International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -005
Volume: 04 Issue: 06 | June -2017 www.irjet.net p-ISSN: 2395-0072

Business & Talent Dynamics of Information Technology in India

Sulabh Arora[1]

[1]*Market Research & Consulting Department, NEC Technologies India Pvt. Ltd. India*

Abstract – *The study determines the business dynamics of an IT company through its most valuable resources, which are its employees (talent). It describes how the business delivery model of an IT company is defined as per the technologies, service models and geographical location of services. The paper details the three main aspects associated with an IT company employee (talent), which includes Skills, Learning & Development, and Remuneration. India being a diverse country, there is a lot of regional variation in the software talent across states. This paper establishes the reasons for this variation and also the reasons for movement of software talent from one location to another. The study is a result of gathering and analyzing the survey responses from the research conducted with various companies for instance TCS, Infosys, HCL, Wipro, Tech Mahindra, Mind Tree, Hexaware, NEC Technologies India, and ASM Technologies. The paper also summarizes various surveys conducted with employees of IT companies. Key takes ways from this paper are:*

- *Develop an understanding of information technology (IT)*
- *Classify the Business Delivery Models (BDMs) used by Indian IT companies*
- *Find out the factors associated with Software Talent dynamics in Indian IT industry*

Key Words: Information Technology (IT), Technology as a Product (TaaP), Technology as a Service (TaaS), Technology as a Host (TaaH), Business Process Management (BPM), Business Delivery Model (BDM), Research & Development (R&D), Software Talent Vulnerability, Regional Variation, Software Talent Dynamics

1. INFORMATION TCHNOLOGY INTRODUCTION

Since the dawn of mankind people have been using language for creating, storing, retrieving, changing, and communicating information. It dates back to the time the Sumerians in Mesopotamia developed writing around 3000 BC. After the evolution of machines and devices, the architects of language started using technology (machines and devices) to create, store, retrieve, manipulate and communicate the information, hence the term Information Technology.

"Information Technology is the use of technology to create, store, retrieve, change, and communicate electronic information (or data)."

To achieve these 5 things in information technology, it rendered companies to develop their service models around it and hence "IT Services". IT includes several layers of hardware which includes computing and storages devices. IT also includes software which is a collection of code/algorithms installed onto the hardware.

1.1 Evolution of Information Technology

Based on the evolution of hardware and software involved in IT, it is possible to distinguish six distinct phases of IT development [1] as shown in Figure 1.

1. Pre-mechanical (3000 BC – 1450 AD)
2. Mechanical (1450–1840)
3. Electromechanical (1840–1940)
4. Electronic (1940–2010)
5. Digital (2010-Present)
6. Automated IT (Future)

1 2 3 4 5 6

Figure 1: Evolution of IT

1.2 India Perspective

Globally, India is one of the world's largest IT sourcing destination. Sourcing accounts to approximately 2/3rds of the total Indian IT sector of USD 160 billion in FY16-17 [2]. IT industry has been transformational in altering the perception of India in global market. The major reason for this is the cost competitiveness in providing IT services. The Indian IT industry is categorized into four major segments according to business offerings:

1. IT services
2. Business Process Management (BPM)
3. Software products
4. Hardware Infrastructure Services

Indian IT industry continues to be a mainstay of its value proposition in the global IT sourcing market. However, India is also gaining prominence in terms of intellectual capital

with several global IT firms setting up their innovation and R&D centres in India. The IT industry has enhanced the demand of education, engineering and computer science sectors as well. Start-up boom in India concatenates the IT industry growth; India ranks third among global start-up ecosystem [2]. IT beckons the growth of other industries, for instance India's internet economy is expected to touch USD 250 billion by 2020 [3].

2. BUSINESS DELIVERY MODELS

Business Delivery Model (BDM) associated with IT companies implies the execution of its services by using a team to deliver services. A BDM is defined by three parameters, (1) Technology, (2) Services, and (3) Location, details of which are mentioned as following.

2.1 Technology

Technologies in IT industry can be broadly categorized as:

- Big Data
- Cloud
- M2M
- Internet of things
- Cybersecurity
- Automation
- Simulation
- Artificial intelligence and robotics

Further the business delivery models can be categorized as mentioned in Table 1 in which AIT is the IT solution vendor, BIT is the IT solution customer, and CIT is the 3rd party IT solution vendor. Table 1 showcases that in a Technology as a Product BDM, BIT will purchase and own the technology from AIT and BIT will manage it on its self. In Technology as a Service BIT will only purchase the technology, AIT will own and manage the technology. In Technology as a Host, BIT will purchase the technology, AIT will own the technology & a 3rd party vendor will manage the technology.

Table 1: BDM classification as per Technology

BDM	Purchase	Own*	Manage
TaaP	BIT	BIT	BIT
TaaS	BIT	AIT	AIT
TaaH	BIT	AIT	CIT

*"Own" here means the ability to modify the solution as per need or to create a Modified-off-the-shelf (MOTS) solutions.

2.2 Services

A wide variety of services are included in information technology domain/industry. There is no set definition of IT services in the industry and every company defines IT services in its own unique way. Some of these service are:

- Network Setup and Administration
- Process Outsourcing
- Application development
- IT Infrastructure deployment
- Support & Maintenance

2.3 Location

The BDMs also depend on the location where the project activities are rendered as shown in Figure 2.

i. Onsite Delivery - project activities are executed at the client's location
ii. Nearshore Delivery - project activities are executed in a different country adjacent to client's location
iii. Offshore Delivery - project activities are executed in different country far from client's location
iv. Offsite Delivery - project activities are executed at a different location from client but within the same country

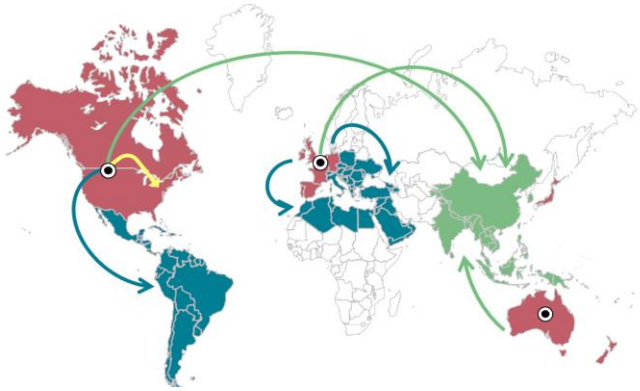


Figure 2: BDMs classification as per Location

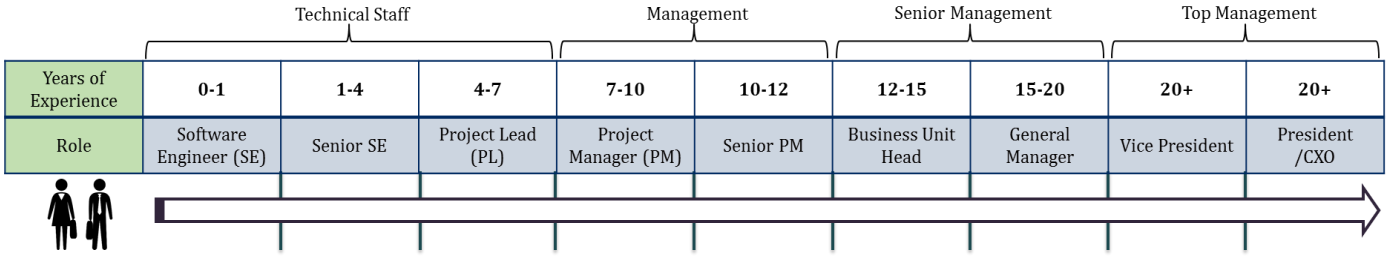
Offshoring continues to be the predominant delivery model for IT companies, however IT companies also invest in onshore and nearshore locations to balance the business ecosystem as per the local legal requirements. This results in a hybrid delivery model, which is also known as Global Delivery Model. In Global Delivery Model, projects are executed by combination of two or more of aforesaid business delivery models.

3. SOFTWARE TALENT DYNAMICS IN INDIA

Indian IT industry in FY16-17 employed 13.7 million workforce out of which 3.7 million was employed directly [2], making it one of the largest employers in India. Women constitute approximately 35% [4] of the total directly employed workforce in Indian IT industry.

With new age IT organizational structuring, growth of a talent in IT industry depends more on years of experience and role in a particular technology than the designation the employee is holding in the company.

Table 2: Classification of software talent role as per years of experience



This is because different companies adopt different nomenclature for defining the designation. A standard growth vector of a software talent is mentioned in the Table 2. An organization uses various techniques to assign a role to the software talent who is moving in from a different organization. Example of one of the techniques is Job Leveling. Job leveling is also used to structure the job profiles to be more consistent and coherent with the overall organization goals.

CASE 1

Business Challenge
XYZ Company was planning to scale up its business in domestic and international markets. Existing approach of XYZ towards organizational structuring was very traditional. XYZ needed to develop a single consistent approach of defining roles in the organization.

Solution
For this XYZ planned to evaluate all the jobs at each level and compare the respective roles against each other to create a new management hierarchy. XYZ started off by analysing current and relevant data to classify overall job architecture at various levels. Next it defined new roles and communicated the afresh job architecture to the employees. Then it gathered feedback from all the employees on the new system. XYZ also made sure that the new classified job architecture was based on the specific organizational goals which were also communicated to the employees thus creating a consistent and integrated job architecture.

There are three main parameters associated with each job role:

1. Skills
2. Salary
3. Learning & Development

3.1 Skills

There are seven (7) main skills required by an IT company, which are Numerical & Logical ability, Cultural fitment, Communication, Adaptability, Domain Expertise, Interpersonal skills & learning ability, and Integrity & Values. In the industry Integrity & Values is the most preferred skill for companies. Then comes the Domain Knowledge followed by Interpersonal skills & learning ability, Numerical & Logical ability and Cultural Fitment. Communication skills and Adaptability comes at the end.

Some IT firms prefer to hire diploma & non-engineering graduates for BPO, KPO and for voice-based and non-voice based processes, in order to become cost competitive. This trend has led to lower attrition, improved retention for the firm. Thus resulting in lower operational costs.

CASE 2

Business Challenge
Every year Wipro hires software talent from tier-1 engineering colleges and these students are offered higher salary packages of USD 10,000-12,000 per annum. Wipro also recruits from Tier-2 and Tier-3 colleges and offers a salary in the range of USD 4,000-5000 per annum for entry level software development & testing profiles. To downsize its SGA expenses, Wipro needed to evaluate other methods to get more value from less paid employees.

Solution
Wipro started hiring BSc. graduates, alongside engineering students for entry-level jobs. Wipro set-up WASE (Wipro Academy of Software Excellence) programme in partnership with BITS Pilani. This programme provides relevant industry trainings to the graduates to make them better industry ready [5]. Wipro hires Science graduates or BSc. degree holders and trains them through BITS Pilani. Wipro also launched a program in association with Vellore Institute of Technology, wherein it trains engineering and science graduates as data scientists for its analytics business unit [5]. Table 3 compares the salary and average tenure in the company of a talent with different qualifications.

Table 3: Comparison of Salary and Average Tenure in Company with Qualification of a Software talent

Qualification /Degree	Salary (per annum) approx.	Average Tenure in Company
Engineering /B-tech	USD 4,000 - 5,000	Low (less than 2 years)

Non-engineering	USD 3,000-3,500	2-5 years
WASE-enrolled	USD 200-2,500	2-5 years

In 2015, HCL launched HCL TalentCare (a subsidiary of HCL Corp.) in which they are enrolling B.TECH (& other graduate) students for a 6 months vocational course for assured job prospects (on successful completion). Students need to sign service agreement with HCL TalentCare instead of their employer. HCL TalentCare is also entering into agreement with organizations and developing course curriculum as per the need of the organizations [5].

Other companies for instance TCS, HCL, KPIT also hire non-engineers candidates and train them for testing support services, KPO, BPO and other ITES roles. This give companies huge cost benefit.

3.2 Salary

Factors affecting salary in Indian IT industry:
- Professional Performance
  - Academic Background
  - Professional Background
- Skills
  - Numerical & Logical
  - Interpersonal & Learning
  - Management & Leadership
  - Soft Skills
  - Domain Knowledge
- Compatible
  - Adaptability
  - Cultural Fit
  - Integrity and Values

People having better professional performance, skills, and compatibility with a company are considered to be of higher value to the company and are usually offered a higher salary package than a person lacking it. Past salary of candidate also determines his/her current salary package. In India some companies tend to pay more than other companies thus creating a differentiation in the salary package offered for same role. This is because of difference in remuneration structure of different companies. The difference is reduced by certain techniques for instance, company wise normalization and industry wise normalization in which companies increase or decrease the salary increments to create parity in the organization.

Salary package and salary increments are outcomes of number of other rational, irrational, subjective and arbitrary factors, for instance:
- Variation in the economic factors
- Industry and company performance
- Supply and demand of labour
- Individual's job performance
- Gender
- Contract type
- Company ownership (private, public, foreign, local)

3.3 Learning & Development

Learning & development activities are important in the fast evolving technological scenario. The workforce needs to be skilled and then re-skilled for the IT technologies. Multiple practices are being followed by IT companies to fulfil learning & development requirements of its employees.

Factors for selection of a training with employer's perspective (in order of priority):
- Requirements of the project
- Developing skill-set in the resources
- Cost burden on the company (of the training)

Factors for selection of a training with employee's perspective (in order of priority):
- Better wage prospects
- Career progression
- Requirements of the project

Training expenses incurred can be justified if the employee continues to work for the organization for 1-2 years (depending on the training) and implements the learning of the trainings towards the organizational goals. To curb attrition and utilize training, companies make the employees sign a bond agreement as per which employees are liable to pay for the training costs (& other expenses borne by the company) if he/she decides to leave the organization prematurely.

3.4 Regional Variation in Software Talent

Punjab, Delhi, Uttar Pradesh, Tamil Nadu, and Kerala are the top 5 states where the best software talent is available, which is the supply side of the talent equation. On the demand side Karnataka, Maharashtra and Delhi are the top 3 states which creates most number of IT jobs. Andhra Pradesh is also an upcoming state attracting software talent in India.

3.4.1 Reasons for Regional Variation

Following 6 Parameters are considered by Companies when choosing a location for their Business setup:
- Infrastructural Support
- Related and Supporting Industries
- Business Incentives
- Ease of Starting a Business
- Opportunity for Expansion
- Supportive Industry Ecosystem

Companies prefer opening offices in locations where the above mentioned 6 parameters are favorable. Delhi, Karnataka and Maharashtra fare at the top in terms of these parameters. Therefore, there is more demand of jobs from these three states. However, nowadays companies are opening offices in other states as well because of less operating cost in other locations. This will help bridge the large demand-supply gap and also reduce the inter-state wise movement of talent pool.

3.4.2 Reasons for Movement for Software Talent

Following are 6 parameters because of which a software talent decides to move from one location to another.

- Work Culture
- Company Brand Name
- Salary
- Designation
- Professional Exposure
- Family and Friends

3.4.3. Software Talent Vulnerability

Table 4 showcases the summary of inputs received from various IT company employees on the reasons to move from one location to another. Inputs were categorized as per three types of respondents:

- Category A: <26 years of age & unmarried
- Category B: >26 years of age & married
- Category C: >50 years of age & married

Table 4: Reasons for movement of software talent across three age categories from one location to another

Factors	Will the employee move from one location to another for this Factor?		
Work Culture	May be	Yes	Yes
Company Brand Name	Yes	May Be	No
Higher Salary Package	Yes	Yes	May be
Better Role & Designation	Yes	Yes	Yes
Professional Exposure	Yes	May be	No
Family & Friends	May be	Yes	Yes

Age

- Increase in engagement levels with an increase in age
- People in age group of 26 to 34 years are least engaged

Tenure

- People with employment tenure between 3 to 5 years with a company are least engaged
- People with longer tenure (>10 Years) are the most engaged

Position

- People at lower hierarchical levels are less engaged
- People at better hierarchy than their peers are more engaged

Gender

- Both females and males have similar overall engagement
- However, females after 30 years of age become less engaged

Category A: People in the age group of 20-26 years are usually not family oriented. This is the most vulnerable age category for any company as this category tend to change the job more frequently in search for better salary, company, brand name and better career opportunities.

Category B: People in the Age group of 26 to 34 years become family oriented and want a stable, high income, satisfied job. This is one of the reasons that these employees are less engaged. People between 40 and 50 years of age, after gaining 15+ years of domain experience tend to find a job with high level of engagement and be an expert in their field. Hence, their level of engagement starts increasing.

Category C: People in this age group tend to look for job satisfaction, role & designation (influential). Candidates in this category also look for long term engagement, therefore are also concerned about the culture of the company.

4. CONCLUSIONS

This study defines information technology by analyzing various aspects associated with it. The study assessed the business delivery models of an Indian IT company by analyzing three parameters (1) Technology, (2) Services, and (3) Location of services. Research also analyzes the software talent dynamics on the basis of three parameters (1) Skills, (2) Learning & Development, and (3) Salary. The paper also enlists various corresponding sub-parameters which directly or indirectly affect the software talent dynamics in India. Tables and figures further develops the understanding of the subject matter. Two cases demonstrates how companies develop techniques to overcome business challenges associated with software talent in India. Basing the study on the responses gathered from IT employees the research concluded various reasons of software talent's regional variation in India and the reasons of a software talent for his/her movement from one location to another.

The study also concludes that designations can also be role-based for instance a person may be senior business analyst while in role he/she may be leading a team/project. The actual work done by a person can be incoherent with his/her designation. Even though salary is defined by many factors in Indian IT industry, past salary, years of experience, qualification of the individual, and compensation policy of the organization plays a major role.

ACKNOWLEDGEMENT

I gratefully acknowledge my organization & colleagues for providing me an opportunity to conduct a study on the IT industry in India. I also express by gratitude to all the companies and respondents for extremely valuable discussions during the tenure of the research.

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BIOGRAPHIES

Sulabh Arora
Diverse experience in IT solutions, organizational structuring, networking infrastructure, and smart cities
MBA - IIM Kashipur (2014)