge with others. They draw their sense of identity from their work and find it very painful when somebody wants to unilaterally bring changes in the work handled by them or their roles.

Anjali was part of a testing team and was assigned an important module, which was very huge in terms of functionality, by her earlier boss. Kishore, the new boss wanted to divide the module logically between two persons. When Anjali was asked about, she annoyingly said, "If you wish you can give the whole module to some other person". Kishore tried to explain her reason behind dividing the module but she did not take it in a positive way (13).

Knowledge workers generally tend to be introverts and do not share their concerns openly unless being asked for. Competent knowledge workers are given bigger responsibilities and they like it for a while. However, they soon realize that while many of their project team members have been having comfortable life, they are being burdened with additional work and have no work-life balance. They experience a sense of inequity, resent it and want to punish superiors and the organization for the inequity.

Mahesh was considered to be one of the most efficient team members and technically sound by her boss. He was sincere, hard working and soft spoken – a contributor every project manager loves to have. Many of the recent projects that Mahesh worked on were crunched on time lines. There were no clear requirement specifications. The developers were asked to redo the same stuff over and over again. They were frustrated but seemed to get along. One afternoon, Mahesh reached his boss and told him, "Srikanth, this is the last project in this company that I am working on. I need to balance my work and social life." After being with Srikanth for about half-an-hour, Mahesh finally said, "How can the company burden the good performers while others went scot-free?" Srikanth felt that Mahesh was given a huge chunk of work. But that was because of his past performance and the faith the company had on him (15).

Onsite-offshore delivery model (1, 2, 7, 8, 14, 18, 27)

Global delivery model invented by Indian software companies require that one or few members from a project team are located onsite at customer's organization. They work initially with the client to define the project requirements and subsequently coordinate on a regular basis between the client and the offshore team working in India on software project development. This delivery model has significantly contributed towards cost competitiveness of the Indian software companies. However, this unique team structure is also the cause of many leadership challenges as emerging from the six cases.

Onsite posting creates opportunities to visit a foreign country and opportunities for substantial savings, particularly for those who get posted for more than three-months. Sometimes those who get onsite posting for more than three-months are also financial supported by the organization to take their family along with them. In addition, onsite postings create opportunities to learn about domain knowledge. Thus, many software professionals perceive onsite postings as a reward and they look forward to onsite postings. When software professionals in a team perceive that the selection for onsite positing was not fair and equitable, they experience inequity and feel disgruntled and angry against the team leader and against the person who gets selected for onsite posting. In normal situation, software professionals with experience and maturity, having domain specific knowledge and good communication skills are expected to be chosen for onsite posting. However, many a time, due to exigencies of the project, software professionals who are easily available, have a USA visa and are willing to travel at a short notice get picked up for onsite posting. Some time, a project leader may select a person in whom one has confidence but who may not be the most competent person or senior most for the onsite posting. Occasionally, software professional with some unique competencies may be able to pressurize the boss to select him or her for onsite posting by threatening to resign.

Onsite team members, some times get recruited abroad where the client is located. They are typically experienced professionals with excellent technical and/or domain capabilities. However, they seem to lack interpersonal skills. Offshore team members being 'rookies', lack confidence about technology and many times they also lack communication skills. Since onsite members never work together with offshore team members, the necessary warmth of relationship and team spirit lacks. Onsite team members often tend to be arrogant, disrespectful and indifferent towards the concerns and problems of the offshore team members (1).

> *Prashant who was posted onsite started making decisions and promises to customer without consulting the project manager, team lead and team members. Since onsite members perceived that they were expected to keep customer in good humour, they tended to agree with reasonable; and many a time unreasonable requests from customers as perceived by offshore members to keep customers in good humour. Such unplanned changes made the project delivery task more complex and difficult. Offshore members did not like such unilateral acceptance of the project changes by onsite members and they very much resented such actions by onsite team members. Many of these problems had their roots in lack of clearly defined team structure between onsite and offshore team members (14).*

Onsite team members being closer to customers tend to have greater visibility to customers as well as to offshore senior managers. Proximity and visibility to a customer, leads to a customer giving substantial credits for successful completion of the project to an onsite member and communicating it to offshore senior management. Some time the onsite member tends to take credit for all the good work done by the team (18). It becomes an additional cause of pain and perception of lack of fairness by offshore members. A customer getting used to existing onsite team member, asks for the same person being continued as onsite coordinator for subsequent projects (14). Senior management in many organizations accepts such a request from the customer to keep the customer in good humour. However, such an action by the senior management further reduces the possibilities for other offshore team members to go onsite and reinforces the sense of inequity as perceived by them.

Since onsite posting is not part of career plan, software professionals after returning from onsite posting realize that they have lost on the promotional opportunities and the associated salary increases and perks.

> *Rohit (8) who had been onsite for three years, after coming back at offshore realized that his boss wanted him to be in the same senior developer role which he had played before onsite posting. He argued with his boss that almost all his contemporaries had been promoted as a project manager or as a project leader. In addition, Rohit was also pained that he would get much less salaries as compared to his contemporaries working in the organization. His boss told him that since during onsite posting he did not lead any team, he could not be immediately considered for the post of project leader. Further, Rohit's boss told him that he had enough opportunity to save money during the onsite posting. Rohit got annoyed and frustrated by the response of his boss. In a few days, he got an offer from a multinational corporation offering him double the salary. He resigned from his existing organization. His boss tried to persuade him to withdraw his resignation letter but without any results.*

First Time Leaders: Promotion of Technocrats as Leaders (6, 10, 17)

Fast growth of the software companies leads to high performing technocrats being promoted much early in their career as team leads and project managers. India being a feudal society, software professionals value being promoted in leadership position but they do not like to invest time and effort to perform leadership functions and responsibilities. Since, technically competent and high performing software professionals are promoted in leadership position, they have a tendency to over estimate their capabilities and at the same time underestimate the capabilities of their team members.

> *Ravi said "Moreover, I can code in 5 hours what my best engineer will complete in 5 days. I cannot work with a team as incompetent and de-motivated as I have. Give me 3 IIT graduates like me, and I will complete my module in one-fourth the time." (6)*

Some of the software professionals, promoted as leaders, neither have the competencies nor the aptitude to acquire leadership competencies. They do not like performing leadership responsibilities and consider it to be a waste of time to participate in meetings with team members and with clients. They do not like to spend time in coaching and mentoring their team members. They miss coding and live with the anxiety that they would lose the technical expertise.

> *Ram said, "I was wrong in taking up the project manager role, I think. It is rapidly draining me of technical expertise. Just yesterday, I took nearly 30 minutes writing a silly shell script that I could have written in 5 minutes flat just 6 months ago. I feel like a glorified clerk whose only job is to keep making PowerPoint slides and Excel charts, apart from pretending to look important in long, boring organizational meetings (6).*

Over Promises and breaking of Psychological Contract (9, 26)

Under the pressure of exigencies of work and shortage of manpower, managers make promises to their team members that are not well thought through. For a variety of reasons, those promises are not fulfilled and it leads to team members experiencing breaking up of psychological contract and the associated pain, anger and frustration.

> *Vikas is presently responsible for training new employees and installation of systems with software and provide maintenance support for those machines. He is considered to be an excellent performer in his existing role and has rating accordingly for the last two years. However, he is very unhappy because he wants to work in software development department. He has done his masters in computer science and had expressed his interest in software development to the hiring manager at the time of selection interview. The manager, who had hired him, was open to such a move for Vikas. However, he resigned and the new*

boss of Vikas was reluctant to recommend job rotation for Vikas. He did not want to lose an excellent performer from his team. Secondly, he believes that Vikas was under qualified for the job of software developer. He thought that degree of engineering was a must for a software developer. Finally, he argued that Vikas did not have any hands on experience in software development and hence he might be a misfit for the job. Vikas felt frustrating and wondered how he would get the necessary software development experience in spite of having the necessary expertise if he did not get the job rotation. He was also getting worried that after more number of years in his current role, he would further find it difficult to move to software development (26).

Pooja was one of the average performers in Manjeet's team. During the integration phase of the project, he wanted the team members to put extra efforts to ensure timely completion of the project. Manjeet on the advice of his boss, Prem, allured Pooja for putting extra efforts. He in fact promised her that she would be crowned as "Champion", the highest ranking for performance appraisal. Project was successfully completed. During the appraisal process, Pooja and Ravi were two competitors for the choice of "Champion". Prem strongly felt that Ravi deserved the most coveted 'Champion' rating and Pooja was rated the highly competent employee. Pooja was highly depressed seeing the rating. She felt terribly let down and felt that she was exploited. This to her was a clear case of 'quid pro quo' sexual harassment. Accordingly, she has threatened Manjeet that if she were not given 'Champion' rating, she would be putting a case of sexual harassment against Manjeet (9).

Both the cases clearly describe how managers tend to make promises to meet urgent project needs without thinking through the implications of not meeting those promises. The problem is further aggravated due to lack of proper leadership training and career planning process.

Software Professionals as Contract Employees (19, 23)

Software companies, particularly, multinationals employ software professionals from Indian companies as contract employees. Organizations typically use contract employees to do mundane job, as regular employees are reluctant to work on repetitious monotonous jobs.

Nipun was working on a product that had reached a matured stage moving into maintenance phase. The regular team members lost interest in the work and many senior members moved to other projects or to another organization. Nipun employed some contract employees to meet the urgent project needs. However, he found that contract employees tended to have much higher level of attrition as compared to regular employees as they were always in search of a permanent job. Contract employees who stayed back longer in a job, were typically having less competencies and hence required much higher level of supervision as compared to regular software professionals (19).

Sanjana Ramachandran (23) was a high performing contract employee who had experienced a different kind of problem. She was an employee of IDM Technologies in Chennai and was working for L3 Technologies in Bangalore for the last five years. She was extremely good at her work and enjoyed her work. However, being a contract employee, she could not enjoy many facilities and perks which were available to regular employees of L3 Technologies. For example, she could not participate in the training that was imparted to regular employees, as L3 would be billed on a per head basis. She did not receive any team awards or individual excellence awards at L3 in spite of her team achieving her delivery targets. The performance appraisal system at IDM required any two executives from L3 Technologies to fill up the appraisal form for contract employees. Since, the appraisers were not required to be part of the project on which the contract employees were working, every contract employee landed up getting good feedback from their friends at L3 and hence no variable rewards were given by IDM. IDM promoted Sanjana in the grade of team lead by lieu of her experience and the positive feedback she received. However, she had to continue to work as software developer at L3 Technologies.

Sanjana did not receive the gift and the certificate, which were issued to all the employees after completing five years of service at IDM. "Being at the client's place does not mean I am not IDM's employee. It is not the omission to send the gifts but it is their attitude towards employees that is unfortunate" reflected Sanjana ruefully. (23)

One day, a colleague of Sanjana, a regular employee at L3 was promoted to the post of team leader. He was apparently less competent than Sanjana but she had to report to him and she did not feel good about it. "I neither belong to IDM nor to L3. Though I like the work I am doing in L3, I am missing growth opportunities in my career. I cannot afford to be an entry level software developer all my life." (23)

Lack of Customer Orientation (1, 6)

Typically, Indian software companies work as sub-contractors for the international software companies which in turn work for clients from different industries working in different parts of the world. The customer's ability to deliver the software product in time to its customer depends upon Indian Software Company completing its share of work. The cost of delay of the project is much higher for the customer. Hence, the customer will like on a regular basis to be assured that the project is going as planned. The customer would also like to know in time if there were any problems related to the project.

Project managers are expected to attend customer meetings and prepare PowerPoint presentations and many of them do not like to spend time on these activities. These activities take away part of their time from the technical work. They also feel that they are losing their technical expertise while performing managerial functions. Project managers do not like to spend time on making customer calls. Invariably, these calls have to be made late in the day requiring them to stay back in the office. They also do not appreciate why these calls are important when they have already submitted a detailed report to the customer. They are not able to appreciate the importance of oral communication over a report. They perceive it as a waste of time.

"I hate those meetings", continued Rohit. "Hardly anything gets accomplished in them, given the amount of time one spends there. I see absolutely no value addition in any of them. I could easily churn out a UI routine in the time one has to spend in painfully writing minutes".
"I have no understanding of why my customer loves to talk on the phone for hours going over my status report with me after have wasted a full 2 hours creating it. I am not averse to staying late in office – I spent 36 hours at a stretch in office once, coding a full protocol layer. My family is used to it. But poring over a boring status report is not my idea of productive work".

Lack of Career and Succession Planning (20, 22)

Software services are delivered in a project framework. The project structures are temporary by nature. Software professionals on projects are not very sure where would they work after the project is completed.

Sunita belonged to materials management department and was selected to work on internal ERP implementation project. She and many of her colleagues, who were transferred from user departments to internal ERP implementation team, did not know whether they would continue to be part of ERP team or would be transferred back to their parent departments. While the project manager had told the team members that they would continue with the ERP Division, ERP Division head had not given any such indication to the key users that they would become part of ERP Group. In fact the members from user departments were neither invited by ERP Division nor by their parent departments for the respective department meetings. These meetings were the forum where members could discuss their problems and concerns. More importantly, people attending these meetings came to know about the various initiatives being taken by the organization. Since the project group was very big, even the project manager did not

invite them for project review meetings. User department members in the project group used to feel that they did not belong to any department or they did not have a superior who was concerned about them (22).

Prashant as a project manager rarely used to get to speak to his boss who was always too busy. It was only when his boss needed some information or wanted to communicate some organizational information to people in the department that his boss used to ask for him. Prashant was happy when his boss told him that he would be promoted and he needs to quickly groom a leader to replace him. However, since the subject of succession planning was not discussed earlier, Prashant was at a loss. The task was made more complex because Gautam was the senior most member in the project. He was technically competent and was acceptable to team members. Maulik had 10 months more experience as compared to Gautam but has joined the team only six months before. He was also technically competent and would like to be considered for the post of project manager (20).

Work Life Balance (15, 16)

Organizational and software professional related factors jointly are responsible for adversely affecting work life balance. Organizations for ensuring that they get enough projects tend to accept unrealistic delivery dates. They further keep accepting different kind of changes and modifications required by clients without changes in the project delivery dates. This leads to software professionals being required to put much longer hours in office. Being young and energetic, they enjoy it initially but over time they get stressed and experience burn out.

Mr Mehta is currently working as a project manager in a multinational corporation and has 8 years of experience. He was a brilliant student at a national institute of technology and was selected through campus recruitment for his first job. He had a sharp and creative mind and being his first job, he was enthusiastic and full of energy. He was never free as being competent and willing to take responsible, work kept flowing on his table. Though he used to feel occasionally the need to go home in time, he was never able to do that. People used to tease him whenever he wanted to go early. He had stopped enjoying his daily work. Though his first few appraisals went well, he could not maintain the same energy level in the second year. He was burnt out and lost interest in work. His attitude changed towards work to a great extent. The stress blocked his mind from doing innovative work (16).

Mr Mahesh another bright and hard worker suffered from over work and finally resigned from the organization (15).

Pain of Giving Performance Feedback (6)

Many Indian software companies with the objective of motivating performance use performance-based differential rewards and insist on force fitting bell curve for performance distribution. Software professionals in leadership positions find it painful giving performance feedback, and coaching and mentoring their team members. The task of force fitting bell curve becomes much more complex because of the project and team based nature of the software development work in Indian context.

"After all, the whole team has contributed; why can't we give all of them the same performance rating and be done with it?" quipped Ram, while looking at the bell curve.

Ravi was more forthright in expressing the difficulty all of them were really facing. "How can you look a guy in the face, and tell him that his performance is below the mark. Ultimately, the performance rating will reflect in his salary, and he will just quit if he does not like it. I do not want to spend hours recruiting another fresh person and training him on the basics of the domain." (6)

Women executives in Software Industry (9)

Indian software industry has the unique distinction of creating career opportunities for technically qualified women in large numbers. The Indian software industry currently employs about 20-25 percent women. The project nature of work and inherent uncertainties linked with the software development and delivery work creates some unique challenges for women employees in software industry. The problems get further exuberated due to the global delivery model and the need for continuous communication and coordination in late nights with the clients located in North America, Europe and other parts of the world.

> *Rajeev works for a fast growing large Indian software company. Rajeev's team consists of Shalini and Meera, the two women software developers and three men software developers. The team worked fine till the client decided to work on the new version of the product. Client kept changing specifications based on the requirement of his client. The work pressure started mounting and the team had to stretch much further to meet the deadlines. Shalini is married, has twin kids and she packs her bags by 6.00 p.m. everyday for home. Quoting Shalini, "My second innings starts once I reach home". During the time of interview itself, she had told that she would need to leave office by 6.00 p.m. every day. Rajeev felt at the time of selection interview that Shalini might stay back at times of need once she started taking responsibilities. However, invariably Shalini always left the office in time and the left over critical work by her had to be completed by other guys who stayed back to complete their work and the additional work of Shalini (9).*
>
> *Meera, another woman software professional working for the same company was considered to be highly competent and committed and her ownership of the work was exemplary. She stayed about twenty kilometers away from the office and used to take the taxi services provided by the company. Of late, she was reluctant to stay back and travel by the taxi after the recent news of a BPO women employee being raped by a taxi driver in the same city. Meera says, "Why should I take risks with my life? Project deliverables and customer can wait for one more day. I am faithfully spending nine hours per day in the office." (9)*

Dress Code and Etiquette at Work Place (9)

Software organizations have been growing very fast and hence they increasingly rely on fresher from the colleges. They are willing to learn technical aspects and stay long hours. However, they also seem to have preference for casual dressing and a life style similar to the university from where they have come. The day on which the organization allows its employees to come in semiformal or casual, many of them come dressed which would be considered inappropriate for an office but may be appropriate for a party or informal get together. In addition many of them behave in the work environment as an extension of their college life.

> *Vishal said "—These new bunch of youngsters who joined us are really fashionable in their dressing. A special mention needs to be made of Reema, who was the compere for the recent cultural night we had. Her general attire to work is either a low waist, boot cut jeans and a short top or shiffon saris which are body hugging." Aditya reflected on his observations, "They just see the office environment as an extension of their college life. I see guys and girls holding hands and walking inside the office premises and I see them in real intimate postures in the bus ride back home. What is interesting is that all this is done quite openly without any guilt or furtive looks from their side, which makes me think they are quite natural and feel comfortable doing the same." (9)*

Estimation of Time for Projects (4)

Software service projects have the challenge of correctly estimating the time required for a project. Competitive service market leads to business managers agreeing for a much tighter project delivery dates as demanded by customers.

> *Alok, and his manager, Manish were discussing the project schedule. There was a difference of almost a factor of three in the effort Alok had estimated as compared to what manish wanted. Manish was upset by the timelines and was worried about his individual performance as he had already committed tighter deadlines to the upper management without consulting Alok. Manish tried to pressurize Alok to see if by working longer hours or by reducing some testing and documentation, the time could be reduced by half of what Alok had estimated. Alok on the other hand, was convinced about how a good project should be implemented and was trying to explain to Manish that it would be bad if they delivered the project by taking shortcuts. Manish got angry and accused Alok that he and his team were too inefficient in delivering and that in his previous organization they used to do such assignments in much shorter duration. (4)*

Miscellaneous Challenges (5, 7, 10)

Apart from the challenges that have been put under different clusters, a few other interesting challenges had emerged during analysis. An ambitious business manager after losing a project contract became much more task oriented and started having stringent control on all project activities. It led to lowering of morale, increase in attrition and project performance further dropped (5). Another software organization had bureaucratic culture and which made it difficult for people to reach out to the top management for any skip level communication (7). In another organization, being a multinational corporation, it was difficult to have any surplus manpower. Such strict control on manpower used to make it difficult to have organizational flexibility to handle any exigencies and urgent requirements (10).

6.0 Discussion and Recommendations

The problems emerging from the study are big, important and affect performance of the Indian software industry as well as people who are part of the industry. It is to credit of the industry that in spite of these problems it has sustained its growth and has significantly contributed to the growth of Indian economy and India brand. However, if all the internal as well as external stakeholders related to Indian software industry work on these challenges, the industry has the potential to play a much bigger role in the growth of Indian economy.

Leadership challenges emerging from the industry has its roots in nature of work being done by the industry and the nature of the people who are part of the industry. Indian software industry is essentially in software service domain mostly doing maintenance and testing functions. However, because of attractive salary, pleasant work environment, positive brand image and lack of equally good opportunities in other industries, Indian software industry has been able to attract highly competent knowledge workers, mostly engineers. They have excellent learning and analytical capabilities. Being knowledge workers, they value autonomy, learning and professionalism (Agrawal, 2001). The industry requires software professionals to do what would contribute towards customer satisfaction but software professionals want to work what would give them sense of learning and contribute towards keeping them relevant for the software markets in India as well as globally. The pulls from opposite directions are the cause of stress and frustration for software professionals. For meeting the aspirations of software professionals, the Indian software industry needs to grow up on the value chain. It can grow on value chain by either offering total business solutions or working towards product development. Large Indian software companies have taken initiatives to offer total business solutions by investing in learning to acquire domain expertise. Large Indian multinationals such as Infosys and Wipro have started consultancy divisions, which work towards providing total business solutions. The integration of IT-enabled service by Indian IT industry is also a

move towards offering total service to its customers. However, what is important for the Indian software industry is to ensure that it continues to retain a balanced focus on various levels of the value chain. It needs to nurture high end of value chain without being overly concerned about immediate pay offs.

Project nature of work in any industry is characterized by uncertainties and overloads. In context of Indian software industry, the continuous enormous growth and global delivery model further adds to the complexity. Enriching the project with resources is one strategic move to take care of uncertainties and overloads. Human resources are the most important resource in context of Indian software industry. In the past, the industry did not have enough supply of manpower and now the industry has problem of lack of readiness of the fresh software professionals/ engineers to work on projects. Typically, a fresh engineer needs to be provided 3-6 months of finishing school training, followed by internship on a project for another six months. While large organizations are able to provide finishing school training, small and medium size organizations do not have classrooms and teachers as well as critical mass of participants to provide finishing school training. Agrawal and Rao (2002) have discussed the need for the software organization to adopt second and third tier academic organizations and work along with them to deliver finishing school training as a part of the degree programmes. While sporadic initiatives have been taken by a few software organizations, much more needs to be done in this direction.

Inducting and helping fresh team members to learn what is important in context of a project is very important. Many of the problems related to project delivery as well as frustration of team members about not being able to contribute towards a project is associated with lack of knowledge about project. Organizations need to work towards creating a work culture where by senior members of the organization consider it to be part of their responsibility to help fresh members to learn and become full members of the team. Performance appraisal and reward system should give due importance to coaching and mentoring contributions by senior members. Every new member in a team should be inducted in the team by clearly defining one's role and linking it with other roles in the team.

Indian software industry has been able to attract good HR professionals. However, due to a variety of contextual factors, they seem to spend a large amount of effort and time in recruitment and selection only. Organizational growth can be sustained by investing in growth of human resources and that is where HR needs to play a vital role. They need to strengthen organizational learning systems and processes as well as act as a facilitator for learning in project teams. Since knowledge and knowledge workers are the major resources in software industry, at least 15-20 percent of the human resource budget should be spent on development budget. Such large investment are required to expedite the rate and quality of learning and at the same time it would help in satisfying learning needs of professionals. Since Indian software industry has been growing very fast, it needs to nurture managerial and leadership skills and competencies at multiple levels (Agrawal and Thite, 2006). In addition, HR should work towards strengthening career and succession planning processes. Project structure being temporary in nature, is not conducive to career and succession planning process. HR along with project managers should work towards identifying and nurturing talent using career and succession planning process. The first author in his consultancy experience has found that product based software organizations because of the nature of the work were able to offer superior career plans which were highly appreciated by software professionals working in those organizations.

Software organizations need to nurture flexibility so that it could respond to external environmental changes in an effective way. Firstly, though the industry is in service domain, it should not give away its power and freedom to customers. It must ensure that customers treat it as a professional organization and does not interfere in the organizational HR decisions. For example, a customer's request for continuing an onsite member should not be accepted without thoroughly examining it and its implications for onsite as well as offshore members. Secondly, organization should use job rotations in a proactive way to ensure a balance between the projects needs as well as learning needs of the team members. The project development cycles should be closely monitored and team members should be proactively moved as appropriate. As discussed earlier, substantial investments in learning and development can further enhance organizational flexibility and resilience.

Contract workers are used by organizations to reduce cost as well as to take care of seasonal and unplanned workload. Organizations typically pay much less to contract workers as compared to regular employees. They also often do not have access to many perks, facilities and learning opportunities that are available to regular employees. Contract workers doing manual work generally do not have many opportunities to become permanent employees. In addition, it is possible to observe and monitor manual work. And hence, a contract worker doing manual does not complain about non-availability of perks and learning opportunities available to regular employees. However, work of contract workers in software industry is not amenable to monitoring and control similar to the work of manual workers. In addition, these contract workers work along with regular employees at the same work place, often in the same project team. They become aware that they are as good as regular employees and hence they feel unhappy when they are differentiated vis-à-vis regular employees. Software organizations should treat contract workers similar as regular employees and should provide them perks and facilities as well as learning opportunities.

Equity is important for everyone and more so for knowledge workers who have flexibility and choices in terms of job market. Distributive justice and procedural justice have strong correlations with organizational satisfaction, job satisfaction, organizational commitment, trust and withdrawal (Colquitt et al, 2001). Lack of job satisfaction, high level of stress and burn out experienced by software professionals in project teams were at least partly attributed to lack of equity as experienced by them. Project and team based nature of software services work makes the task of helping team members experience equity complex. Onsite-offshore delivery model of software industry adds to the complexity of managing equity. Organizations need to evolve and institutionalize selection processes for onsite posting so that everyone believes that the selection for onsite posting is fair. Similarly, internal posting to different projects which offer opportunities to work in different domains and technologies which are considered to be hot and being in great demand should be perceived as fair and rationale.

All the recommendations discussed above can be summarized as leadership at the highest level taking responsibility for managing a balance and congruence between the requirements of external and internal environment; and ensuring a balance between enhancing performance in present and creating future for the organization.

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Annexure-1
List of cases discussed in the paper

Case Serial No.	Case Title
1.	Aaron
2.	ARC-100
3.	Ajit
4.	Alok
5.	Annie's Dilemma
6.	Dipesh – The Project Manager
7.	Devendra's Despair
8.	Dupro Technologies
9.	Four-some Dilemma
10.	Govind Tiwari
11.	Kapil
12.	Karan
13.	Kishore – The QA Leader
14.	Laxmi
15.	Mahesh
16.	Mr. Mehta
17.	Nanda
18.	The New Team Leader
19.	Nipun
20.	Prashant
21.	Rohini
22.	Samtek Computers
23.	Sanajana Ramachandran
24.	Tom Hopkins
25.	Vijay – The Part-time Project Manager
26.	Vikas
27.	WEFAIL Project