Department
for International
Development

UK Government

BFSI
BFSI Sector Skill Council of India
"An Initiative of NSDC"

BFSI Industry - *A Future Skills Perspective*

Disclaimer and Notice to Reader

1. The study was commissioned by DFID in partnership with Banking, Financial Services and Insurance (BFSI) Sector Skills Council (SSC) and undertaken by KPMG (as the management agency for DFID India's Skills for Jobs project). The purpose of this study is to help BFSI SSC get latest relevant evidence on evolving jobs landscape of the sector. It is not intended to be a comprehensive summary of evidence. The contents do not constitute professional advice on behalf of the UK's Department for International Development or KPMG.

2. The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. The Report shall not be a substitute for any due diligence to be carried out by any party. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

3. While information obtained from the public domain or external sources has not been verified for authenticity, accuracy or completeness, DFID and KPMG have obtained information, as far as possible, from sources generally considered to be reliable. Both DFID and KPMG assume no responsibility for such information.

4. In connection with the Report or any part thereof, DFID or KPMG does not owe duty of care (whether in contract or in tort or under statute or otherwise) to any person or party to whom the Report is circulated to and DFID or KPMG shall not be liable to any party who uses or relies on this Report. DFID and KPMG thus disclaim all responsibility or liability for any costs, damages, losses, liabilities, expenses incurred by such third party arising out of or in connection with the Report or any part thereof.

5. By reading/ viewing the Report, the reader of the Report shall be deemed to have accepted the terms mentioned hereinabove.

6. The study was completed in February 2020 and has not taken into account the developments subsequent to the completion of the study

Acknowledgement

The findings and recommendations of the study were derived from the learnings obtained from various interactions and series of consultations with stakeholders from the industry, academia, public and private sector entities, industry associations and other financial institutions. We would like to express our sincere thanks to all the individuals for their valuable insights and support provided for conducting this study. Special thanks and gratitude to all other individuals from DFID, BFSI SSC and KPMG who supported directly or indirectly in completion of this report.

Table of Contents

Disclaimer and Notice to Reader		i
Acknowledgement		ii
List of Figures		5
Glossary		7
Executive Summary		9
1	Context Setting	12
2	Approach and Methodology	13
2.1	Secondary Research	14
2.2	Primary Research	14
2.3	Limitations of the study	15
3	Banking	16
3.1	Growth Drivers and Challenges	16
3.2	Impact of Technology: Banking Subsector	17
3.2.1	Technology and Banking - The Interface	19
3.3	Incremental Workforce Demand Analysis	21
3.4	Skills and the Banking Subsector – A Survey Analysis	22
3.4.1	Introduction	22
3.4.2	Existing and Emerging Job Roles and Skills	23
3.4.3	National Apprenticeship Promotion Scheme Acceptability	28
3.4.4	Diversity and Inclusion Quotient in the Subsector	29
4	Insurance	30
4.1	Growth Drivers and Challenges	30
4.2	Impact of Technology: Insurance Subsector	32
4.2.1	Technology and Insurance–The Interface	34
4.3	Incremental Workforce Demand Analysis	37
4.4	Skills and the Insurance Subsector - A Survey Analysis	39
4.4.1	Introduction	39
4.4.2	Existing and Emerging Job Roles and Skills	40
4.4.3	National Apprenticeship Promotion Scheme Acceptability	43
4.4.4	Diversity and Inclusion Quotient in the sub sector	44
5	Microfinance	45
5.1	Growth Drivers and Challenges	45
5.2	Impact of technology in Microfinance Subsector	47
5.3	Incremental Workforce Demand Analysis	51
5.4	Skills and the Microfinance Subsector	52

6	Fintech - An Indian Perspective	55
6.1	Introduction	55
6.2	Growth Drivers and Challenges: Fintech	55
6.3	Skills Requirement in the Fintech Space	58
7	Recommendations	62
7.1	Improved Focus on Microfinance Skilling Model	62
7.2	The Fintech Focus – Tapping the Untapped	62
7.3	Incorporating PwDs in BFSI Mainstream	63
7.4	Forging International Partnerships for Reskilling	63
8	Annexures	64
A.1	BFSI Industry level Workforce Demand Analysis	64
A.2	Organizations Interviewed	65
A.3	Bibliography	67

List of Figures

Figure 1: Approach of the study....13
Figure 2: Key outcomes of the BFSI sector study....13
Figure 3: Adoption of technology....18
Figure 4: Impact of emerging technologies....18
Figure 5: Emerging business models in banking sector....19
Figure 6: Total workforce employed in public and private sector....21
Figure 7: Workforce Estimation for FY 2020, 2021, 2022 & 2023....22
Figure 8: A) Top hiring departments B) Fast Emerging Verticals....23
Figure 9: A) Key Job roles in the sales vertical B) Key skills required in the sales team....24
Figure 10: Key Job Roles and Skills needed in Data and Risk Teams....25
Figure 11: Key Job Roles and Skills needed in Cybersecurity and IT....25
Figure 12: Percentage of respondents about the levels at which skill gap exists....27
Figure 13: Various models of upskilling present in the sector....28
Figure 14: Percentage of respondents who had skill training institutes....28
Figure 15: Percentage of respondents agreeing apprenticeships are beneficial....28
Figure 16: Proportion of women employees in the organization....29
Figure 17: Need for skill training and the outcomes....32
Figure 18: Adoption of technology....33
Figure 19: Impact of emerging technologies....33
Figure 20: Workforce growth in the life insurance subsector....37
Figure 21: Workforce growth in the non-life insurance subsector....37
Figure 22: Total workforce employed in the Insurance subsector....38
Figure 23: Comparative analysis of employees in life and non-life....38
Figure 24: Comparative analysis of agents and direct employees in Life and Non-Life Insurances....39
Figure 25: A) Top hiring departments B) Fast emerging verticals....40
Figure 26: A) Key Skills Needed for Sales Staff B) Gender parity in sales force....41
Figure 27: Data and Risk Professionals-Key skills and job roles....42
Figure 28: Proportion of women employees in the organization....44
Figure 29: Models of Microfinance in India....45
Figure 30: Evolution of Microfinance in India....46
Figure 31: Challenges in the Microfinance Finance Space....47
Figure 32: Adoption of technology....48
Figure 33: Current and Projected workforce in Microfinance....51

Figure 34: Workforce categorisation across the channels....................................51
Figure 35: A) Top hiring departments B) Fast emerging verticals 53
Figure 36: Key factors catalyzing Fintech growth in the country 56
Figure 37: Top hiring departments...57
Figure 38: Skills requirement for future jobs 59
Figure 39: Respondents view of existing skill gap at various levels 59
Figure 40: Percentage of respondents agreeing they are sufficiently staffed to meet company's growth plans...60
Figure 41: The Microfinance skilling model..62
Figure 42: The Fintech Focus...62
Figure 43: Incorporating PwDs in BFSI Mainstream 63
Figure 44: Forging International Partnerships..63
Figure 45: Workforce Requirement in BFSI Sector..64

Glossary

AI	Artificial Intelligence
APY	Atal Pension Yojana
BFIL	Bharat Financial Inclusion Limited
BLP	Bank Linkage Programme
BPR	Business Process Restructuring
CAGR	Compound Annual Growth Rate
CASA	Current Account and Savings Account
CEO	Chief Executive Officer
CIBIL	Credit Information Bureau of India Limited
CRM	Customer Relationship Management
CSTF	Cyber Security Task Force
DI	Diversity and Inclusion
DSCI	Data Security Council of India
EDC	Electronic Data Capture
FDI	Foreign Direct Investment
FMCG	Fast-Moving Consumer Goods
FY	Financial Year
GARP	Global Association of Risk Professionals
GDP	Gross Domestic Product
GLP	Gross Loan Portfolio
GM	General Manager
GST	Goods and Services Tax
HR	Human Resource
HRMS	Human Resource Management System
IBC	Insolvency and Bankruptcy Code
IBEF	India Brand Equity Foundation
IIBF	Indian Institute of Banking and Finance
INR	Indian Rupee
IoT	Internet of Things
IRDAI	Insurance Regulatory and Development Authority of India
IT	Information Technology
JLG	Joint Liability Groups
JV	Joint Venture
KLEMS	Capital, Labour, Energy, Material and Services
KYC	Know Your Customer
L&D	Learning and Development
LIC	Life Insurance Corporation of India
MCID	Micro Credit Innovations Department
MFI	Micro Finance Institution

MFIN	Micro Finance Institutions Network
MIS	Management Information System
MIT	Massachusetts Institute of Technology
MUDRA	Micro Units Development and Refinance Agency Limited
NABARD	National Bank for Agriculture and Rural Development
NAPS	National Apprenticeship Promotion Scheme
NASSCOM	The National Association of Software and Services Companies
NBFC	Non-Banking Financial Company
NGO	Non-Governmental Organisation
NIBM	National Institute of Bank Management
NICT	Network for Information and Computer Technology
NPA	Non-Performing Asset
NPCI	National Payments Corporation of India
PM	Project Management
PMJBY	Pradhan Mantri Jeevan Jyoti Bima Yojana
PMJDY	Pradhan Mantri Jan Dhan Yojana
PMSBY	Pradhan Mantri Suraksha Bima Yojana
PwD	Persons with Disability
QR	Quick Response
RBI	Reserve Bank of India
RDSP	Retail Distribution Service Points
RPA	Robotic Process Automation
SCB	Scheduled Commercial Bank
SEBI	Securities and Exchange Board of India
SFJ	Skills for Jobs
SHG	Self-Help Group
SIDBI	Small Industries Development Bank of India
SME	Small Medium Enterprises
SPDI	Sensitive Personal Data or Information
SSC	Sector Skill Council
TAT	Turnaround Time
UI	User Interface
UK	The United Kingdom
UPI	Unified Payments Interface
USA	The United States of America
USD	United States Dollar
UX	User Experience

Executive Summary

Dynamic changes in technology coupled with India's ambitious target of becoming a five trillion-dollar economy have pinned a huge responsibility on the Indian Banking, Financial Services and Insurance (BFSI) industry. To steer this growth, the industry has been changing gears to adopt and adapt to the shifts in the economy–both national and global. While the compliance and conformity to global standards is constantly being rationalized, the government mandates that the growth be inclusive.

The report, "*BFSI Industry: A Future Skills Perspective*" has been curated under the aegis of the 'Skills for Jobs' project of the Department of International Development, (DfID) Government of United Kingdom (UK). The report seeks to investigate and understand the changing landscape of the industry and its impact on the workforce as requisitioned by the BFSI Sector Skill Council (SSC). The DfID leads the Government of UK's global efforts to transform the developing economies to foster socio-economic growth through strategic partnership.

Divided sub sector wise namely- *Banking, Insurance and Microfinance*, the report delves into the evolution and the growth drivers with a special emphasis on technology. A BFSI industry level assessment was conducted to understand the total existing and future human resources requirements. The report also elucidates on the workforce demand assessment together with an understanding of the impact of technology on emergence of new job roles and skills and changing expectations of the present roles. In documenting the sectoral trends pivoted around skilling, an enquiry was also made on the receptivity of the sectors towards the National Apprenticeship Promotion Scheme (NAPS) and assessing overall diversity and inclusivity of the workforce. Based on thorough secondary research coupled with primary interactions with senior sector leaders, the themes were deliberated upon.

The Banking subsector: Banking is one of the largest employers in the entire spectrum of the BFSI sector with a total of 13.80 lakh people employed directly as of 31 March 2018. The subsector is expected to have a workforce demand of approximately 15.93 lakh by the end of financial year 2022.

The stringency of regulations coupled with the pace of tech-driven solutions has been a harbinger of changing roles and upskilling. Institutions across the spectrum noted the importance of Data Analytics, Artificial Intelligence, Machine Learning to make businesses more robust and ensure strategic planning. Therefore, a growing need exists for increased professionals with such niche skills. With solutions such as e-KYC and linkages through Aadhar facilitating the onboarding process and the extended mediums of marketing through spread of social media, the sales and marketing teams need people with a combination of both sector knowledge and IT skills.

Post demonetization along with the rise of 'Digital India,' there has been a surge in digital payment platforms and the banks have been working relentlessly to extend their business opportunities in the same field. Complementary to the digital shift of business, there has been a rise in the area of cyber security and risk. This area encompasses a mix of regulation and technology. In view of the same and based on the survey analysis, the roles which came out ranged from Sales and Relationship Executives, to Credit Officers, Financial Analyst, Data Analysts in the junior to mid-levels, the Chief Risk Officers, Data Scientists and Resolution Professionals in the senior and mid management levels. Given the novelty and the seminal standing that it has garnered for itself, the public sector banks are increasingly looking to hire laterally from the market.

The Insurance subsector: Being the largest employer in the BFSI industry, the insurance subsector employs close to 56 per cent of the total workforce in the industry. The insurance subsector has a total workforce of more than 35 lakh employees, as on 31 March 2019, including both the direct employees and agents for the life and non-life sub-sectors[1]. It is estimated that insurance subsector would employ approximately 43.20 lakh employees by the end of financial year 2022.

While the market scenario is skewed towards the Life Insurance Corporation of India, many private players have a sizeable hold especially in the domain of non-life insurance. Starting from the permanent offices to disintegrating its business models further to rely more on the agency-driven structure and bancassurance structure, the subsector has undergone multiple changes. Given the protracted service delivery timelines for the subsector coupled with the complexities of risk and underwriting of it, the potential role of a divergent range of technologies is vast. From Data Analytics to Artificial Intelligence (AI) being used in customer interactions and tracking of life metrics respectively to using blockchain in underwriting risk processes, technology has been more of an enabler than a disruptor.

The introduction of these tech-based dimensions together with the range of the pressing regulations have also led to new and revamped job roles in the sector. The sector leaders apprised that close 80 per cent of their workforce is driven by sales wherein they said that reliance on effective communication and selling skills coupled with product knowledge is of primal importance. However, they also mentioned that there is a growing need of alliance managers and relationship personnel who are primarily required for liaising and furthering the bancassurance models. Most of the tech-based solutions are being implemented in the workstream of risk and security wherein the complexities of the platforms require the roles of Risk Officers, Data Scientists and UX Engineers to name a few.

The Microfinance subsector: While the Banking and Insurance subsectors dominate a large part of the discourse, the mandate for financial inclusion requires a robust microinsurance subsector for the formal financial services delivery to the 'unbanked.' For the microfinance subsector, the workforce has grown from 0.80 lakh in 2014 to 1.38 lakh in 2019 growing at a CAGR of 12 per cent[2]. If it continues to grow at the same rate, the sector is expected to employ 1.91 lakh workforce by the end of financial year 2022.

Starting from primarily interacting with the self-help groups and joint liability groups to low income persons, the subsector has evolved and even adopted technology in streamlining their onboarding, underwriting, sanctioning and disbursement phases. The dynamic nature of the subsector has also requisitioned a change in the workforce. While there is a general need for increased loan officers, branch managers given the importance of the human interface, there has been a need for more compliance officers for increasing regulations together with the IT officials and data scientists who would be able to manage the digital interfaces and draw trends from the large data sets available respectively. An innovative model of service delivery through building partnerships with local entities like postal workers, grocers have been developed for deeper entrenchment of footprints throughout the country.

A resounding theme across all the sectors was the need for upskilling and reskilling. Titled as the "second leap" across the sections, there is a growing need for the present personnel especially in the banks and the insurance companies to recalibrate their skills as per the current role expectations. The inclination of the industry towards the

[1] Measuring Productivity at the Industry Level – The India KLEMS Database. RBI, 12 July 2019
[2] The Bharat Microfinance Report 2019 by Sa-Dhan

digitization and technological solutions, the incumbent need of training is currently being nursed through partnerships with EdTech platforms or global certifying bodies. The space opens the scope for more robust partnerships with international skill providers for global benchmarking of the trainings delivered.

The Fintech subsector: The convergence between the information technology (IT) and Financial Services is the need of the hour wherein the data driven job roles even at the entry levels can be created. The rise of the Fintech space in India is witness to the prowess of technology in the industry. There is a need for co-creation of job roles which entails a strong foundational knowledge in banking together with the sound IT skills across all the sectors. In the Fintech space, while the traditional roles of customer relationship personnel and sales continue, the emphasis is on the nuanced tech-based roles. While the Fintech subsector has a prodigious demand of workforce skilled in new-age technologies, it has also opened a whole new space for skilling the semi urban and rural population. Fintech has also become a carrier of financial inclusion and is opening newer avenues for skilling in uncharted territories within the country.

Apprenticeship and Disability Inclusivity: While enquiring into the sector level roles and skills, two more propositions explored were on inclusion and diversity together with the acceptability of the NAPS. The percentage of women in the sector was quite strong across the banking and insurance subsectors, however in the microfinance subsector whose major clientele consists of women had a smaller percentage of them. Similarly, for Persons with Disability (PwD), while the public sector entities are trying to align with the government mandate of 3.0 percent reservations, there was concentration on recruiting largely people with locomotor, hearing and visual impairments. Hence there is a need to increase the inclusivity quotient across the subsectors making it more of an organic inclusion rather than a tertiary priority.

The country is at the tip of major transitional changes, both socio-economic and political, the selection of the BFSI industry as a priority area for skilling demonstrates the resolve of the UK in partnering with India in the latter’s growth trajectory. This report envisions to be the one of the bases for strengthening the skills ecosystem in the Industry through the social development efforts of DFID.

1 Context Setting

The BFSI sector has witnessed some robust transformations in both their structures, business operations and offerings. The advent of cutting-edge technology together with the precipitative policy changes by the regulators and the Government has a major role in the development and enhancement of the services offered. The rise of Fintech across the world has disrupted the conventional models of payments and transactions in a massive way. A stimulating alliance of IT and Finance, the arena of Fintech is fast emerging with both opportunities and challenges. The pressing need to get the ‘unbanked’ population of the country within the fold of the formal financial services and the magnitude of skilled workforce to achieve the same is immense.

In view of these developments, there is an incumbent need to relook at the human resource (HR) management and skill development in the sector together with a judicious outlining of the factors and processes impacting the HR demand value chain. Given the sensitivity associated with finances in the country and the world over, the human interface continues to be the undeniable factor in any transactional model. To locate the answers and evaluate the situations which lie ahead, a full-fledged study was commissioned by the DFID and the BFSI SSC under the former’s Skills for Jobs Initiative (SFJ). KPMG in India was mandated to undertake the study as a part of the Technical Assistance programme for SFJ.

The study aims to outline the workforce requirements in the sector across the corollaries- namely Banking, Insurance and Microfinance. The increasingly dynamic space of Fintech companies has also been delved into to get a holistic overview of the sector. The present study maps the responses from public, private, and foreign banks, life and non-life insurance companies, microfinance institutions together with the Fintech companies, the following thrust areas were discussed:

- Assessment of likely demand of employment under Banking, Insurance and Microfinance sub sectors for the years 2020, 2021,2022

- Identification of major job roles having a high employment potential in the sector.

- Determination of job roles which will be created or become redundant due to changing financial services industry landscape.

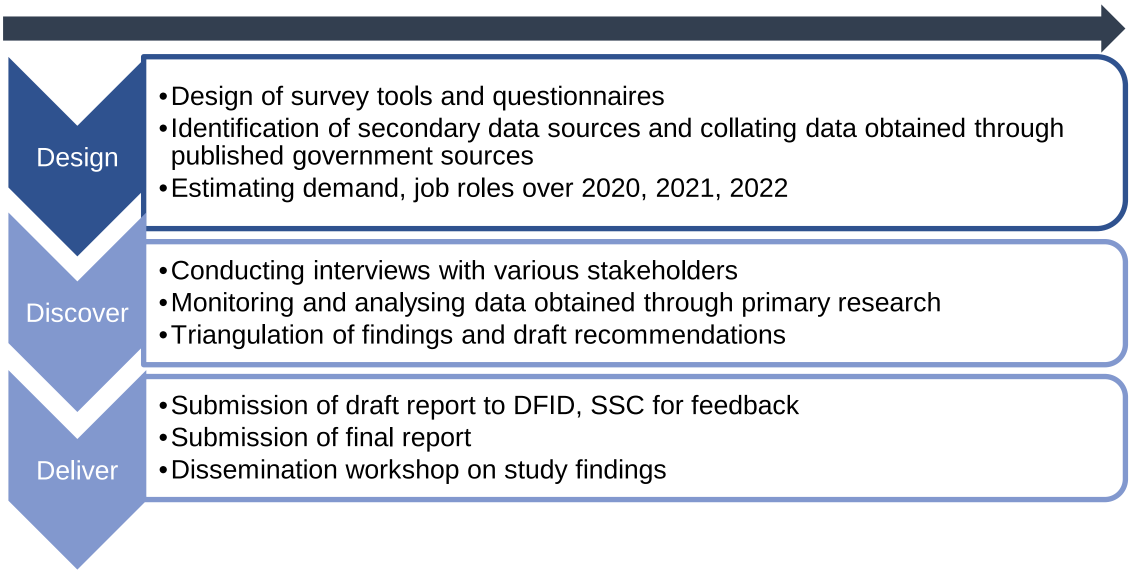
- Impact of technology on creation of job roles and the skill requirements of the human resource employed due to the emerging technologies like Data analytics, Blockchain, Artificial Intelligence (AI) etc.

- Assessing the Disability Inclusivity (DI) of current workforce and identification of policies and workplace solutions for improved participation of PwD in the sector.

2 Approach and Methodology

The study has been completed using a combination of primary and secondary data sources. A three-pronged approach, as represented below, was adopted to achieve the designed outcomes:

Figure 1: Approach of the study



The larger outcome of the study is to analyze the workforce demand, job roles and skills relevant to vocational training in the BFSI sector. Secondary analysis of the landscape along with a guided interaction with senior industry leaders provided a holistic view of the human resource requirements for the present and the future.

Figure 2: Key outcomes of the BFSI sector study

Output	Description
Output 1	Estimated workforce requirement in the BFSI Sector under the following sub-sectors for the years 2020, 2021, 2022: (i) Banking (ii) Insurance (iii) Microfinance
Output 2	Identification of job roles which would be in high demand and job roles which may become redundant
Output 3	Impact of emerging and future technologies such Data Analytics, Artificial Intelligence, Blockchain, Cloud Computing etc. on skill requirement of the workforce in the sector
Output 4	Assessing the Disability Inclusivity (DI) of current workforce and identifying assistive solutions for their improved participation.

2.1 Secondary Research

The human resources demand analysis was undertaken with the objective of estimating incremental human resource requirements in the BFSI sector as per the below method:

"Estimated workforce = baseline workforce [1+ (employment elasticity * expected sector growth rate] ^n*

Where n = number of years for which projected employment elasticity between two time periods is defined as:

Employment elasticity = ΔE / ΔG; Where ΔE = growth in employment (per cent CAGR) ΔG = growth in gross value (per cent CAGR)"

Data Sources:

- The employment elasticity and gross domestic product (GDP) growth of the BFSI sector has been obtained through published government data and research reports.

- Baseline workforce data for the sector "g," growth in employment "ΔE" and growth in gross value "ΔG" has been obtained from KLEMS database published by Reserve Bank of India (RBI).

Additional data like Industry reports and government database by Insurance Regulatory and Development Authority (IRDAI), Institute of Banking Personnel Selection (IBPS) etc. has been used to further split the projected human resource demand across BFSI subsectors. Additionally, secondary sources of information such as government and industry association reports have been used to gather information on emerging trends in the industry and impact of technology on the employment scenario in the sector. The insights on emerging areas of business and the need for skilled workforce is further augmented with inputs from industry experts and employers in the primary research phase of the study.

For the enumerative analysis of available data, the baseline year was considered depending on the availability of data for individual subsectors. At an industry level, the CAGR was assumed to remain constant over ensuing three years for arriving at the workforce requirement. The data is taken from the apex or nodal agencies of the sectors. The data taken from RBI (for banking), Life Insurance Council, General Insurance Council and Insurance Regulatory Development Authority of India (for insurance), Sa-Dhan (for Microfinance) have been amalgamated and analyzed for the findings.

2.2 Primary Research

The guided interaction with senior sector leaders enabled us to delve into the nuances of the key outcomes mentioned above. From assessing impact of technology on job roles and skills in the sector together with the inclusion and diversity quotient of the organisation the sector at large has been touched upon. The primary research also allowed us to gather inputs on the job roles which are in vogue in the sector. It also helped us in corroborating the findings of the secondary research together with a collection of some novel insights. Overall it built our understanding on the changing skill requirements in the industry.

The study is based on the responses collected from approximately 60 in-depth interviews with various stakeholders. Senior management level like National Business Head, Chief

Information Officer, Chief Human Resource Officers, Chief Strategy Officer, Director (Information Technology), Officer, Head (Learning & Development), industry associations leaders among other participated in the study. Further, some of the organisations also gave us perceptive observations which have been documented in case studies.

In order to ensure a representative selection of industry stakeholders, we proposed to select the interviewees based on the level of operations of the industry player, analyzed via secondary research. The study in its best efforts has been curated to show not just the future readiness of the BFSI sector but also bring home the need for a vigorous and focused skill development initiative penetrating through the entire geography of the country to increase the reach of the sector.

The primary use of the study is for BFSI SSC to allocate targets to the skill training providers under various skilling schemes. BFSI SSC supported the technical assistance team to reach out to various industry stakeholders to conduct in-depth expert interviews as a part of the primary research. The output of this assignment is however not subject to audit procedures.

2.3 Limitations of the study

Following are some of the key limitations, which have impacted the study on the overall approach and methodology, and/or outcomes planned for the study:

- Unavailability of standardized workforce data: For one of the sub sectors, standardized human resources information was not available from any reliable source limiting us to project any significant trend related to it.

- Aspirational mapping of candidates: The study does not cover viewpoints or aspirations of the trainees and employees.

- Respondent bias: The study involves large number of primary interactions with various stakeholders. Though the efforts have been to capture data from various sources to address the bias, the study may have limitations owing to the respondent bias, which is inherent in a primary survey.

- Quality of secondary data: There is a risk that required data points are not being recorded and/or updated by relevant authorities and data points available through secondary resources might also not be specific to the precise needs of the study.

- Interaction with Industry stakeholders: The primary survey is targeted mainly with BFSI industry representatives. It was not possible to cover all companies in this segment. The interaction covers a representative sample of companies across subsectors within BFSI sector.

3 Banking

Robust financial services sector is one of the key prerequisites for an economy to strive ahead. With an ambitious target of becoming a five-trillion economy, the Indian banking system has a crucial role to play and contribute to the growth story. With the rise of technological solutions and tectonic shifts in global economic trends together with considerable number of non-performing assets (NPAs), the challenges are aplenty. In the banking sector specifically, while several technologies have been introduced, it has been juxtaposed with several regulatory requirements mandated by the national and international regulatory bodies.

The role of technology and its strategic use in the sector has envisioned the broadening of the banking sector's parameters. Technologies such as Artificial Intelligence, Blockchain, Internet of Things (IoT) have an enormous potential in the sector. While these technologies have been present for a long time now, their use in the banking sector has increased manifold. With the changing modalities of the traditional banks to the open banking systems making a headway, there is a large universe of possibilities.

The adoption of watershed legislations together with the multitude of technological, operational and regulatory challenges that the sector faces, one of the stakeholders directly affected are the current and future workforce. With the traditional business models in banking sector undergoing a paradigm shift, considerable workforce transition is incumbent. From refurbishing conventional roles to the creation of new ones, the changes in the workforce is a compelling reality.

3.1 Growth Drivers and Challenges

The Indian banking system with its diverse spectrum of entities– public, private, cooperative, rural, has undergone several shifts in its procedures and operations. A generic slowdown in the domestic economic activity which started in 2018-19 extended into the first half of the current fiscal year. While in the third quarter of FY19 total credit extended by commercial banks surged to INR 90.81 lakh crore (USD 1,299.39 billion) with deposits growing to INR 120 lakh crore (USD 1,866.22 billion), the contribution of the public sector banks has also been quite pressed with their assets standing at INR 108.82 crore (USD 1,557.04 billion) in FY18[3]. Moreover, as per the Union Budget 2019-2020, the Finance Minister of India announced that the provision coverage ratio of banks reached highest in seven years.

The rise in disposable income has strongly influenced the growth in deposits. The footprints of the formal banking system have increased manifold with the deposits under Pradhan Mantri Jan Dhan Yojana (PMJDY) increased to INR 98,320 crore (USD 14.07 billion) and 355.4 million accounts were opened in India (as of 29 May 2019)[4]. This trend is further reinforced by the Government's move to establish small finance and payments banks and integrate the large non-banking financial companies (NBFC-MFIs) to existing banks. Moreover, the total assets of the banks witnessed a total growth of CAGR 7.01 per cent for the fiscal term 2013-2018 with the assets of the public sector accounting for 66.03per cent of the overall asset base.

The credit and the deposit over the fiscal term 2013-2018 showed a positive curve of growth, from INR 53 trillion to INR 98 trillion in the former and INR 70 trillion to INR 126

[3] Industry Report Apr 2019, India Brand Equity Foundation
[4] Report on Scheduled Commercial Banks - Business in India/ Bank Deposits of SCBs - Region, State, District, Bank Group, Population Group-Wise - Annual

trillion in the latter. However according to annual report of RBI published in June 2019, the Banking Stability Indicator which is an index combining the asset quality, soundness, liquidity, efficiency, profitability, showed that while the first two indicators showed a marked improvement, the last three needed a further positive push.

The trajectory of the economics is intrinsically linked to the policy and regulatory base of it. The passing of the IBC Ordinance in 2017 together with the compliance to BASEL III in the early half of 2019, set the base for a credible and decisive resolution architecture. Moreover, the recent mergers of mid-sized public sector banks into the large ones such as that of Oriental Bank of Commerce and United Bank to merge into Punjab National Bank, Syndicate Bank to merge with Canara Bank and Union Bank, Andhra Bank to merge with Corporation Bank and Allahabad Bank to merge with Indian Bank.

These mergers are being projected as a move towards improving efficiency, governance, and accountability. In view of the current scenario where there is both a growth in assets in absolute returns together with the NPA being a major concern, shifts in the employment patterns also must be factored in. This is further complicated with the overarching role of technology and the digitization of services. However, the larger picture puts forth a rather dynamic opportunity which the country can and should reap and be future ready for the evolution of the banking sector.

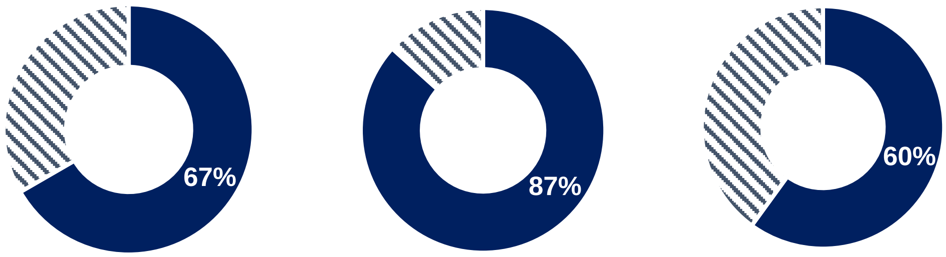
3.2 Impact of Technology: Banking Subsector

The convenience of customers associated with technology and the avid use and availability of internet has had a significant role to play but the banking industry has warmed up to the technology with much caution.

Creation of a digital on-boarding and marketing solution helps in customer acquisition; however, retention is intrinsically linked with the ease with which the customers can navigate through the product offerings depending on their needs. Most of the banks that we surveyed have developed mobile iOS and android based applications for the customers. Moreover, today banks are also investing on non-conventional technologies for the development of their products and get greater insights into their customers spending behavior. Key public sector banks like Central Bank, Punjab National Bank to name a few have created their data analytics wings and increased their digital footprints.

Artificial Intelligence (AI) has also emerged as the ‘new normal’ for several banks. With the transition being made from customer care executives to the ‘Bots’, the use of AI has been accepted in a number of ways. Machine Learning, AI and customer analytics are purported to be the drivers in the field of client engagement. Around the world, banks are already diversifying to robo investing, consumer lending automation and the cash and securities transaction settlements, there are several banks including a few in India which have set up ‘Technology’ or ‘Transformation’ departments which are experimenting with these interfaces and platforms. Moreover, technologies like robotic process automation (RPA) and Blockchain have had a key impact on the banking sector. Blockchains specifically remove an entire overhead cost associated with the checking of the authenticity of transactions. In India after demonetization there had been a noticeable surge in the transactions associated with bitcoins. Around 2,500 Indians are investing in bitcoins daily and claim that their platform will give users greater hold on their bitcoin purchase.[5] However, with the RBI coming up with several prohibitive regulations for bitcoins, there has been a slump in the same.

Figure 3: Adoption of technology



Percentage of respondents agreeing that AI will witness higher adoption levels

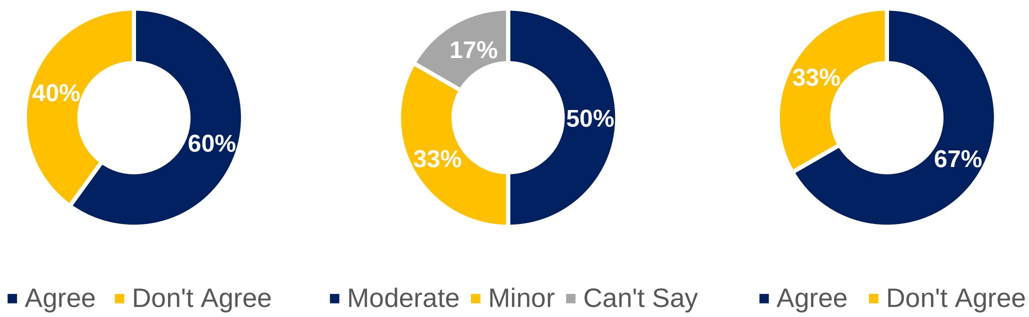
Percentage of respondents agreeing that Data Analytics will witness higher adoption levels

Percentage of respondents agreeing that Cloud will witness higher adoption levels

Percentage of respondents agreeing that Blockchain will witness higher adoption levels

Percentage of respondents agreeing that Quantum Computing will witness higher adoption levels

Figure 4: Impact of emerging technologies



Percentage of employers agreeing that emerging technologies will create new jobs

Percentage of employers' opinion on the magnitude of impact of technology on existing employment

Percentage of respondents agreeing that some existing job roles are getting redundant

---

[5] S. Visalakshmi, Dr. R. Ratneswary and V. Rasiah, Impact of Disruptive Technology on Indian Banking Sector, International Journal of Mechanical Engineering and Technology 8(9), 2017, pp. 510–515.

In India, the use of technology has been slow but steady. From the adoption of customer relationship management (CRM) systems to Finacle and even Blockchain and Robotic Process Automation, banking has come a long way in the digital pathway.

With an intermixing of regulation together with the exigency in digitizing customer experience, the interface of technology across the banking value chain has been multitudinous.

Figure 5: Emerging business models in banking sector

Traditional business models in banking sector are undergoing a paradigm shift which will lead to considerable workforce transition

3.2.1 Technology and Banking - The Interface

3.2.1.1 Markets and Sales:

To increase the customer base and footprints of the organisations, the banks have started to reorient their marketing strategy. With rising competition and consumerism, the choice index for the prospective customers have expanded the burgeoning need for extensive marketing to attract them. The digital market has become a popular medium for engaging the customers. Using insights from the data available about a certain category of clientele, the banks are looping in third party firms to create digital campaigns for them. However, the strategy is quite different depending on the clientele base of the banks. "There is no need for carpet bombing for us as that leads to a lot of wastage of campaign effort, we have to look at more personalized interactions" said one of the Learning and Development head of a private mid-sized bank. Herein the need for the feet on street and marketing personnel on the go are still of utmost importance.

While marketing is one of the pathways of growth, the ease of access and customer on-boarding process is also of prime importance. Solutions like e-KYC and biometrics through Aadhar linking are slowly replacing paperwork with digital records. The survey conducted during the study reveals that this digital solution has been embedded by the respondents who are large public or private sector banks. Out of the total banks surveyed spoke about their apps in the handheld devices which allowed seamless customer on-boarding and related market expansion.

3.2.1.2 Digital Payments and Transactions:

In India with the mandate of financial inclusion coming from the Government, there has been a surge in utilization of technology and financial agents to ensure compliance. Globally, payments revenue has been growing at a CAGR of 6.6per cent since 2010, growing to be USD 2.42 trillion in 2027 outpacing the global nominal GDP growth. In Asia alone, total payments revenue grew at a CAGR of 12per cent from 2010-2017 to reach USD 490 billion.

Post demonetization, the local players like RuPay and Paytm have reported a surge in their revenues and volume of transactions. While the former's volumes were up by 2000per cent over the past two years the latter reported a surge of 900per cent over the same period. The Indian railway booking portal (IRCTC) has had a tie up with Paytm wallet and may bring over one crore Fintech user base annually. The setting up of the National Payments Corporation of India in 2016 became a decisive noting from the Government's side. Moreover, the Unified Payments Interface (UPI) payments volume grew to incorporate nine per cent of the total retail payments in the India. The establishment of the UPI and the digital wallets have leveraged the contact less payments and several banks have partnered with UPI to allow customers access the online payments without debit or credit cards. To bolster digital payments, the Government of India has started 'Digishala' a 24*7 channel which guides people on using digital payments modes. Tech giants like Facebook, Amazon, and their ilk have great brands, peerless capabilities in analytics and AI, and seemingly infinite quantities of data entering the payment platforms with lot of information about their customers than the banks. Hence, it is imperative the banks and financial institutions partner with these tech organisations and develop secure products and networks for ease of the customer and global business.

3.2.1.3 Cyber Security:

The increase in the use of AI automation and Big Data in the banking subsector is no longer a question of 'if'' but one of 'when'. Given that the major concerns are now of guarding against the risks and maintaining the privacy. In India as around the world, the Government has come forward and put in place systems like 'M-Kavach' and 'USB Pratirodh' developed by the Ministry of Electronics and IT, there are still several loopholes in the same. The area of cyber security is still untapped, and it is imperative that IT specialists align with policy makers and make the digital space safer and integrated space. Globally cybersecurity has gained importance and about USD 75 billion has been invested by the cybersecurity market in 2015, which is expected to reach USD 175 billion by 2020. Moreover, the banks have been leveraging the biometric registers for enhancing their security technologies. Private banks have been partnering with startups for developing innovative security measures for protecting their customer interests and privacy.

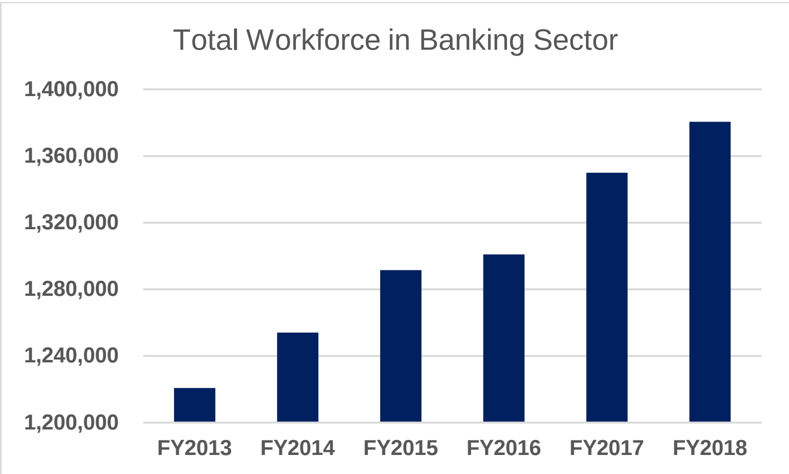
Banks and financial institutions are leveraging these ideas to make their services more accessible. With partnerships being forged with wearable technology makers, banks are looking at making payments through watches and fitness trackers. However, several technology authorities believe the security collaterals of the same must be bolstered up. For banks, the 'disruptive technologies' have become more of an enabler. They have allowed a platform for addressing the persistent challenges of financial inclusion. The technology and banking interface are undergoing a constant change. While banks like Axis are dealing with this by setting up Thought Factory-Innovation Labs, there are some public sector banks like Canara Bank which are experimenting with robots in their key branches. It is imperative the banks and financial institutions partner with the tech giants and develop secure products and networks for the ease of the customer and the global business. In view of the huge volumes of data that is generated in banking, the subsector is gearing up to curate insights for better business strategies.

3.3 Incremental Workforce Demand Analysis

The Banking industry is one of the largest employers in the entire spectrum of the BFSI sector with a total of 13.80 lakh people employed directly as of 31 March 2018, constituting close to 24.4 per cent of the total workforce. According to the RBI, there is data on three levels of the workforce, both in the public and private sector banks, namely Officers, Clerks and Subordinates[6].

While an analysis of the sectoral trends and the responses garnered from the study shows several key job roles becoming important soon, it is important that a data driven analysis of the current workforce is also done.

Figure 6: Total workforce employed in public and private sector

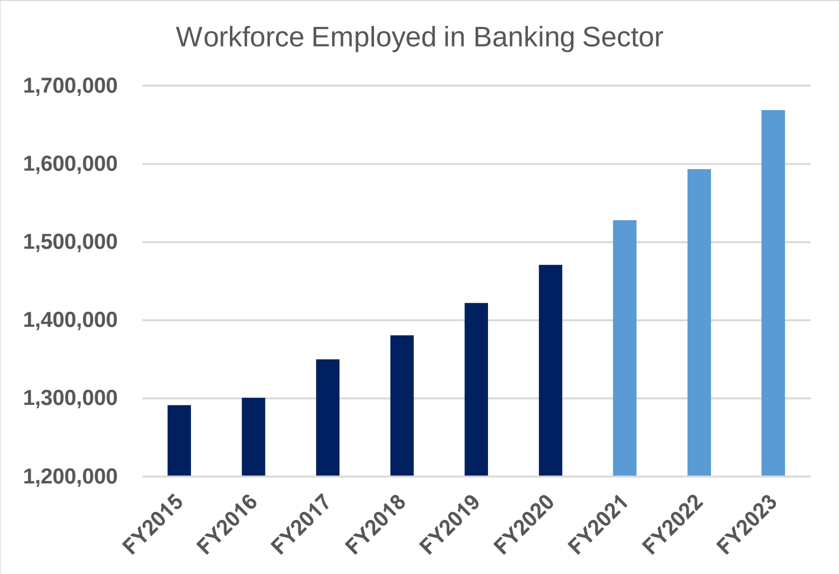


Total workforce employed in public and private sector across the job roles has increased at a CAGR of 2.49 percent from 2013 to 2018.

While the sector has been harnessing the potentialities of growth within its fore, the changing sectoral trends-from policies to markets with a deep intervention of technology, there is a need for revamping the existing and the highly skilled workforce in the sector.

[6] Basic Statistical Returns of Scheduled Commercial Banks (SCBs) in India – Volume 47, March 2018

Figure 7: Workforce Estimation for FY 2020, 2021, 2022 & 2023



The total workforce in Banking sector is expected to increase to 16.69 lakhs by FY 2023 increasing from a level of 13.80 lakhs in FY 2018.

Apart from deploying a proportion of the new workforce in the new job roles of emerging technologies, new jobs will also be created in the IT sector driven by the growth of banking industry. This is due to the leading growth of Fintech and the growing comfort of the banks to outsource certain aspects of their business to third party service providers. Hence, the total incremental workforce requirement to be generated by banking industry would be greater than 2.49per cent as estimated above.

3.4 Skills and the Banking Subsector – A Survey Analysis

3.4.1 Introduction

While secondary research gives an overarching understanding of the sector, a primary survey validates and consolidates the viewpoints garnered through the former. With the multitude of interviews conducted with senior leaders in the varied organizations across the sector, the following insight on the key job roles in the sector were noted. The findings around the various questions have been mapped together depending on their relevance in the following areas:

- Existing and Emerging Job Roles and Skills
- National Apprenticeship Promotion Scheme Acceptability
- Diversity and Inclusion Quotient in the sector.

Key Verticals of Hiring - Incumbent and Emerging

In view of the changes that the sector has been witnessing—technological, regulatory, and macroeconomic, the human resource requirements have been changing in similar manner. Some of the key verticals of hiring for the banking sub sector are represented in the graph below. The fast-emerging verticals like Data Analytics, Cybersecurity and Artificial Intelligence are under expansion to keep pace with the technological transformation.

Figure 8: A) Top hiring departments

As per respondents, the top hiring departments in Banking subsector are

1. Branch Operations
2. Information Technology & Infra
3. Credit & Risk
4. Retail Distribution

B) Fast Emerging Verticals

3.4.2 Existing and Emerging Job Roles and Skills

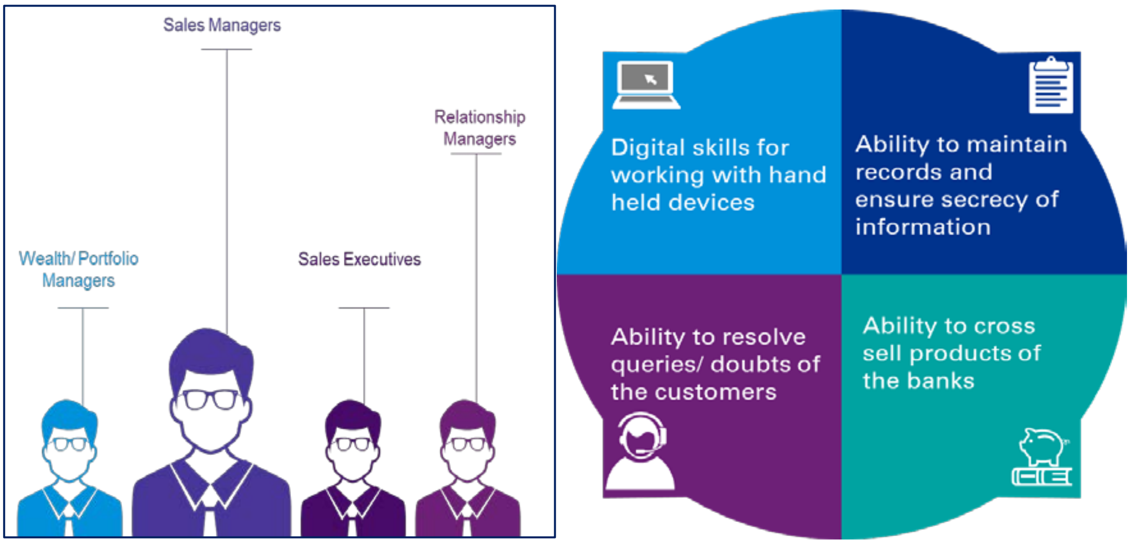
With heightened expectations of the millennials driving the product offerings and the increased need for customization, there is an overall need for increasing the digital footprints of the new joiners across all levels. Some of the leading private banks in the country have started using an AI based tool for the hiring. Based on the key words, they can shortlist the candidates who are suitable for an interview. This has led to reduction of work for several junior HR personnel who would be scanning documents to check for the eligibility of the match. "As per an in-house study that we did, more than 90per cent of the hires selected by the AI tool were the right match for the profiles that we were looking for" said, the learning and development (L&D) head of a big private bank in the country. Some of the key service lines of hiring are noted below.

Sales

Most of the entry level jobs in the banks are related to sales and marketing–the feet on the street force. Moreover, it is now imperative that the sales force has enough knowledge of digital skills together with the required communication skills for them to interact and convert customer acquisition rates. However, with a low salary, this is often a fluid space of high attrition rates creating constant movement of new people. Hence Current Account Savings Account (CASA) sales force is one of the most dynamic part of the employee base of the banks.

Together with sales force, another genre which is increasingly becoming popular is that of Wealth Managers and Portfolios Managers. Given that a large part of the mundane and mass banking queries is being handled by RPA, the banks can now focus their attention on some of key customers that they have, primarily among the High Net worth Individuals.

Figure 9: A) Key Job roles in the sales vertical
B) Key skills required in the sales team



The roles of the Portfolio/ Wealth Manager have emerged very strongly. "We have close to three batches annually only for the portfolio manager roles and close to 80-85 per cent placements" said one of heads of a leading skills training partner in the country. Usually fresh graduates, the pay scale of these employees while not being very high, the role has a steep learning with additional nuances of the sales and marketing that they understand through their stay with the organisation. There is also an increasing demand of candidates specialized in key areas like credit, treasury, and forex. Although these are generally needed for middle-level employee base, but it makes for an unavoidable and ever-increasing space for recruitment encouraging some of the largest public sector banks to hire them laterally.

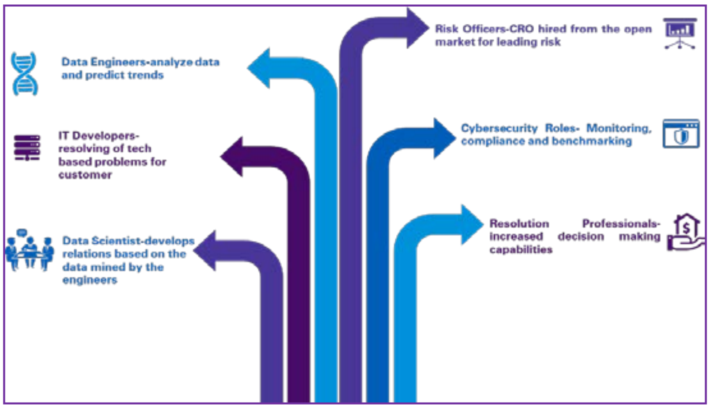
During the interviews, the sector leaders also mentioned that while the above-mentioned job roles have been in demand, that several skills ranging from communication to digital skills are areas of great necessity. Close to 60 per cent respondents said that given the highly regulated subsector, the adoption of apprentices under the NAPS is difficult with an exception in the sales domain. Even though they could face the challenge of attrition, they are still open to experimenting with the scheme here.

Data Analytics and Risk

The interlinkage between data and risk has together with the coming in of the 'gig economy', the need of leading the practice with experience has come to the spotlight. A recent circular for the banking subsector allowed those in the public sector to hire their Chief Risk Officers directly from the market. This is a step towards recognizing the need for risk experts. While they are experienced professionals their role especially in the public sector bank is new.

In view of this, the Institute of Banking Personnel Selection while earlier focusing largely on generic roles have started conducting special examinations for the data roles. Some banks like IDBI have also looked at NICT for workforce and have commissioned for human resources through their examinations.

Figure 10: Key Job Roles and Skills needed in Data and Risk Teams



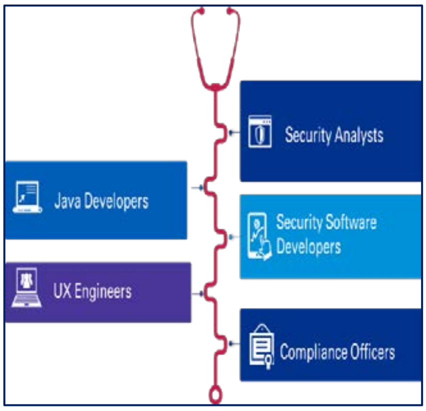


Figure 11: Key Job Roles and Skills needed in Cybersecurity and IT

Cyber Security and IT

In conjunction with the data and risk roles, the domain of cybersecurity has become of seminal importance. Given the Pandora’s Box that the internet can be, the domain of cybersecurity helps the banks regulate and prevent unlawful usurpation of their data and funds. From the domain of monitoring to compliance and benchmarking with global standards, cybersecurity has become very critical and needs very high skilled personnel. “Given the demand that the market has, our gating criteria for undertaking the students is high, only to ensure that the quality of professionals that we create are of much higher quality,” said one of the leading skill training partners in the country. Cyber security ventures estimate that unfilled cybersecurity positions would reach 3.5 million by 2021. NASSCOM-DSCI, under its Cyber Security Task Force (CSTF) vision to make India a global hub for cyber security, aims to create one million cybersecurity professionals by 2025[7].

Given the overhaul of the IT infrastructure that the banks are undergoing, the technology teams in the organizations are major areas of skill gap. Some of the regular platforms like web designing can be outsourced. However, when it comes to overall IT teams namely developers, UX engineers would be required for planning and strategizing the key organisational needs and passing it on to the third-party vendors.

[7] Annual Report 2018-19. Data Security Council of India

An early start to a Banker's Life:

One of the emerging trends in the recruitment are partnerships being developed with colleges and universities for training their students and hiring a cohort who have been successful in that. Key organisations like Yes Bank have partnered with colleges and co-created materials on foundational banking courses for the students to undertake as a diploma course. This is integrated with an internship programme at the bank itself and an assessment at the end. At the end, the successful trainees are hired by the banks. While for some of these courses, the colleges bear the entire partnership fees, some students pay and for the rest it is a blended model wherein both the college and the students bear the costs.

Similarly, Future Bankers Program is an initiative of HDFC Bank to attract and nurture young talent, who are willing to pursue a career in banking. The program aims to train young graduates in to highly trained, well groomed, customer facing professional. It entails on campus classes for first six months followed by an internship for next six months. Successful candidates are provided a post graduate diploma certificate and a full-time job opportunity with the organisation. The training imparts knowledge and skills in core banking areas like banking products, processes systems, regulations, and compliance frameworks.

These programmes allow the induction training to start much earlier post which the trainees can seamlessly integrate with the bank on joining, as these courses have been customized keeping in mind the needs of the partner bank.

The major job roles across the departments and skills required are as identified below:

<table>
<tr><th>Vertical</th><th>Job Roles</th><th>Level</th><th>Skills Required</th></tr>
<tr><td rowspan="4">Sales</td><td>Sales Executives</td><td>Junior</td><td rowspan="4">✓ Digital Skills
✓ Communication and Interpersonal Skills
✓ Knowledge of Products and Benefits
✓ People Management Skills</td></tr>
<tr><td>Sales Managers</td><td>Middle</td></tr>
<tr><td>Relationship Managers</td><td>Junior/Middle</td></tr>
<tr><td>Wealth / Portfolio Managers</td><td>Middle/Senior</td></tr>
<tr><td rowspan="5">Data Analytics, Risk and Recovery</td><td>Data Analyst</td><td>Junior</td><td rowspan="5">✓ Financial Modelling
✓ Writing and Communication Skills
✓ Risk Management
✓ Statistics and Probability
✓ C++/Java/R/Python/Hadoop
✓ Recovery, Insolvency (IBC), Legal knowledge</td></tr>
<tr><td>Data Scientist</td><td>Middle</td></tr>
<tr><td>Big Data Engineers</td><td>Junior/Middle</td></tr>
<tr><td>Risk Officer/Credit Officers</td><td>Middle/Senior</td></tr>
<tr><td>Resolution Professional</td><td>Middle/Senior</td></tr>
<tr><td rowspan="5">Cyber Security and IT</td><td>Developers</td><td>Junior/Middle</td><td rowspan="5">✓ Technical knowledge on platforms and languages
✓ Knowledge of Data Structures and Algorithms
✓ Cybersecurity
✓ Problem Solving Skills</td></tr>
<tr><td>UX Engineers</td><td>Junior/Middle</td></tr>
<tr><td>Security Analysts</td><td>Middle</td></tr>
<tr><td>Compliance Officer</td><td>Middle</td></tr>
<tr><td>Manager cyber security</td><td>Senior</td></tr>
</table>

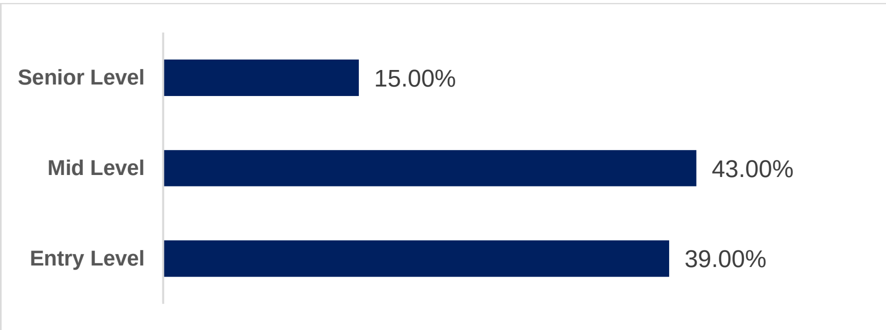
3.4.2.1 The Second Leap: Upskilling current workforce

Given the complexities associated with the banking sub sector, the changes in the skills and the roles have been transitional. While the new recruitments have been harboring the need for new age skillsets, the existing workforce is also being pushed to further developing and enriching their existing skill sets. The footfall in the bank branches have drastically fallen since the previous years and therefore the need for manning of more branches is not required. “In 2010-2014, the average footfall in a bank branch would be anything close to 200-250 people at 10 am, however in 2018, the footfall at the same time had fallen to 20-30,” said one of the key officials of a public sector bank. While some of the traditional roles of the bank tellers and cashiers are slowly becoming redundant, they are also metamorphosing to include key sales skills for the banks to capitalize on every chance of interaction with their customers.

While most of the public sector banks have training colleges for their staff and inductees, the private sector banks are partnering with some colleges for their trainings. Moreover, with the advent of technology, several banks have partnered with online platforms like Upgrad, Coursera for creating and delivering courses for the bankers to learn and upskill. Along with these partnerships, most of the banks have online learning apps which allow self-paced learning. To drive the upskilling agenda, the banks have used the carrot and stick approach. While reimbursing course fees, there are banks which give additional marks for upskilling in the employee’s performance appraisal. In one of the public sector banks, the staff can get certified in risk training from either IIBF, NIBM and Global Association of Risk Professionals (GARP). And after passing the course successfully, they are reimbursed for it.

Even the training partners in the country have looked at providing these skill training programmes, sometimes in partnership with foreign universities enhancing their value add. Times Professional Group, for example partners with The Wharton Business School, MIT to name a few in co-creating modules for executive education and certification from these schools. Given the large number of retirements in the mid management and senior management levels, the need for preparing the roles in not just leadership but also key aspects of Industry 4.0 are crucial. According to the interviews conducted, most of the respondents also highlighted this lacuna and wanted this to become a focus area for the Government.

Figure 12: Percentage of respondents about the levels at which skill gap exists

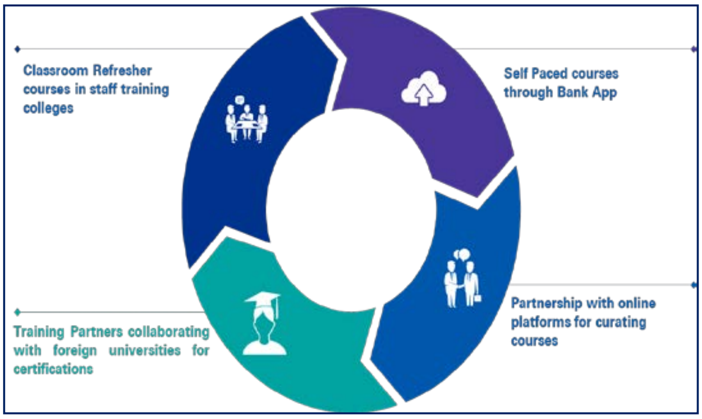


Majority of the workforce skill shortage was identified at the entry and mid-level

Most of the respondents also spoke about the various models on which the upskilling is being done.

Figure 13: Various models of upskilling present in the sector

Figure 14: Percentage of respondents who had skill training institutes



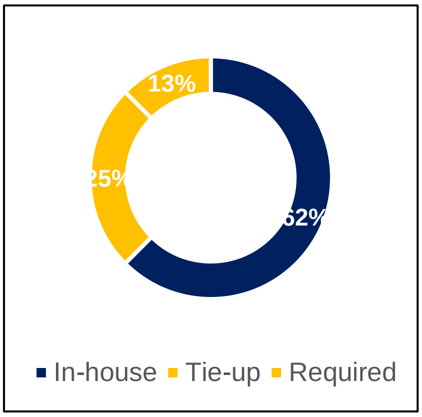
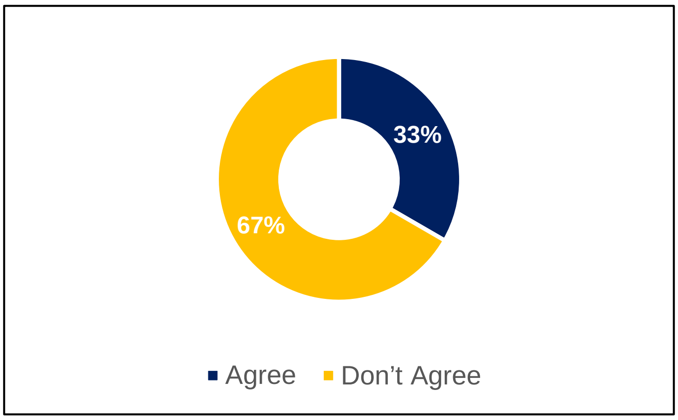


Figure 13 **Figure 14**

3.4.3 National Apprenticeship Promotion Scheme Acceptability

The National Apprenticeship Promotion Scheme has been an area of primary focus for the Government of India. While the Act has been in the offing for a very long time, it has mostly been restricted to the manufacturing industry. However, with the skills mandate being strengthened, a corollary to the same is the increasing relevance of apprenticeship to promote not just on the job training but also allow companies to assess capabilities of the candidates in the job assigned. The responses garnered through the interviews saw a much hesitant stance of the subsector towards apprenticeship with an exception in the sales domain. Even though they could face the challenge of attrition, they are still open to experimenting with the scheme here. One of the leading public sector banks has led this initiative of participating in the NAPS scheme on a pilot basis and is paving the way for others to follow.

Figure 15: Percentage of respondents agreeing apprenticeships are beneficial

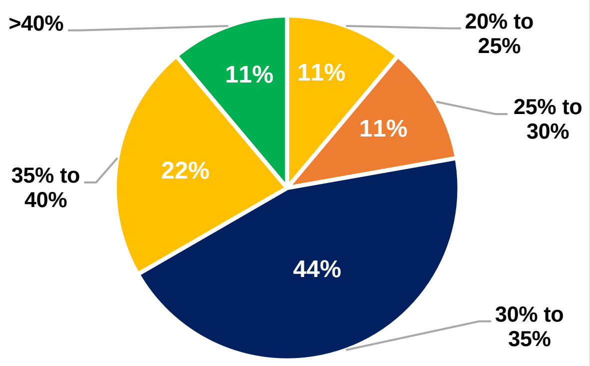


Most of our respondents, close to 67% of them said that given the highly regulated sub sector, the adoption of apprentices under the National Apprenticeship Promotion Scheme is difficult.

3.4.4 Diversity and Inclusion Quotient in the Subsector

The diversity and inclusion angle are quintessential to ensuring the health and vitality of any organisation. With a focus on PwDs and women, the questionnaire also focused on inclusion of other groups like war veterans, third genders to name a few.

Figure 16: Proportion of women employees in the organization



Percentage of respondents with respective women employee proportion in their organization

The responses gathered from the interviews showed that the women employee strength in the organizations has presented a much hopeful picture. In terms of best practices, while the mandatory maternity leave has been instituted, most of the organisations are working on the creche facilities either in the premises or a reimbursement model for the creche facilities. Flexible working hours and choice of location are also some steps being taken to make workplace more convenient for women.

Regarding PwDs, most of public sector bank are still to conform to the government norms of reserving 3 per cent of their jobs for them. However, the private banks are yet to invest in the engagement of PwDs. One of the private banks spoke about their engagement with the NGO Youth4Jobs for hiring at the entry level but that was not sustained for a long time. Some of the key job roles where the current hiring is being done are listed below and most of them said that for the future also most of these would be carried on.

Name of Job Role	Level	Target Disability
Data Entry Operator	Entry	Visual Impairment Locomotor Disability Hearing Impairment
Back Office Operations Executive	Entry	
Branch Operations Officers	Entry to Middle	

4 Insurance

Macro and micro economic trends forecasting, and aligning has become one of the major challenges for any services including the financial ones. The entire Banking, Financial Service, and Insurance (BFSI) sector has been in the cusp of metamorphosis with the advent of technology and heightened customer expectations.

While contributing only two per cent of the shares to the global insurance market, during 2017, the total insurance premium in India increased by 10.1 per cent while globally the total insurance premium increased by 1.5 per cent (for both the inflation adjusted)[8]. At the end of the fiscal year 2018, there were 68 insurance organisations in the country. Currently there are 24 life insurers, 27 general insurers, 6 standalone health insurers and 11 re-insurers including foreign reinsurers branches and Lloyd's India, moreover there are 4 new companies which have joined the subsector.

According to the data published by Swiss Re, in life insurance business, India is ranked 10th among the 88 countries. The market share of life and non-life insurance has diversified vastly capitalising on the preferences and backgrounds of the customers and tailoring their products for the same. The non-life vertical has shown significant growth with the overall percentage of 16.7 per cent in 2017. However, the growth story is juxtaposed to the insurance penetration percentage which remains at 3.69 per cent till 2017[9]. Hence the market potential for the firms, both public and private, is immense and needs to be cultivated further.

To get the uninsured under the insurance architecture, the Government has made considerable efforts. Schemes like the Pradhan Mantri Suraksha Bima Yojana coupled with the inroads made in the crop insurance would be a major driver in addressing the need for increasing the penetration of the insurance. Today given the challenges that the world and the country faces, there has been a diversification of the products and general offering by the companies. The promising growth trends together with the changing technological insights is changing the face of the industry and the nature of the population in place.

4.1 Growth Drivers and Challenges

Major socio-economic and environmental changes along with the robust transformation of technology is a growth opportunity for the subsector. India continues to be a low penetrated market compared to the global average at 6.13 per cent[10]. Some of the growth drivers for the subsector globally and nationally are:

Changing Nature of the Economy: The rise of the collaborative consumption of goods and services has given rise to the 'sharing economy'. By using personal platforms for commercial purposes intermittently without any definitive time period has thrown up new challenges for the insurance subsector. Companies like Uber, AirBnB and Nestaway have created a gamut of opportunities in this prototype of business.

The risks associated with the premium and the underwriting associated must be modified to support instantaneous risk assessment and pricing, while at the same time avoiding cost overruns. Here, again the need for real time data and overall history of the person

---

[8] IRDAI. (2018). *Annual Report 2017-18*. November 2018, New Delhi, Delhi

[9] IRDAI. (2017). Annual report 2016-17.

[10] Swiss Re Institute. (July 21018). Sigma 03/2018: World insurance in 2017: solid, but mature life markets weigh on growth.

more than the health history and age must be captured for the effective calculations and disbursement of the same.

Growth of Technology: The changing nature of the economy has been complemented with new technological insights. Solutions like Artificial Intelligence, Robotic Process Automation (RPA), Blockchain to name a few are slowly being leveraged in the subsector. From customer acquisition to retention, together with risk analysis of their profiles, the use of technology has been quite widespread. Moreover, with the emergence of digital media a strong interface with a repository of diverse data of their users can be used for accurate measurement of underwriting. However, the access to the gamut of data has also given rise to regulatory challenges in the space with questions like whether discriminatory pricing can be done and to what extent the data can be used for developing the market and business strategy of the insurance firms.

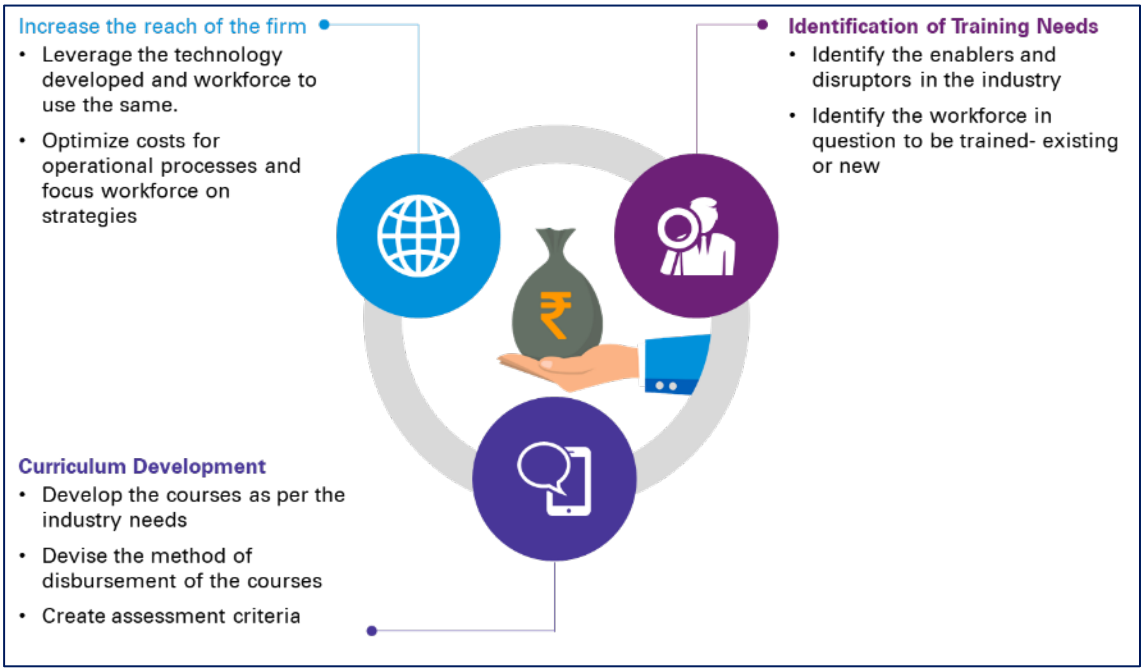
Regulatory Challenges: The juggernaut of regulations in the insurance subsector has been a concern. With the rise of ‘Big Data’ and digitization, this space has been further complicated. From the goods and services tax (GST) rollout to the foreign direct investment (FDI) regulations all these regulations in the insurance subsector has had a major impact. The formulation of IRDAI Regulations, 2015, in line with the amendments made under Section 32 B of the Insurance Laws (Amendment) Act, 2015, which mandates insurers to cover a certain percentage of their business for the economically weak sections would expand the scope and seek to cover the uninsured[11]. The Information Technology Act, 2000 (IT Act) and the Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011 (SPDI Rules) provide the overall framework with respect to data protection in India. IRDAI has provided additional regulations like Protection of Policyholders' Interests) Regulations, 2017, Maintenance of Insurance Records Regulations, 2015 to name a few to regulate the space. However, given the vast scope of data and its variegated use, still a lot needs to be done in this space.

Reaching the Uninsured: The insurance penetration of the country stands at a relatively low level and to address it the government has several schemes and regulations. From Pradhan Mantri Swasthya Bima Yojana to the Bharatiya Krishi Bima Yojana, an all-in-one insurance scheme for farmers (consisting of crop insurance, health cover, personal accident insurance, livestock insurance, insurance cover for agricultural implements like tractors and pump sets, student safety insurance and life insurance) have covered a sizeable section of the rural and semi urban section. Moreover, through the MFIs, Cooperatives and NGOs, the scope of microinsurance is also increasing with IRDAI microinsurance regulation in 2005 the space is slowly getting formalized.

In India, for the embedded nature of the agent-supervisor model, even till the last five years there were a pool of trainers in the system. Except for LIC, most of the private insurers followed this model, however now firms are doing away with the role of the trainers and strategizing to make the supervisor the trainer itself. Moreover, with the rise of online courses and applications, the private firms can develop self-learning modules for the employees to learn at their own pace. The agents in the insurance space must complete the pre-licensing training and clear the certification from the Insurance Institute of India.

[11] The Insurance Laws (Amendment) Bill, 2015; Bill No. 31 of 2015; Lok Sabha; New Delhi; India

Figure 17: Need for skill training and the outcomes



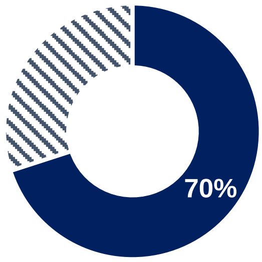
4.2 Impact of Technology: Insurance Subsector

The insurance subsector has been privy to technological changes in the industry overall and witnessed efficiency gains while also restructuring its business models. In India especially, the incumbent technological changes have been complemented with the regulatory changes also. While the history of insurance in the country dates to nearly 200 years ago with British India seeing several companies from the UK have a stake in here, the liberalization of the economy saw the ‘reopening’ of the subsector for foreign entities. As of 2014, the Government has allowed 49per cent of FDI in the insurance subsector and proposes to increase it to cent per cent.

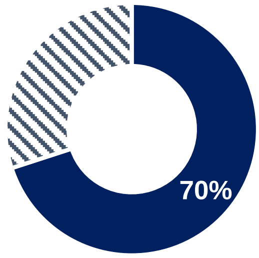
The impact of technology on potentially affecting the franchise value of the insurance subsector in general with accompanying policy considerations has been notable. With millennials across the world entering their highest consumption period and their inclination towards digital solutions, the emerging markets are moving from traditional channels to more innovative ways of distribution, sales and marketing.

Given the innovation in the technological parlance in the insurance subsector, there is a growing emphasis on ‘Insurtech’. Delivering convenience and efficiency, Insurtech is creating new platforms of collaborations between companies and individuals with an added weightage on simplifying insurance products and their dispersion mechanisms.

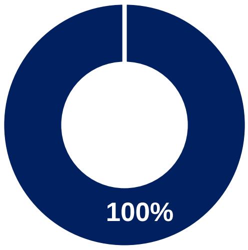
Figure 18: Adoption of technology



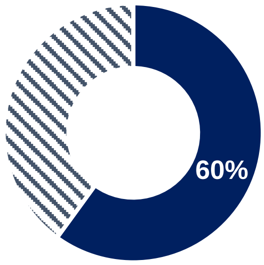
Percentage of respondents agreeing that AI will witness higher adoption levels



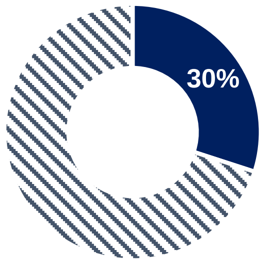
Percentage of respondents agreeing that Data Analytics will witness higher adoption levels



Percentage of respondents agreeing that Cloud will witness higher adoption levels

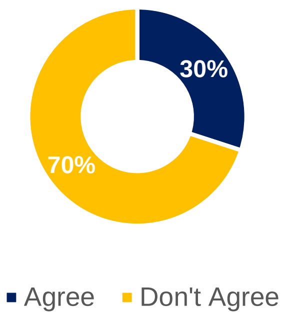


Percentage of respondents agreeing that Blockchain will witness higher adoption levels

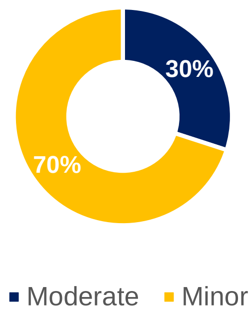


Percentage of respondents agreeing that Quantum Computing will witness higher adoption levels

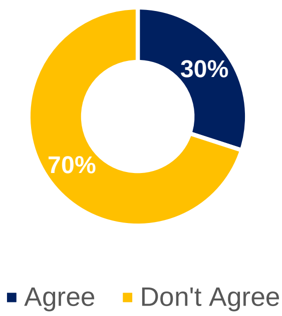
Figure 19: Impact of emerging technologies



Percentage of employers agreeing that emerging technologies will create new jobs



Percentage of employers opinion on the impact of technology on existing employment structure



Percentage of respondents agreeing that some existing job roles are getting redundant

4.2.1 Technology and Insurance–The Interface

The arena of insurance is dominated in two broad areas- life and non-life, with the former holding the largest market share traditionally, with changing consumption dynamics, there is a significant rise of the latter. For the life insurers, the profitability of the underwritten business is known at a much later stage in the business cycle given the time span of the policies. As for the non-life the profitability is intermingled with the complexity of the products and the people involved in the business.

4.2.1.1 Fixed cost agency structure

The traditional brick and mortar set deep entrenched in the LIC's model of tied agents have been in the offing for a long time. The agents would be the face of the organisation, and the offices would be the base locations for all communications. The branch led operating model has a workforce intensive process with the personnel being on a fixed cost (with some variable components). Being an inflated cost distribution model, the interface of technology has been a major boon in terms of cost.

The insurance companies, especially the ones in life insurance spent a significant portion in setting up the premises wherein the number of branches did not always justify the premium generated from them and further delaying the break-even especially for the private insurers.

4.2.1.2 Bancassurance Model

Given the delayed break-even modalities and the steady customer base of the banks, the bancassurance model facilitates a liaison between the bank and the insurance companies. For the banks, it was an additional product, for the insurance companies, the customer base of the former became a ready reckoner of sales. The banks as a 'trustworthy' financial body added the extra credibility to the products sold by the insurance companies. However, there are some issues with the said model considering that the 'solicitation' required for the insurance products is much greater as the need for it is not driven by the customers. Moreover, there are chances of substitution of bank products like term deposits with the insurance products especially when the return on investments is different.

While these models have been in practice, given the increasing complexities of the insurance products and the rapid innovations in the field of the technology has pushed the insurance companies, both life and non-life to innovate their business offerings.

4.2.1.3 Technological Know-Hows in Insurance

Today there is an increased proliferation of innovation and distribution of the insurance products in India. The economic downturn in 2008 represented a period of ambiguity and post 2014 there was an added push in the vigor of the insurance companies. The incumbent stabilization of the economy has been complemented by the technological disruptions, with companies pushing for digitization of their products and processes.

While focusing on human centric approach, technology enables the insurance companies to focus on simpler and more intuitive policies. Keeping the customer at the heart of the product design, the multitudinous technological solutions are being used for creating perceptive and insightful policies. The role of technology is impervious to all segments of the insurance value chain. From the core operational services to the customer service delivery options, the technology has become vital.

In view of the complexities associated with the processes of insurance, the technology is set to create fundamental transformation. Ranging from measuring, controlling, and pricing the risk to engaging with the customers the world of ‘Insurtech’ has attracted several global venture capitalists and financiers. A varied range of technologies are being employed in the insurance value chain. From the Internet of Things (IoT) to drones, there is an entire gamut of technologies which are using technology to corroborate the data and reduce the risk associated with the business.

4.2.1.4 Internet of Things

The all-encompassing nature of the internet embedded in the sensor-enabled devices has immense transformation potential for insurance companies. Partnering with biometric wearable companies to assess customers’ behavioral patterns and offer personalized coverage plans. Moreover, in charting the health parameters and tracking of their fitness regimes, the companies have been able measure risk at a granular level thereby pricing the premiums more accurately. Telematics Insurance is fast gaining traction especially in the non-life sector. From motor to health insurance, there is a wide prevalence of the telematics to track the user history, calculate the premiums and offer discounts on the same, if applicable.

Using the IoT, insurance companies world over have been partnering with health monitoring device makers/Blackbox technologists to expand their market base in the telematics insurance. For example, a USA-based insurer is implementing usage-based technique where they reduce premiums of safe drivers depending on their driving performance.

In India, the role of telematics is at a very nascent stage and is being currently evaluated by the IRDAI. With the global trends forecasts being that consumer subscribers to telematics insurance is expected to grow to 142 million globally by 2023, insurance regulators in India are delving over the idea. With a comprehensive driver profile, the risk assessment and premium calculation is done on a real time basis instead of being based on vehicular parameters and statistics. Telematics would also be useful in minimizing the fraudulent activities and assessing the damages in cases of accidents. With the Health Insurance Regulations 2016 directing the insurance companies to reward the policyholders for good health, a few companies are looking at providing fitness plans which are featured in their policies.

4.2.1.5 Artificial Intelligence

Identifying patterns and predicting the outcomes based on them has been envisaged as the role of Artificial Intelligence. Leveraging the advanced analytics, AI is being used to address nominal and repetitive questions of the customer and sell generic policies. Indian insurance companies are yet to take up AI yet globally the trend has picked up. Mechanisms like chatbots which AI allow customers to interact 24*7 helping companies reduce the expenses on the call centre facilities. Moreover, the breaking down of the complex jargons and the regulations through the chatbots is being looked upon by the companies.

Robo advice is automated financial advice being given to the customers depending on their financial parameters and investment milestones shared. Largely prevalent for online investments and saving platforms, AI based financial advice can be powered specially to provide the cost-effective algorithm-based decisions. However, the perception of sharing sensitive financial data with a machine and the associated privacy issues is still a major road block in several countries.

4.2.1.6 Blockchain

Financial inclusions and the larger prevalence of insurance has helped increase the data base of the insurance companies manifold. Blockchain technology creates a shared, encrypted database of transactions, allowing immutable exchanges of values to be created automatically. Emulating a conservative legal document, the technology can allow the obligations to be automatically fulfilled without the need of a centralized authority. Given that close to 65 per cent of the frauds go unnoticed in USA and UK, resulting in losses to the tune of 60 billion USD, blockchains through self-executing contracts can minimize the human intervention to a great extent.

The advantages of free participation, including ease of doing business with strangers has been a characteristic of blockchain yet there are certain issues associated with it. Irreversibility of blockchain can be leveraged for standardized documents, complex policies like life insurance which may require amendments given the conditions of the policy holders and incumbent regulations. However, this is also a drawback. The legality associated with blockchain and the recent restrictions made by the Reserve Bank of India has pushed back its implementation. However, the its potential ranging from immediate release of insured amount to the beneficiary on the death of the policy holder or automatic deduction of travel insurance premium depending on the location of the smart phone are still being considered making the role of blockchain pivotal for the subsector.

Most of the technologies summarized above have set a cognizance in the Indian landscape. However, some of the foremost ones mentioned by the industries who were interviewed included Data Analytics and AI. Given the large data repositories that the companies have created over the years and the longevity associated with the insurance sector, close to every respondent looked at using Cloud. However, they were also quick to respond that it must be in harmony with the data regulations that are present.

4.2.1.7 Challenges and Way Ahead

Technology is often seen as major disruptor in the status quo of the business, the insurance subsector is also no exception. Tectonic shifts in technology has meant that its adoption by the firms is yet to take off. In India, both the public and private sector are still ideating and looking at maneuvering the regulatory norms associated with technology.

Being capital intensive, the uptake of technology has been prohibitive for small firms. Moreover, the set-up costs of specialized equipment and connected ecosystems have pushed the return on investments to longer periods of time. This is interlinked with the ability to recruit, train, and retain the highly skilled workforce needed for the tasks at hand. The workforce costs have also been pushed up making the overall capital investment much more than the earlier levels.

Technology interface increases the chances of personal and sensitive data of the customers being shared and there is a risk of security breaches. Platforms like Facebook and Google have mined customer behavioral patterns with the available data.

Complexities associated with allied technological developments is also making the insurance terrain difficult. For example, the entry of driverless cars while having the potential to reduce the accidents, the appropriate framework for insurance covers remains elusive. According to the Motor Vehicle Act, all cars must be insured but the problem arises when fixating the liability claims. In this case, the question arises who should pay the liability in case of an accident–the manufacturer or the owner. The uncertainty of the liability question remains when there is conjunction of human and technological intervention.

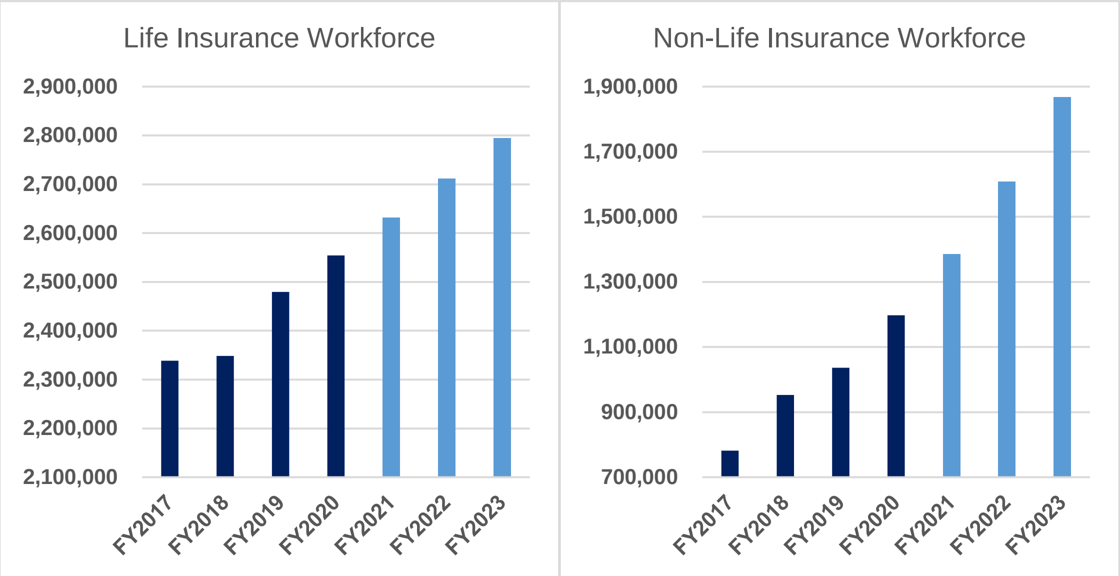
For innovations to be effective they must be clearly identifiable and accepted by the regulatory authorities. In the insurance subsector, technology has evolved from an operational anxiety to a more studied approach. While there is a large recognition of the technology, the complexities of the solutions are yet to be fully accessible and tested. It is for the firms to decide the solutions they wish to take up that is fit for their growth while withstanding the compliances put forward by the national and international regulators for the safety of the customers and business.

4.3 Incremental Workforce Demand Analysis

It is estimated that insurance subsector would employ about 43.20 lakh workforce by the end of financial year 2022 increasing from a workforce of 37.52 lakh as on 31 March 2020.

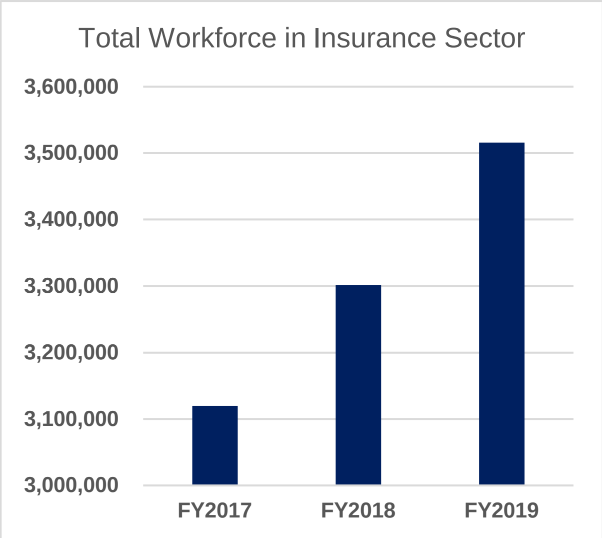
Figure 20: Workforce growth in the life insurance subsector

Figure 21: Workforce growth in the non-life insurance subsector



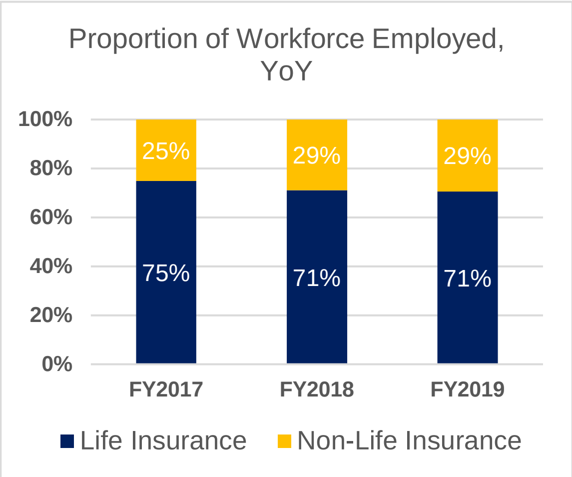
As on 2017, insurance contributed close to 56 per cent of the total workforce in the BFSI sector. In the period between 2017-2019, the total workforce grew at a composite CAGR of 6.16 per cent.

Figure 22: Total workforce employed in the Insurance subsector



The growth in the employment has been triggered by the growth in the industry itself. As mentioned earlier, with an annual growth of close to 10 per cent, the sub sector has been one of the major contributors of heightened GDP. The proliferation of the insurance subsector has been earmarked by the growth of the non-life sector, i.e. General Insurance. The gross premium for the sector reached INR 1,69,972.48 crore (USD 24.32 billion) in the last fiscal year[1].

Figure 23: Comparative analysis of employees in life and non-life



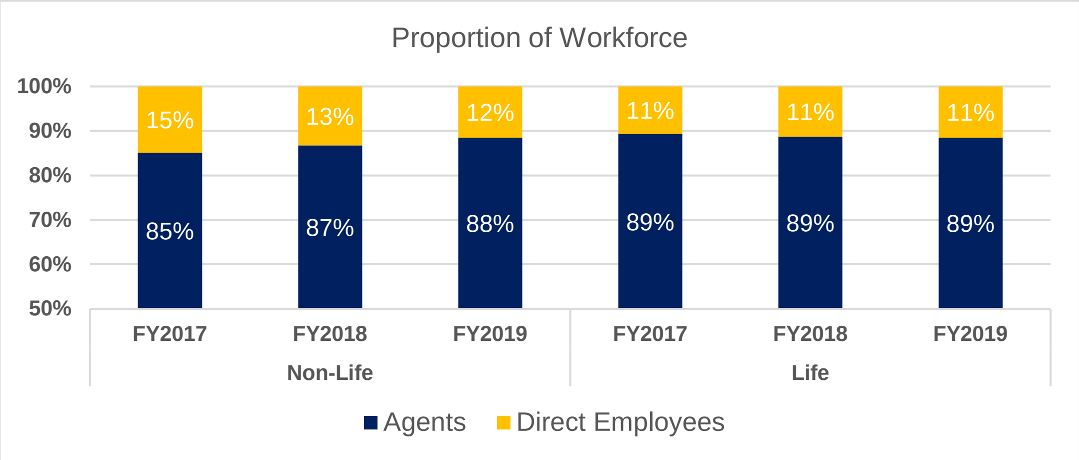
The year on year analysis of the data sourced from the IRDAI and LIC clearly stipulates that the employee strength in the non-life sector has increased a corollary to the increased business in the domain. Much like the banking subsector, the insurance subsector has also been mandated to increase their penetration across the country.
The changing transaction models and the growth of the gig economy has also thrown many challenges at the insurance landscape

From the Atal Pension Scheme to the Pradhan Mantri Fasal Bima Yojana, several government initiatives have driven the agenda of familiarization with the sector. The business models of the subsector have evolved over the years depending on the clientele that they are catering to.

The generic model of employment has largely been dominated by the agents who are the faces of the insurance companies and sell their varied products across the geographies. They are directed and supported by a team of direct employees handling the operations and compliance related functions for the organisations. Moreover, an analysis of the data shows that the number of the agents in proportion to the number of direct employees continue to increase for the non-life sector while for the life sector, the number has remained largely constant over the last two years.

The sales force in the companies have been one of the major driving forces behind the expansion of business. The employee strength in the private sector has been increasing over the last two years, increasing from 54 per cent in 2017 to 58 per cent in 2018. Hence an overall analysis shows that in the non-life domain, the private sector has been increasing in terms of both agents and direct employees.

Figure 24: Comparative analysis of agents and direct employees in Life and Non-Life Insurances



The diversified non-life sector has several critical segments which have seen quite significant growth. One of the major ones have been the health sector. With seven standalone health insurance companies in the country, the employment strength has been growing manifold. From government schemes like the National Health Protection Scheme to the more specific health plans available, the sector has witnessed some key changes and upward mobility.

An analysis of the responses gathered from the interactions gave an insight into the larger industry overview and the roles that they are projecting to hire in the next three to five years.

4.4 Skills and the Insurance Subsector - A Survey Analysis

4.4.1 Introduction

The insurance subsector making deeper inroads in the country and with favorable technological innovations in place, there is an established need for skilled workforce. Given the intersection of IT and financial services, a space is being created for specialized personnel who can mitigate the risks while maintaining cost optimizations. In the insurance subsector, with the entire supply chain slowly getting digitized, the IT skills of the personnel---from the agents to the claim settlement officers must be honed.

The findings of the primary survey done with various insurance players in the subsector combined with validation through secondary research the findings around the key research questions of the study is mapped to the following areas:

- Existing and Emerging Job Roles and Skills
- National Apprenticeship Promotion Scheme Acceptability
- Diversity and Inclusion Quotient in the sector

Figure 25: A) Top hiring departments **B) Fast emerging verticals**

As per respondents, the top hiring departments in Insurance subsector are

1. Retail Sales
2. Partnership Distribution
3. Data Analysis
4. Information Technology and Infra

4.4.2 Existing and Emerging Job Roles and Skills

The domain of insurance has a wide cross section of several professionals across its board. The dominant force of sales may have captured the large employee base yet there are several independent qualified professionals who assist the companies in a range of activities. These include analyzing the medical profiles and determining the risks associated with assessing losses in the claim management cycle.

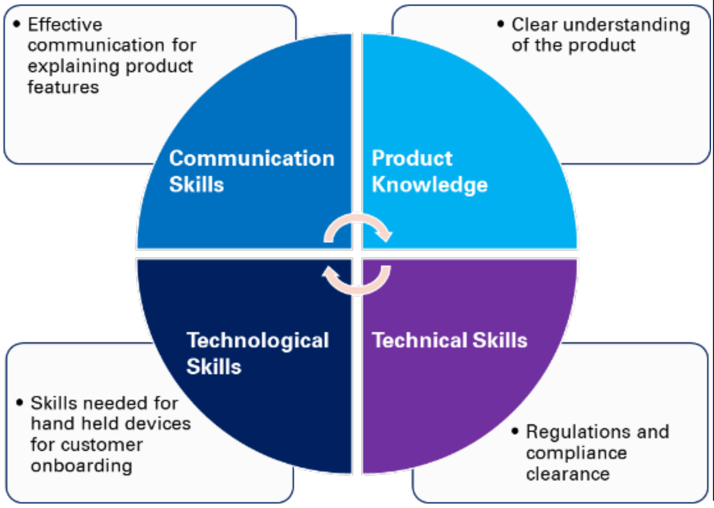
However, with the urban economy having transitioned to the digital space, the rural space is still relatively new. Hence the human interface is needed for inculcating the trust in the system of insurance and investing in the system.

Sales Force

The insurance subsector is a highly regulated one and there are strict gating criteria which mark the entry of staff. Close to 80 per cent of the employee base is the sales team. According to the IRDAI regulations, the agents must have a minimum qualification of being a class 12 graduate for the urban areas and class 10 graduate for the rural areas. They must have also cleared the IC33 exam for Life Insurance & IC34 for General Insurance license. They are also required to complete 50 hours of training from an IRDAI approved training institute for General/Life insurance license or 75 hours training for a composite license. Moreover, the agents need to be a part of an organisation who would be sponsoring the training and licensing for them.

Forming the bulk of the organisation, the agents become the face of the company and a lot depends on their communication skills and product knowledge. Largely entry level jobs with moderately low salaries, this team also sees a high attrition rate as the agents are quick to switch companies for a little extra money. In the companies surveyed, close to 50 per cent of them said that unlike the banking subsector where sales team can be young, in the insurance subsector a slightly mature lot is required. Given the extent of training and licensing which one goes through, the officials pointed out that the trust factor is a key component to harness given that people are investing in their future. “The touch of grey in the agents and maturity go a long way in building the trust in customers hence the preference for slightly older people as agents,” said one of the Head HR of a private insurance company. Another aspect which was highlighted during the interviews was that in order to fulfil the IRDAI rules of 2015 which stipulated that insurance companies increase their rural footprints; a lot of emphasis has been put on regional hires.

Figure 26: A) Key Skills Needed for Sales Staff B) Gender parity in sales force



Another interesting insight which was shared by the respondents was the participation of women in the sales channel. The respondents gave a wide spectrum of opinions on the matter. Close to 45 per cent of the respondents said they recruited close to 40 per cent women are in frontline sales while the rest are men. They reasoned this was because of the distances to be travelled and the varied kinds of customers to be handled. However, a significant section of our respondents said women given their emphatic nature make for excellent sales, however very few skilled women were available in the market.

Moreover, companies today are the expanding their sales capabilities through several learning and development courses. From app-based courses for training on regulations to Massive Open Online Courses (MOOCs) for upskilling, the companies are taking such measures for the same.

Markets and Alliances

While traditional models of relying on agents continue to be relevant, some major private insurance companies have been spending a sizeable portion of funds on advertising. Most of them have outsourced it to third party vendors, some of them have also invested on advanced corporate communications developing the content and mediums of delivery. Given that the agent-based model is still very relevant in the country, the adverts become a 'conversation starter' and enables the agents to project the products better.

Given that the bancassurance model of insurance selling has gained a lot of traction in the last couple of years coupled with the digital payment platforms, there has been an emergence of a section of the organization which looks at building the partnerships. Creating avenues of ease of accessibility for the customers, the insurance companies are partnering with several digital platforms and banks to increase their sales. "We are moving to a model of branch agnostic service touch points enabling customers to reach us barring the constraints of geography" said the Head, HR of one of the largest private insurance companies in the country.

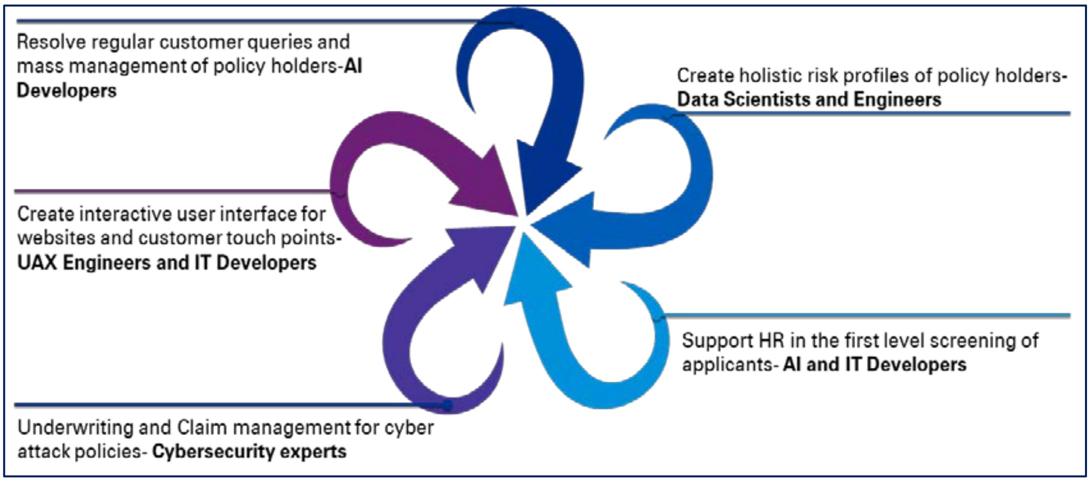
Risk and Data Analytics – Technology-driven roles

The complexities of premium calculations together with claim management has necessitated the need for risk and assessment. Across all the respondents, there was a unanimous agreement, that the data-oriented skills including Big Data and Machine Learning were slowly penetrating the Indian market. While some organisations are using AI- chatbots to handle regular customer queries, there are others who are looking to use it in their hiring processes as well. “We have to look beyond the campus interview model of hiring, a completely digital application and an automated first round of selection enables our HR staff to focus more on interviews and GDs rather than on scanning documents”, elucidated a senior HR official of a private insurer.

In encapsulating the risk associated with the insured individuals and the underwriting process, the companies are going beyond the analysis of credit scores. Health parameters and bank statements and capturing the social media activities of the individuals are also considered to create a holistic risk profile. These analyses need some key data skills. At the entry and in the mid management levels, there is a huge need for such data engineers and scientists. Given the regulations that the insurance companies must abide by, along with sensitive data that they deal with, it is imperative that the inhouse capabilities of the organisations be developed as these cannot yet be outsourced. These roles help support the actuaries and the underwriters in better understanding the risk and generating the premium rates more accurately. Moreover, to make the user interface better there is a need for making the UX engineers and developers to make the interface more user friendly and easy to use.

With the advent of insurance policies like ‘E@Secure’[12] by HDFC Ergo which insures people against cyber-attacks, there is an increased need for cybersecurity professionals both as underwriters and loss assessors in determining the premiums and claim management.

Figure 27: Data and Risk Professionals-Key skills and job roles



[12] https://www.ibef.org/industry/insurance-sector-india.aspx

The major job roles across the departments and skills required are as identified below:

Vertical	Job Roles	Level	Skills Required
Sales	Sales Executives	Junior	✓ Digital Skills ✓ Communication and Interpersonal Skills ✓ Knowledge of Products and Benefits ✓ People Management Skills
	Regional/Area Manager	Middle	
	Relationship Manager	Junior/Middle	
Marketing, Alliances	Marketing Executive	Junior	✓ Verbal and written communication skills ✓ Basic functional domain knowledge ✓ Stakeholder Management
	Marketing Manager	Middle	
	Alliance Manager	Middle/Senior	
Risk and Data Analytics	Developers	Junior/Middle	✓ Quantitative Skills ✓ Writing and Communication Skills ✓ Insurance Domain Knowledge ✓ Statistics and Probability ✓ C++/Java/R/Python/ Hadoop ✓ Knowledge of Data Structures and Algorithms ✓ Problem Solving Skills ✓ Financial and risk modelling
	UX Engineers	Junior/Middle	
	Cybersecurity Professionals	Middle	
	Data Analyst/ Actuarial Analyst	Junior/Middle	
	Data Scientist	Middle/Senior	
	Risk Officer	Middle/Senior	

4.4.2.1 The Second Leap: Upskilling the current workforce

Throughout the study, it was unanimously agreed that the existing workforce should be upskilled in the tech-based platforms and effective communication skills. While some of the organisations are internally moving towards systems such as HRMS (Human Resource Management System) including some legal compliance software-enabling faster resolution of customer claims, there is an urgent need to upskill the workforce.

The respondents of the study said that they have been using several ways of putting forward the upskilling mandate. They mentioned that having a separate training team exerts extra pressure on the profit margins, the supervisor driven training programmes enable them to maintain the costs. Moreover, some of the leading private insurance companies mentioned that together with self-paced online learning materials available for the staff across the service lines, they are also partnering with institutes such as the Insurance Institute of India, Ritu Nanda Insurance Services for training in the pre-licensing and post licensing together with compliance training.

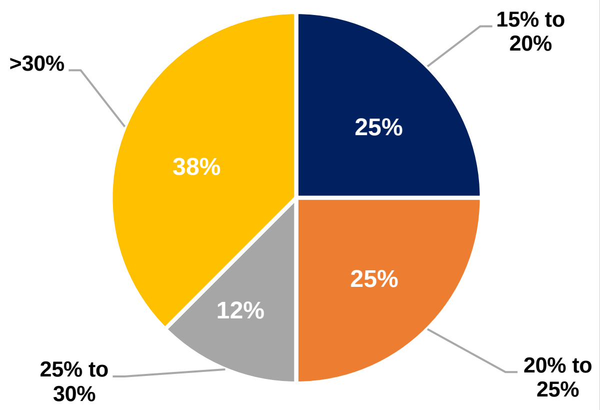
4.4.3 National Apprenticeship Promotion Scheme Acceptability

The stringent regulations in the subsector together with the compliances to be fulfilled by an organisation to onboard sales agents, the NAPS programme has not seen any takers till now. Given that it is largely a commission-based model which is largely prevalent in the sector and the basic pay being low, the sector leaders did not see any merit in the current formulation of the scheme.

4.4.4 Diversity and Inclusion Quotient in the sub sector

Every organisation has the responsibility to include and maintain the diversity of workforce. The diverse workforce can range from PwDs, war veterans, women to third genders.

Figure 28: Proportion of women employees in the organization



Percentage of respondents with respective women employee proportion in their organization

As per the responses received from the interviews, women employee strength in the organisations has been a key prerogative and the demand for the women employees is ever increasing. Some of the private sector insurance companies have established all women branches which are also high performing branches.

All Women's Channel - A Reliance-Nippon Life Case Study

Face to Face is a classic example in accelerating the gender agenda in an organisation. Established in 2012 employing women aged 30-50 years, this sales channel is completely driven by women. Inspired by their JV partner, Nippon Life of Japan which employed many women after the Second World War in the organisation, this unique platform looks to target existing customers who have lost connect with the advisors and lying dormant. This sales cum service initiative aims to cross sell together with upsell their insurance products.

This distribution channel works with life planning officers (LPOs) where the homemakers are the target recruitment segment. Their primary responsibility to resolve the grievances of orphan policy holders and cross sell to the existing customers. They are also expected to build networks through the references developed and build their businesses on the same.

This sales format is largely aimed at Tier I and II cities across the country. With a premium on face to face interactions, the company looks at leveraging the emphatic and intuitive side of women. “Women are also relationship experts and great at networking. These qualities help them to excel as agents and financial advisors as mentioned in one of their publications on the sales model.

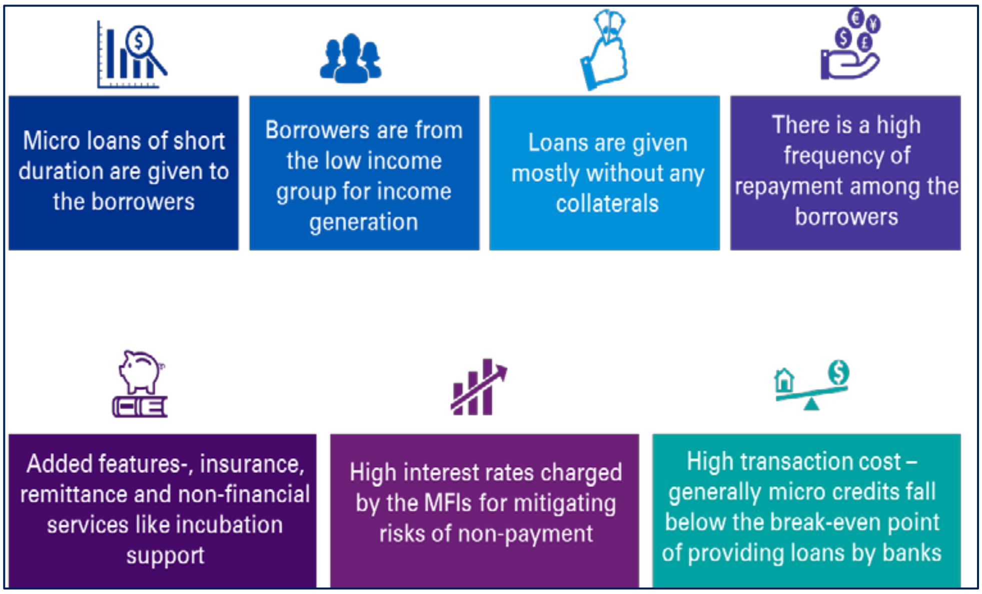
Along with a regular fixed salary, the women are also given a performance-based incentive. Moreover, the company has also felicitated some of the outstanding performers in bid to enthuse higher sales and morale of the employees.

5 Microfinance

Access to credit and financial services is a quintessential marker of inclusivity for any market and society. For a stimulus on the road to economic prosperity and inclusion, it is crucial for the formal financial services be available for the masses. Learning from the Nobel winning business model of the Grameen Bank of Bangladesh, providing financial services beyond the reaches of the formal banking, the microfinance system was developed and implemented in India. The multitude of subsidized loan schemes and the rampant informal channels of borrowing led to the establishment of the National Bank for Agriculture and Rural Development in 1982.Formulating an alternate channel of formal credit was integral as institutional credit was accessed only by the middle-upper classes which constituted a miniscule portion of the population.

While the micro-credit era began in the 1970s, the formation of NABARD gave rise to the 'financial systems'[13] approach. The latter was more equipped to handle the challenges of a growing economy with an entrepreneurial spirit. The array of microfinance institutions is a pragmatic acknowledgement of the needs of the country's poor. The subsector has evolved manifold and has immense transformative potential for growth. At the end of the March 2019, according to the report published by MFIN, the microfinance industry's gross loan portfolio (GLP) stood at INR 1,87,386 crore with a 38 per cent year on year growth[14].

Figure 29: Models of Microfinance in India



5.1 Growth Drivers and Challenges

The arena of microfinance looks at incorporating low income individuals and small businesses within the financial folds. Largely through the self-help group-Bank Linkage Programme (SHG-BLP) and the joint liability group (JLG) mode, the credit access is given to businesses.

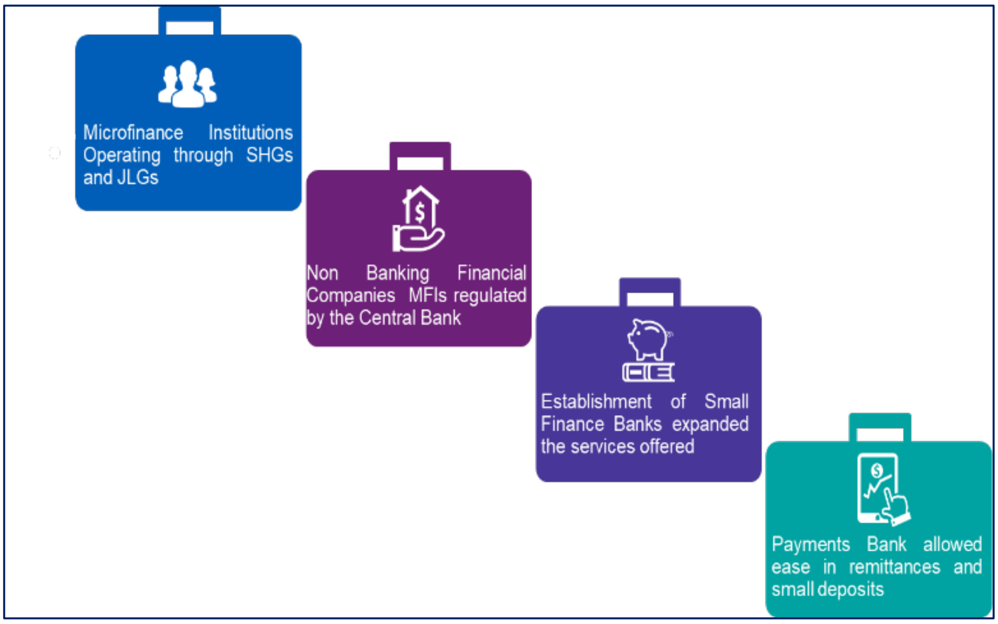
[13] Kannan, M, and A Panneerselvam. "The Microfinance in India- An Overview." International Journal of Current Research and Academic Review, 2013, pp. 78–83.
[14] Press Trust of India. "Microfinance Industry Posts 38% Growth in 2018-19", 3 June 2019

With close to 95per cent women borrowers, the Self-Help Group-Bank Linkage Programme constitute about 10-20 people of a certain community who wish to take a loan either individually or collectively to start a micro-enterprise. Opening a bank account for each of the members and the group is mandatory and a month is taken to disburse the loan. Contrary to this model, the Joint Liability Group is a smaller arrangement of 4-10 people for individual loan requirements. Opening of the bank account is mandatory for the JLG Model and the turnaround time for disbursing the loans is about three to four working days. Moreover, given the faster dissemination of loans and probabilities of expansion being higher, most of the microfinance institutions are looking at the JLG model as the pathway to growth. However, a downside to this is the inculcation of habit of saving and an endeavor to earn a sum over and above the disposable income which the SHG-BLP pushes for is not there for the JLG model.

In an endeavour to further formalize the sector, the Small Finance Banks (SFB) were established in 2014 which expanded the financial services offering. Large MFIs like Bandhan Bank and Suryoday Bank became SFBs with a view to increase their clientele. Moreover, to address the needs of the unorganized sector especially migrant laborer, the idea of payments banks with a focus on low fee-based remittance delivery model was developed.

Initiatives such as the Micro Units Development & Refinance Agency Ltd (MUDRA), NBFC set up in 2015 with a focus on microenterprise, has been mandated to handhold the smaller MFIs and NGOs operating in the microfinance space as they are the ones catering to remote and hitherto unreached populations.

Figure 30: Evolution of Microfinance in India



In the last fiscal year (2018), the Non-banking Financial Companies MFI grew at rate of 40per cent and the NBFC at 59per cent surpassing the banking sector. The year on year growth for the rest of the channels were–Banks (36 per cent), SFBs (25 per cent), and Others (30 per cent)[15]. With a market share of close to 37 per cent, the overall volume of loan disbursement showed immense potential for expansion. In terms of overall industry's gross loan portfolio, 83per cent was contributed by top 10 states in the country,

[15] Status of Microfinance in India Report 2019, MCID-NABARD

with West Bengal and Tamil Nadu making it to the top of the list with a contribution of 35 per cent of the top 10 states. Of the top states, West Bengal, Tami Nadu, Bihar, and Karnataka have a portfolio of more than INR 15,000 crore, which indicates a marker of a concentrated market. As of 31 March 2019, MFIs were instrumental in providing microcredit to over 6.40 crores clients. They are spread across 615 districts in India of which 210 districts constitute 80 per cent of the portfolio outstanding.

The microfinance sector is a harbinger of hope when it comes to bringing the 'unbanked' within the spectrum of the formal financial services even though it was initially not very well organized in terms of the records. There were some key challenges that the sector faced, especially with the Self-Help Groups where the records and the credit history of the borrowers together with the viability of their business plans could not be properly verified. This also led to many Non-Performing Assets in the sector.

Figure 31: Challenges in the Microfinance Finance Space

5.2 Impact of technology in Microfinance Subsector

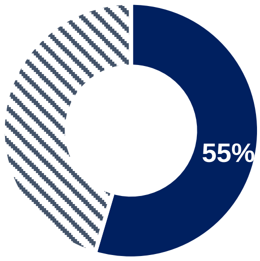
From the customer onboarding to underwriting, loan collection and disbursement, there is a strategic role of technology for ensuring efficiency and reduction of costs. A number of microfinance players have incorporated technology in their value chain to ease the process. The JAM trinity[16], i.e., Jan Dhan Yojana accounts, Aadhar Numbers and Mobile Phones have been key enablers for ensuring a tethered success of the technological interface.

Given the vast market that the microfinance subsector caters to, there is a need to seamlessly loop in advanced technology for better monitoring and accessibility.

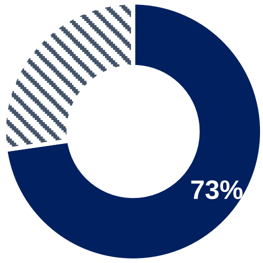
Given the large amount of data that is available in the sector and the continuous growth projected in the same, the role of data analytics is going to remain critical in the space. Others like Cloud and AI would take time to set pace in the sector however the organisations interviewed were receptive to the using them. "Among the new technologies available, the Blockchain technology should be leveraged in the sector for close monitoring and transparency," said one of the senior officials from SIDBI. Hence the potential associated with leveraging technology in the sector is immense and what entails currently is matching the regulatory challenges with the right skills needed for developing the platforms keeping in mind the unique demands of the user population.

[16] Status of Microfinance in India Report 2019, MCID-NABARD

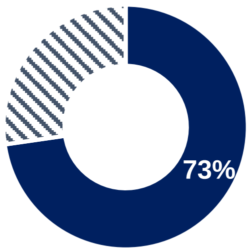
Figure 32: Adoption of technology



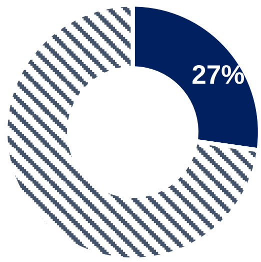
Percentage of respondents agreeing that AI will witness higher adoption levels



Percentage of respondents agreeing that Data Analytics will witness higher adoption levels



Percentage of respondents agreeing that Cloud will witness higher adoption levels



Percentage of respondents agreeing that Blockchain will witness higher adoption levels

Origination Stage

This stage encapsulates the idea of generation of leads and their management, KYC together with understanding the needs of the customers and the reason for borrowing. While the manual entry of documents can be digitized, the human interface of this stage is critical for the customer acquisition and retention. MFIs like Bharat Financial Inclusion Limited (BFIL) have deployed handheld devices to their agents for undertaking the KYC procedure digitally. Through the Aadhar numbers of the customers, there is a direct linkage with NPCI which allows instantaneous credit bureau verification, compact and defined turnaround time for loan disbursements and improved data quality, thus also reducing the chances of interfacing with fake clients.

Underwriting Stage

With the rapid expansion of the customer base of the MFIs, the profile evaluation of the customers is imperative. There is an ingrained level of subjectivity in the loan appraisal process given the unavailability of the credit history of the customers. Technological innovations allow a certain level of reduction in the manual effort of the officers and the also enable the decision making through correlation of additional data points. Given the Andhra Pradesh Crisis of 2010, underwriting has become a pivotal function in the microfinance sector. In analyzing the strength of loan case, the model is moving more towards evaluating the customer's ability to pay back rather than them being eligible for a loan. For small ticket sizes, several small finance banks are leveraging technology for quick disbursal of loans. Banks like AU Small Finance Bank can process consumer durable loans within a day by utilizing their credit risk framework which look at several points of reference, starting from the CIBIL score to the bank statement analysis and provide a speedy solution.

Sanction and Disbursement Stage

The demonization of 2016 led to lower liquidity levels and disruption in cash flows for the microfinance institutions[17]. As a result of which several microfinance institutions, including the small and mid-sized ones had to relook at their cash-driven lending methods. Given the impetus of government towards digital payments, these organisations started embracing digital payments technologies to reduce their dependence on cash. Hence, digital payment modes have encouraged a technology-enabled transformation in the microfinance sector while simplifying the disbursement of loans to rural consumers.

As per the report shared by Microfinance Institutions Network (MFIN), a body of NBFC-MFIs, close to 87 per cent of the loans disbursed during the first quarter of FY2019 were done through cashless methods.[18] In the second quarter of the financial year 2018, the cashless microcredit disbursements rose to 55per cent and grew close to 73per cent during the fourth quarter of the same fiscal year. Close to INR 11,404 crore was disbursed to over 42 lakh accounts. In view of the same, the loan officers who are more used to handling cash must be upskilled while the new cadre of resources have to equip themselves with digital payments platforms for the ease in loan disbursal.

Operations and Servicing

In the lifecycle of customer acquisition to retention, there is a range of services and compliances which the MFIs must keep up to. Given the current customer profiles and the lack of literacy added with the discomfort of interfacing with technology for financial matters, there will be a sustained demand for workforce here. However, there is a large scope for digitizing the back-office processes. In terms of mobile phone usage, India ranks second in the world after China with more than a billion connections, while a quarter of these comprises smartphone users and this number is set to double to close to half a billion by 2020.[19] Given these figures, the current mode of assisted servicing can gradually evolve into self-service apps and online portal services. In anticipation of the times, several MFIs are investing in centralized call centers and reducing the

[17] Tiwari, Vivek. "How Adoption of Digital Technologies and Payments Methods Are Boosting Delivery of Credit in the Rural Areas." Entrepreneur, 28 Dec. 2018
[18] Ibid.
[19] Ibid

dependency on the branches for resolution of customer queries, especially the mundane ones.

Loan Collection

Several collection models were used by different MFIs depending on the customer portfolios and their mode of operations. From the centralized model of receiving payments at the MFI branches to individual loan officers going to each customer and receiving payments, these models were not able to leverage social pressures for the repayment. Going to SHG/JLG meetings and collecting the repayments have been able to use social pressure to coerce which works very well for the rural base. While several MFIs looked upon the importance of the role of the loan officers, there is a high operating cost associated with the model. Hence many MFIs especially the NBFC-MFIs and the SFBs are leveraging technology for repayments.

E-Shakti - Digitizing SHG records through NABARD

In the effort to formalize the transactions with the Self-Help Groups and provide them access to a diverse array of financial services, NABARD has undertaken the task of digitizing the SHG information. NABARD launched a pilot project "e-Shakti" in 2015. Through an android based application, the members of the SHGs can electronically record information which leads to the creation of national MIS which captures their demographic and financial profiles. The information about SHG and its members is uploaded on website. The project is currently being implemented in 100 districts and it is estimated that 5 lakh SHGs covering around 60 lakh members would be digitized. As on 31 March 2019, more than 4.34 lakh SHGs have been on-boarded in the e-Shakti portal. With deeper penetration and ease of access, this portal ensures complete transparency of financial operations and updates the members regarding financial information through regular SMS updates. Moreover, based on the data available with the e-Shakti portal, close to 64,000 JanDhan bank accounts were opened and fresh enrolment of more than 3 lakhs PMSBY/PMJJBY accounts and 8,069 policies under APY were done. This model has enormous potential to deliver various banking services through accessible means to the SHGs.

Vaya Finserv - A Tech Enabled NBFC-MFI

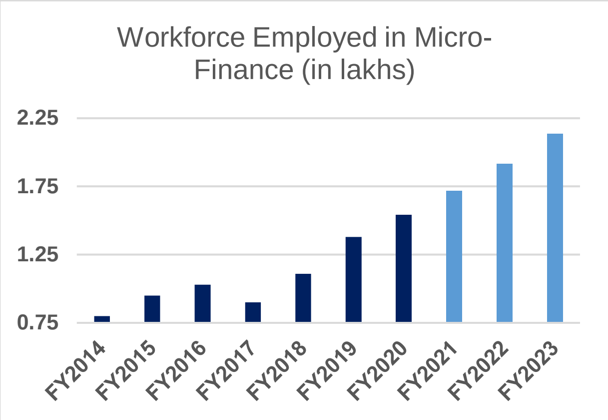
Started in 2014, Vaya started out as a tech enabled banking correspondent company and in 2017 it transformed into a NBFC-MFI. In a cash driven economy, the MFIs are largely working on a paper based and cash-based transaction model, however for Vaya, they have been able to digitize the entire product offering. From real time credit bureau checks through cloud-based application on the handheld device to the loan disbursement directly into the customer's bank account, the platform has been using technology to supplement the processes like underwriting model, risk assessment and workflow of loan management.

While the repayment of the loans is still in cash, the company is looking to expand that too in the digital form. Vaya has also added other state-of-the-art technology, from QR readers to iris-scan biometric authentication for its loan processing. The major customer base of Vaya has been women who start their own businesses.

5.3 Incremental Workforce Demand Analysis

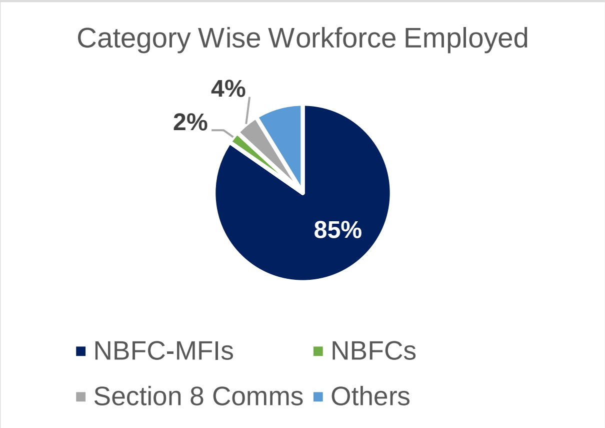
Since its genesis, the microfinance sector has leveraged on the self-help groups and other such small set ups for garnering its operational level workforce. As on 31 March 2019, Microfinance employs approximately 1.38 lakh workforce and it is growing at a CAGR of 12 per cent[20]. The sub sector is expected to grow from existing workforce levels of 1.38 lakh in 2019 to approximately 1.91 lakhs by the end of financial year 2022.

Figure 33: Current and Projected workforce in Microfinance

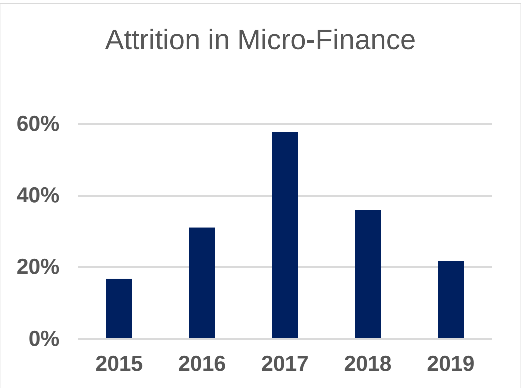


Based on the analysis of the data, it is noted that close to 84 per cent of the total workforce is currently engaged with the NBFC-MFIs with portfolios of more than 500 crore. However, the sector is marked by a high level of attrition given the working conditions and the pay associated with it.

Figure 34: Workforce categorization across the channels



The survey respondents corroborated the finding saying that there is a need for developing strong professionalism and in-depth skilling for the workforce. Moreover, they also said that the organisations should invest on their employees, especially at the lower levels and help chart out their career paths in the organisation and the sector itself.



A KPMG in India analysis of the attrition data revealed that an average of 33 per cent of the workforce exited their organisations in the last five years. The levels peaked in 2017 with 58 per cent. The demand for skilled field level staff is very high combined with a sharp shortage of such resources. Attrition levels over the last five years

[20] The Bharat Microfinance Report 2019, Page 33

5.4 Skills and the Microfinance Subsector

Given the portfolio and the profiles of the borrowers, the traditional brick and mortar model of branch proliferation was a key marker of success and penetration. However now with the diversification of the sector and increasing competition between the rising number of MFIs coupled with the inception of more Small Finance Banks and Payments Banks, the focus on yields is set to increase.

In view of the same, there is a need for integrating technology in the delivery and operations platform. Moreover, the reliance on technology allows the human resources working in the sector to develop deeper bonds with the customers and not get entangled with the mundane operational activities. Some of the MFIs also said that political agenda is a seminal force in the sector with incumbent governments giving loan waivers. Hence, there is a need for a special category of risk officers who can analyze policy and political trends and predict such announcements and policies. These would help the MFIs to recover loans on time and prevent misinformation on loan waivers being spread.

An analysis of the responses gathered in the interactions with the sector leaders highlighted the crucial job roles in the sector as mentioned below:

Verticals	Name of Job roles	Level	Skills Required
Sales and Operations	Loan Officers	Entry	✓ Mobile Technology ✓ Communication Skills ✓ Stakeholder Management ✓ Functional Domain Knowledge
	Branch Managers / Mentors	Middle	✓ Finance and Accounting ✓ Communication Skills ✓ Basic Computer skills ✓ Handheld device technology
	Credit Officers/Underwriters	Middle	✓ Functional Domain Knowledge ✓ Underwriting Process
Risk and Compliance	Risk Officers	Middle	✓ Data Analytics ✓ Financial knowledge ✓ Statistical Problem-Solving Skills ✓ Political Analysis of trends
	Compliance Officers / Concurrent Auditors	Middle	✓ Knowledge on regulation ✓ IT Skills ✓ Communication Skills
IT Infra	MIS Executives	Entry	✓ Basic Computer Skills ✓ Data Entry Operations
	IT Managers	Middle	✓ Basic Programming ✓ Communication Skills
	Data Scientist	Middle	✓ Computer Programming ✓ Quantitative Skills ✓ Machine Learning
Finance & Accounts	Finance Executive	Middle	✓ Accounting and Financial Skills ✓ Quantitative Skills

Partnering with Local Agents

Another interesting insight which emerged from the survey and the corollary secondary research was that number of interlinked subsidiaries in the microfinance sector. Given the penetration in the most rural areas of the country, having their agents staffed at every corner is very cost intensive, However, given the ingrained illiteracy and element of distrust on technology especially among the rural base that the human face cannot be completely negated. In view of the logistics involved, the MFIs have partnered with local entities in delivering service and developed new models of business.

India Post Payments Banks with its new status as a payments bank have revolutionized the postal system in the country. As Seema Kohli, GM-HR mentioned, “the traditional dakiya is becoming the new age banker and ensuring last mile connectivity for the financial services.” Hence the training of the postal workers in these roles has become an important agenda for the Government. In 2017-18, close to 10,000 post men and women were trained in handheld devices for enabling them to process remittances in a seamless manner.

Under its Retail Distribution Service Points (RDSP) Model, Bharat Financial Inclusion Limited have identified certain local grocers and general stores to act as their Retail Distribution Service Points for repayments, cash deposits, withdrawals, and even utility payments. With pilots in Karnataka and Odisha, these stores were equipped with tabs and smart phones for enabling the transactions and they were further incentivized by the model when opportunities of cross selling their own products was apparent to them[21].

Given the clear mandate of financial inclusion together with the need to the expand business, the skilling of these local partners in the financial product offering and the technologies being used is an area of skilling greenfield project.

Figure 35: A) Top hiring departments B) Fast emerging verticals

As per respondents, the top hiring departments in Microfinance subsector are

1. Operations
2. Risk and Audit
3. Finance & Accounts
4. Information Technology and Infra

At the underwriting stage role of the underwriters, typically at the mid senior and senior positions are likely to increase soon. MFIs have started investing in risk processes and people with data analytics skills is needed for the bank. Fintech companies like Credit Mantri have also come with solutions for looking at the viability of giving loans to new borrowers and risk profiling their credentials through non-traditional routes. Hence not just directly in the MFIs but also in the interlinked subsidiary with Fintech providing the digital solutions, there will be a need for people with strong data analytical skills. Given

[21] Bharat Financial Inclusion Limited, Annual Report 2017-18

that the staff productivity plays a significant role in defining the cost efficiency, the role of technology in increasing the staff productivity is imperative.

In view of the complexities associated with compliances and regulations in operations and servicing of loans, there is a need for added financial literacy for the field officers. The emerging trend is that of MFIs and SFBs partnering with Fintech companies for co-creating e-learning apps and material for self-paced learning. Organisations like Sonata Finance have partnered with Grameen Foundation and introduced G-Leap, an e-platform for training of the MFI field staff.[22] Moreover, given the large network of customers, a strong MIS system is required for the proper maintenance of records. Each of the MFIs interviewed for the study unanimously acknowledged the need for insightful MIS officers and data analysts who can diligently maintain digital records and seamlessly integrate them for future analysis of the potential customers.

Diversity inclusion remains a key aspect for many large-sized MFIs with efforts being taken towards inclusion of people with PwDs to war veterans or people from the military background. The sector also witnesses fair inclusion of women in administrative roles and not so much in the field roles due to the challenge of women travelling to distant locations as per the demand of the role. However, some MFIs have also claimed having all women branches and are trying to replicate the models basis its success.

[22] Gulati, Gopika; Gaurav Chakraverty; 'Grameen Foundation-Digital Winds of Change in Rural India'

6 Fintech - An Indian Perspective

6.1 Introduction

With an adoption rate of 64per cent, the Fintech space in India has earmarked a dominant position for itself. For many Fintech firms operating in India[23], the synergy between technology and financial services has been amiable. Traditionally a cash driven economy, with deeper inroads of smart phones and e-commerce companies together with the thrust of demonetization, there has been an impetus for digitizing the financial landscape for larger transparency and ease of accessibility.

In the Indian context, the corollaries of both financial inclusion and the risk assessment of the technological interfaces used is associated with Fintech penetration. Developing suitable products that cater to definitive needs and demands of the financially excluded population, coupled with facilitating digital onboarding and furthering the quantum of investments are crucial in harboring the Fintech solutions. The effective utilization of the Aadhar Enabled Biometric Systems has created the environ which can be leveraged by the Fintech firms. Whereas retail and consumer payments are leading the Fintech space in India, several companies are emerging even in the insurance sector which is helping it to digitize the space.

6.2 Growth Drivers and Challenges: Fintech

While in terms of the operational years, the Indian Fintech space is nascent, the growth that it has registered has been noted worldwide. Serviced by a large marketplace base together with the innovative start-ups landscape, the arena has become a prominent germination ground for hitherto unknown financial technologies and services. This growth has also been fueled by some government initiatives like the Aadhar, National Payment Corporation of India and the Jan Dhan Yojana which have interfaced together to give an overarching supportive environment for the Fintech growth. Some of the key opportunities for the sector are:

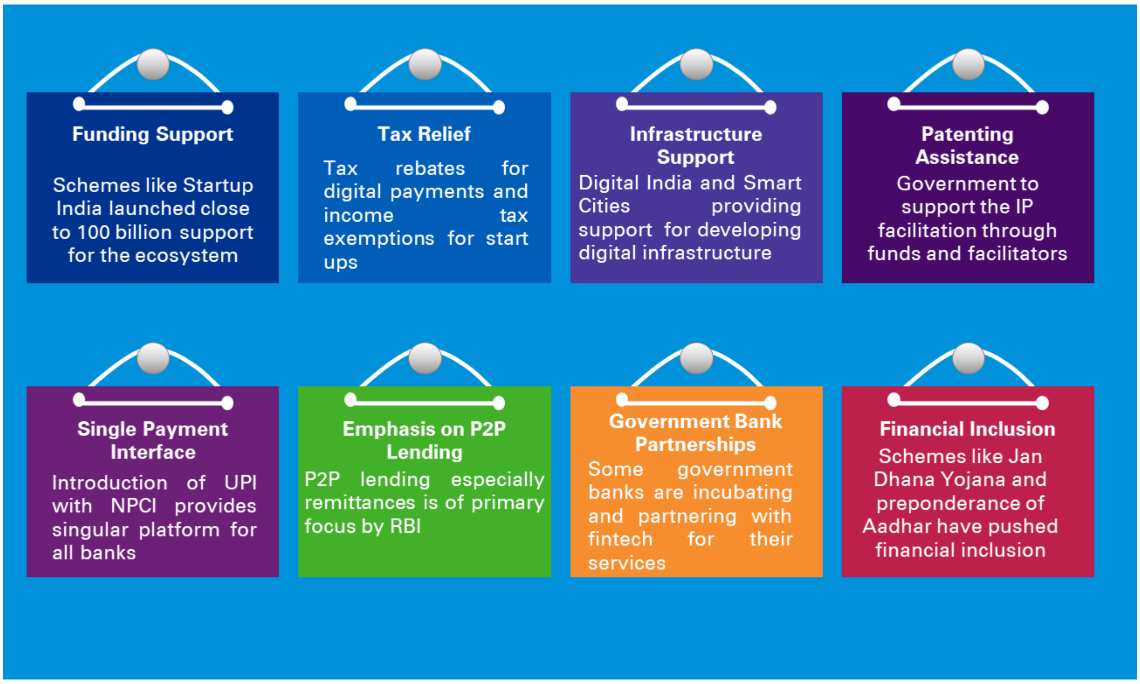
Financial Inclusion

The rise of the Fintech has opened an additional avenue for financial inclusion especially in the space of lending. Given the intricacies associated with the banks in mapping their credit and risk parameters for lending along with the high interest rates of the microfinance institutions, the Fintech NBFCs have created a strong network of borrowing and lending. The strong reliance on technology have also enabled them to minimize the Turn Around Time (TAT) and allow faster processing. “We are there to serve the deserving unserved,” said Ramesh Lunia, co-founder of Flexiloans, a company which got the one of largest seed capital in the history of the start-ups in India. Companies such as this have been able to serve the credit problem in Tier III and IV cities where they are servicing 50,000-60,000 pin codes covering close to 1100 cities and towns, they have been able to reach most of the SMEs in the country.

---

[23] Das, Shashikanta; ‘Opportunities and Challenges of Fintech’; Delivered at the NITI Aayog’s Fintech Conclave 2019 on Monday, March 25, 2019

Figure 36: Key factors catalyzing Fintech growth in the country



Innovative Technologies and Data driven platforms

Given that many Fintech companies dabbled with the payment services, it was a window for the starting of the 'Fintech revolution.' Industry pundits are of the view that 50 per cent of the Fintech companies continue to focus on payments and trade processing.[24] This they feel are going to be entry pathways for digitization of other services like insurance, credit, and wealth management to name a few. Given that most of the unbanked population lack the credit history, the payments data from these digital platforms can be leveraged based on strong data driven and behavioral risk management modelling.

Using Sound waves to make Payments

Tone Tag, a Bengaluru based startup is using sound waves to make digital payments. A pure play product developed for contactless payments, the company has partnered with banks like Bank of Baroda, ICICI and Freecharge for enabling their customers to make offline sound-based payments together with First Data for creating the open loop interface for enabling payments across the spectrum and restrict to specific bank/wallet apps.

The platform does not require any specific hardware and can be done through a varied range of devices---smartphones, feature phones, PoS (Point of Sale) devices, EDC (Electronic Data Capture) devices and by Tone Tag's retail pod, among others. All one must do is programme a device with Tone Tag's software and the transactions are completed when the two devices are in proximity. Moreover, this technology has also allowed offline merchants to create a repository of customers and access their buying patterns for more targeted sales pitch.

"Data is our biggest asset and today through technology we are able to co-relate, triangulate posit conclusively on the credit worthiness of a person at a faster and more accurate manner than most banks and NBFCs," said one of the founders of a leading Fintech based NBFC. With major focus on data analytics, most of these organisations

[24] https://knowledge.wharton.upenn.edu/article/whats-driving-indias-Fintech-boom/

are also using key technologies like AI, Cloud and Blockchain. In the study, we captured the below mentioned finding on the use of the technology:

Figure 37: Top hiring departments

As per respondents the top hiring departments in fintech subsector are

1. Data Analytics
2. Artificial Intelligence
3. Blockchain
4. Cloud

Partnerships and Collaborations

Given the niche spectrum of the Fintech companies coupled with the large market space and the bevy of regulations that companies must work with, it is imperative partnerships develop between the companies. For example, the growth of the e-commerce platforms has been leveraged by the SME loans businesses for connecting with the entrepreneurs. "We partnered with platforms like Amazon and Flipkart by advertisements of our product offerings and were able to increase our customer base," said one of the founders of a SME-focused digital NBFC.

While most of the respondents focused on making technology in-house, a few of the Fintech companies mentioned that they are working closely with other smaller brands and start ups and leveraging their products and service offerings. Given that many companies are operating in very niche technologies along with the enormous space of financial services, there is a need for developing partnerships among them. "Cohesive extended enterprises forming collaborations to service customers is the future," said Ramesh Panicker, CEO Retra Finance. The Fintech space has posited great growth potential but there are a number of challenges too which have to be mitigated to ensure sustainability and scalability.

Data Security and Privacy

An aspect which needs attention in the Fintech space is mitigating the potential risks associated with digitization. The central KYC registry houses close to 100 million KYC records which have already been uploaded onto this platform.[25] While being an opportunity pool for centralized and transparent transactions, mishandling of such sensitive data can evoke severe security threats. In view of the same, the technology wave in the financial services have also propelled a digitization of the regulatory compliances and supervisions with the advent of RegTech and SupTech. However, caution must be exercised in handling the range of sensitive information of customers.

As a proposed solution to issues related to privacy, was the use of blockchain to maintain data anonymity and allowing the user to track which entities have access to their data

[25] Das, Shashikanta; 'Opportunities and Challenges of Fintech'; Delivered at the NITI Aayog's Fintech Conclave 2019 on Monday, March 25, 2019

points. “This technology if leveraged provides a unique opportunity for creating a central KYC platform. This will allow users to have a single database which can be shared across different entities like e-wallets, banks, insurers instead of the user having to enter the same data repeatedly,” commented one of founders of a digital KYC platform.

The government and the regulators have created an opportunity of growth by creating a supportive ecosystem through UPI and NPCI, yet there are several hurdles which are there due to hasty and outdated policies. Moreover, even the SEBI regulations have been a hurdle for trading companies especially regarding buying and selling of stocks.

Telecom Infrastructure

There is a deep penetration of smart phones in the country, however, the telecom infrastructure especially the data driven services are hit by the unavailability of network coverage and speed. Some of the services like cloud-based systems can deliver significant efficiency gains in processing loan requests, automating transactions, together with assessing risk, but these systems are intrinsically dependent on the systems and the network strength that is available.

Illiteracy

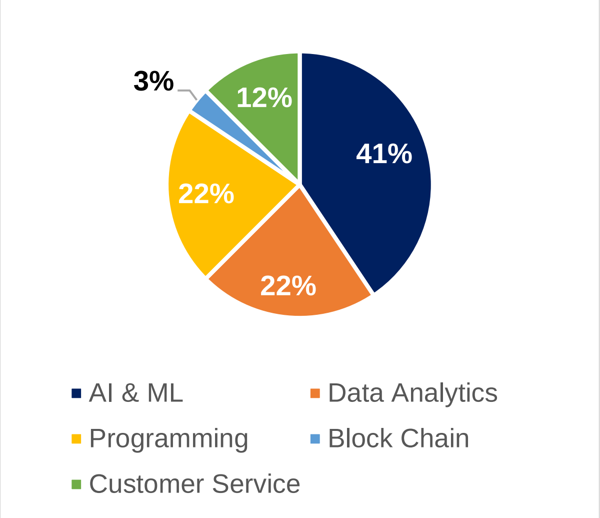
The digital platforms allow a seamless and user-friendly base for transactions and other forms of financial services, but their reach is tied to the reach of literacy patterns which allows people to understand their nuances. This becomes true especially in cases of mutual funds and such mechanisms for capital circulation which have several nuances and need a certain level of financial and academic literacy for the people and market to understand each other and for the former to take an informed decision.

Considering the challenges and the growth drivers, it is important to address both for shrinking the risks of the former and enhancing the culpability of the latter.

6.3 Skills Requirement in the Fintech Space

The Fintech companies have prominently positioned themselves in the country, therefore, the skill mandate in the BFSI sector needs a separate agenda for it. Most of the respondents in the study looked at servicing the payments and lending interface. “We are targeting the missing middle who need an interface for digital loans and collection,” said Vaibhav, CEO, FTCash. The profile and clientele that most of the respondents were catering to depended on the product that they had to offer.

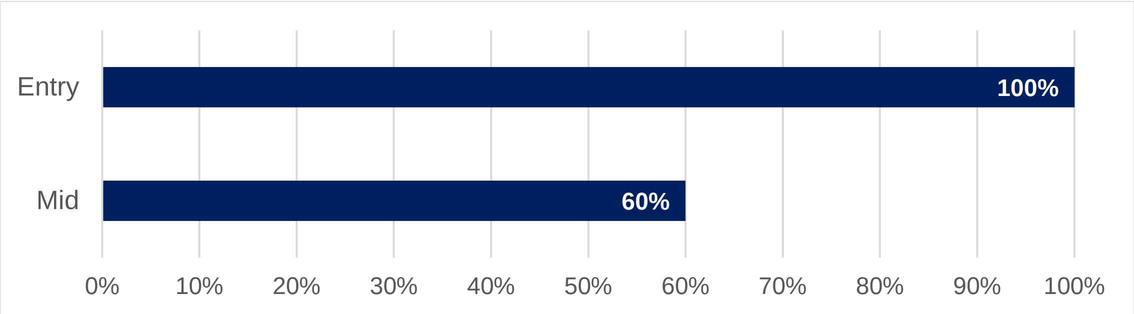
Figure 38: Skills requirement for future jobs



Most of the respondents agreed on the shortage of skills in the sector. While there was a need for niche technical skills like Machine Learning, AI and Java Developers to name a few, there is also an imminent need for effective customer service team including sales, tele callers, etc. Developing professional standards and persuasive communication skills is required for the sales team.

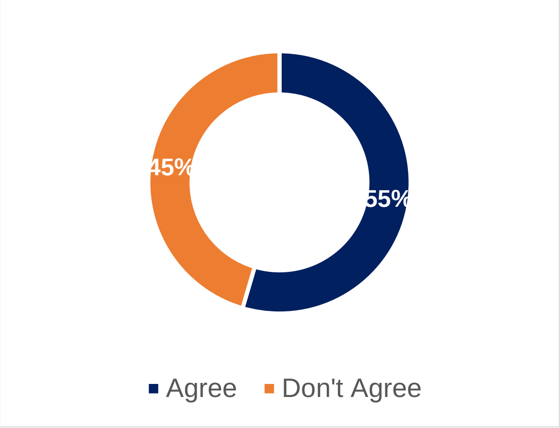
Like the traditional banking and insurance sector, the sales teams witness high attrition, hence start-ups are also looking to invest in sales managers who are able to invest in the team and develop it. Some of the start-ups which are smaller in size and do not wish to invest in a sales team or are looking to develop more on the technology side are partnering with local shops and enterprises to be their customer touch points.

Figure 39: Respondents view of existing skill gap at various levels



In the study, most of the respondents agreed that the skill gap existing in the industry is at entry level job roles followed by middle level job roles. They also mentioned that the candidates mainly lack tech-oriented skill sets. Moreover, while the respondents are looking to hire workforce in sales, tele callers, business operations teams at entry level roles, the tech teams require professionals at the middle management level. "Just knowing the technology is not enough, it is important that the applicant is able to successfully map the industry knowledge with the technical skills."

Figure 40: Percentage of respondents agreeing they are sufficiently staffed to meet company's growth plans



It is also observed during the study that 45 per cent of respondents do not have required workforce to execute the company's future growth strategies. With high growth potential of the Fintech organisations, it could be inferred that the requirement for skilled workforce will also be very high, with companies needing to step-up their hiring activity for scale-up of their operations.

List of Job Roles

Based on the interviews conducted, some of the key job roles that surfaced through the interactions are listed below:

Vertical	Job Roles	Level	Skills Required
IT & Programming	Java, C++, Android, UI Developer	Junior	✓ Technical knowledge on platforms and languages ✓ Knowledge of Data Structures and Algorithms ✓ Testing basics ✓ Problem Solving Skills
	Artificial Intelligence	Junior/Middle	
	Machine Learning	Junior/Middle	
	Robotic Process Automation	Junior/Middle	
	Cyber Security	Middle	
	Manager	Middle/Senior	
Customer Service	Sales	Junior	✓ Digital Skills ✓ Communication and Interpersonal Skills ✓ Knowledge of Products and Benefits ✓ People Management Skills
	Tele Caller	Junior	
	Sales Manager	Junior	
Business Operations	Product Manager	Middle/Senior	✓ Communication Skills ✓ Stakeholder Management ✓ Functional Domain Knowledge ✓ Knowledge on regulation ✓ Accounting and Financial Skills
	Business Manager	Middle/Senior	
	Compliance Officer	Middle	
	Marketing	Middle	
	Credit and Collections	Junior/Middle	
Data Analytics	Data Analyst	Junior/Middle	✓ Quantitative Skills

	Data Scientist	Middle	✓ Writing and Communication Skills ✓ Functional Domain Knowledge ✓ Statistics and Probability
	Big Data Engineer	Junior/Middle	

A large number of the respondents were from Bengaluru which is dubbed as the 'Silicon Valley' of India. Although Mumbai continues to remain the financial capital of the country, there are a few Fintech based players there and the respondents mentioned that the hiring in tech skills becomes a challenge because there is a genuine scarcity of such talent in the city.

Moreover, the respondents also mentioned that while the technical skills are required, equally important is the development of people skills across all levels—an intermix of communication and emotional quotient development. The skill curriculum should also emphasize on this as a priority area.

Inclusivity through Partnerships

Direct hiring in customer interfacing and data entry roles are capital intensive, hence some of the Fintech companies which are servicing in wider geographies like Flexiloans have outsourced this part of their business to two agencies. One of the agencies is Vindhya e-Infomedia. With an aim to mainstream jobs like Call Center Support Services, Data Entry and Management Services, Accessibility Testing Services for the PwDs, this organisation is closely working with Flexiloans for its data entry and to some extent fixing entire documentation for the loan processing. "It is remarkable to see how concentrated people with hearing impairments can work, without any distraction their processing turnaround time is remarkable," said Devi, Head, HR Flexiloans.

Initiatives such as these should be encouraged to promote such inclusive work partnerships combing the strengths of each segment of society for the overall growth of the company.

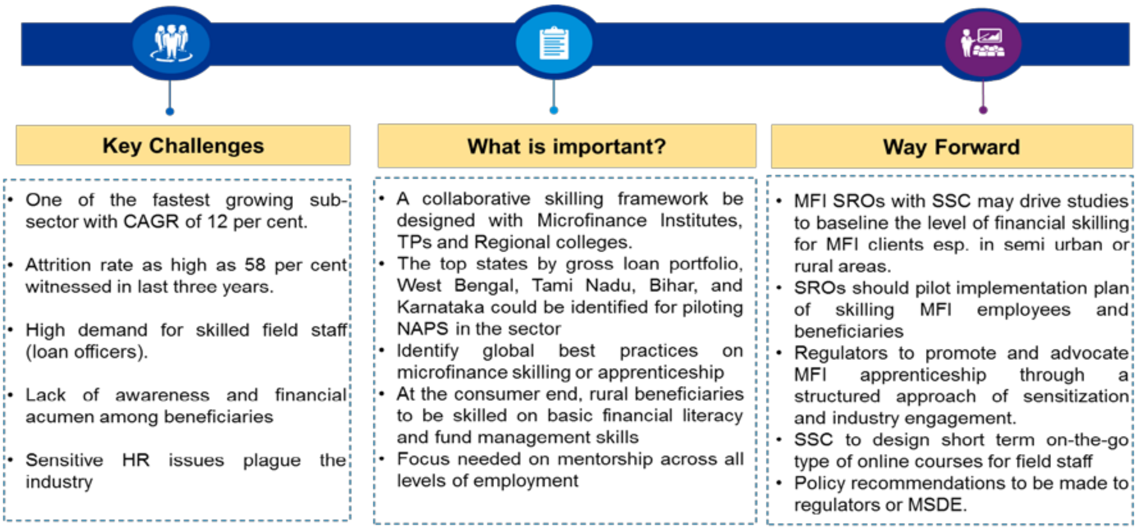
7 Recommendations

Based on the findings of the study some of the recommendations for embedding this mutually favorable alignment between skilling ecosystem and the BFSI industry are mentioned below:

7.1 Improved Focus on Microfinance Skilling Model

In steering the mandate of financial inclusion in the country together with providing institutional credit to the larger masses, it is imperative that the microfinance sector of the country is strengthened. The skilling model for microfinance is delineated below.

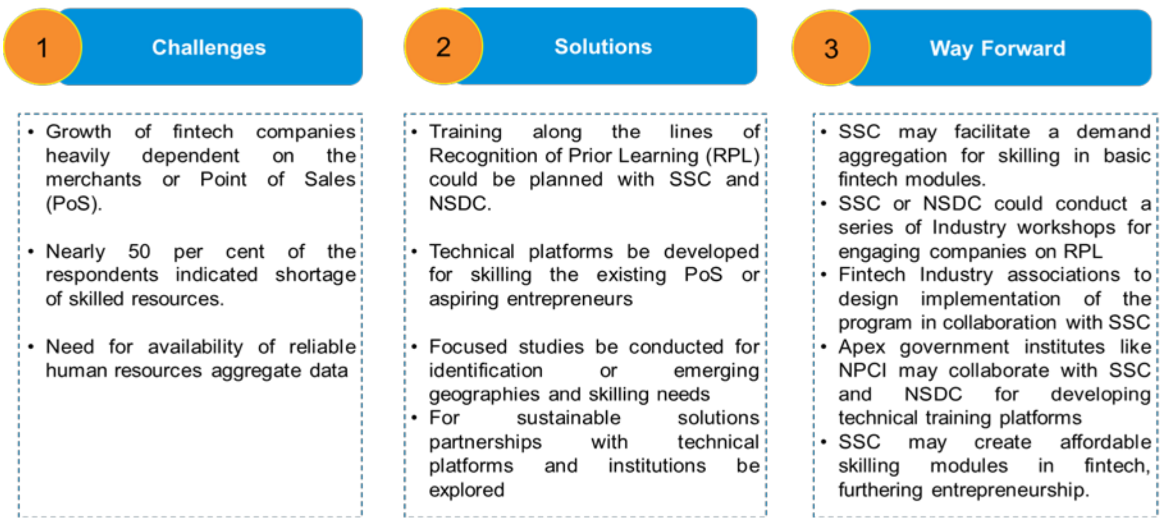
Figure 41: The Microfinance skilling model



7.2 The Fintech Focus – Tapping the Untapped

With the proliferation of the fintech sector in the country there is a need for propelling this growth story through skilling. A model detailing the skill development of the workforce involved has been given.

Figure 42: The Fintech Focus



7.3 Incorporating PwDs in BFSI Mainstream

The incorporation of the persons with disability in the mainstream has been in most parts driven either by legislation or by charitable interests. Keeping the need for drawing clear outcome-based career progression maps the following skilling model has been envisaged.

Figure 43: Incorporating PwDs in BFSI Mainstream

1 Challenges

- Reserved seats lying vacant due to lack of trained candidates
- Hiring not business driven but charity or CSR based
- Hiring restricted to generic disabilities mainly locomotor
- Hiring seen as a tertiary requirement

2 Solutions

- Industry endorsed lower attrition rates than regular employees
- Can be driven for specialized tasks- speech and hearing impaired (SHI) persons excel at data entry tasks. Recognition of specific skills needed
- Identifying special abilities and widening the range of job roles available

3 Way Forward

- Industry to plan career progression for PwDs at the time of hiring. PwD SMEs may be onboarded by Industry for such interventions.
- SSC may onboard Liaison Officer and partner with BFSI TPs for regular flow of skilled candidates
- SSC to sensitize Industry on assistive technologies available and partner with providers of these technologies

PwD segment can be driven to achieve great business targets if their abilities are correctly assessed and mapped

7.4 Forging International Partnerships for Reskilling

The need for skilling in new age courses with a heavy reliance on technology can be drawn through international partnerships which will help align the employee's skill sets to the global needs.

Figure 44: Forging International Partnerships

Given the scale of global operations and technology disruption, it is imperative to plan interventions catering to the demand of internationally benchmarked and technologically advanced skilling in the sector.

- Conduct training of trainers of PSU, Pvt Financial Institutes in areas like Credit Management, Digital Banking, Cybersecurity, Risk Management, Insolvency and Bankruptcy code (IBC)
- Need for sustainable models to scale upskilling of officers in line with global standards

- RBI affiliated training institutes like CAFRAL to reskill Bank trainers on international courses
- Initiatives like Joint certifications, global benchmarking of existing courses, international tie-ups need to be taken up by Industry and TPs to address the demand of highly skilled global workforce
- SSC could identify TPs for catering to the reskilling needs of sector and create courses on new age technology job roles like those of AI and DA

Creating a Centre of Excellence between an Indian Training Partners and a global entity with on focus on new age courses like data analytics, cybersecurity, risk to name a few will align Indian workforce to global standards

8 Annexures

A.1 BFSI Industry level Workforce Demand Analysis

A BFSI industry level assessment was conducted to understand the total existing and future workforce requirements. As on 31 March 2017, total workforce employed by BFSI sector was more than 55.00 lakhs. The analysis suggests that it has increased from 8.8 lakhs in 1981 to 55.3 lakhs in 2017. It has increased at a CAGR of 5per cent from 1981 till 2001. However, from 2001 it is growing at a CAGR of 5.5 per cent constantly[26].

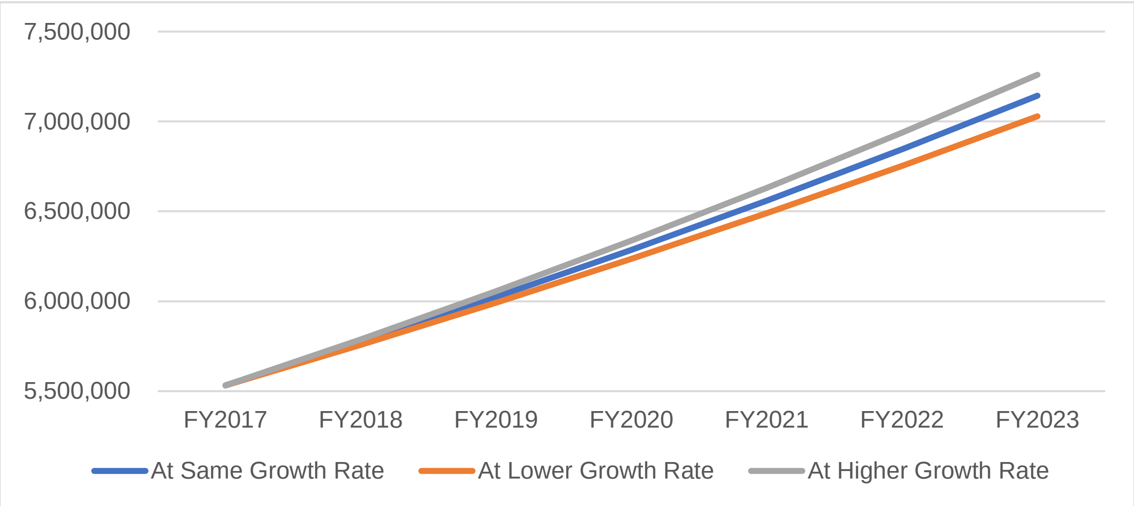
Considering the data for 2017 as baseline, the future workforce requirement in the BFSI sector is estimated till 2023. The employment elasticity for BFSI sector is calculated to be 0.52. The BFSI sector has grown at a CAGR of 7.74per cent from 2012 to 2017. The future workforce requirement in BFSI sector is estimated assuming three possible scenarios as explained below.

- Same Growth Rate: The sector is assumed to continue to grow at same rate of 7.74 per cent
- Lower Growth Rate: The sector is assumed to grow at a lower rate of 7.24 per cent
- Higher Growth Rate: The sector is assumed to grow at a higher rate of 8.24per cent

The future workforce requirement in the sector, as per the above considerations, is estimated as below:

Expected Workforce (2020-2023) Employed in BFSI Sector (in lakhs)							
Year	2017	2018	2019	2020	2021	2022	2023
Growth Rate at 7.74 per cent	55.32	57.73	60.24	62.86	65.60	68.45	71.43
Growth Rate at 7.24 per cent	55.32	57.57	59.92	62.36	64.89	67.54	70.29
Growth Rate at 8.24 per cent	55.32	57.88	60.57	63.37	66.31	69.38	72.60

Figure 45: Workforce Requirement in BFSI Sector



[26] *Measuring Productivity at the Industry Level – The India KLEMS Database*. RBI, 12 July 2019

A.2 Organizations Interviewed

Organization	Organization
Asirvad Microfinance Ltd	IndusInd Bank
Atom Technologies Ltd	Innoviti Payment Solutions
Axis Bank Ltd.	Laqsh Academy
Bank of Baroda	Life Insurance Corporation of India
Bharti Axa Life Insurance	Manipal Global Education Services
Canara Bank	MicroFinance Institutions Network
Central Bank of India	Muthoot Finance
Centre for Advanced Financial Research and Learning (CAFRAL)	National Bank for Agriculture and Rural Development
Chain Wolf	National Payments Corporation of India
Cholamandalam Finance	Profectus Capital
Citibank	Punjab National Bank
Development Bank of Singapore (DBS)	Reliance Life Insurance Company
Development Credit Bank (DCB)	Retra Finance
Digio	Sa-Dhan
EduBridge Learning	SBI General Insurance
FlexiLoans Technologies	Small Industries Development Bank of India (SIDBI)
FTCash	State Bank of India

Fusion Microfinance	Tata AIA Life Insurance
Grameen Foundation	Times Professional Ltd
HDFC Bank Ltd.	ToneTag
HDFC Life	Turtlemint Insurance
ICICI Prudential	Ursa Minor Consulting
IDBI Bank	VeriSmart
IDBI Federal Life Insurance	WeGrow Financial Services
Imarticus Learning	Yashaswi Academy
India Post Payments Bank	Yes Bank
Indian Banks’ Association	Zerodha
Indian Institute of Banking and Finance	_

A.3 Bibliography

i. *Measuring Productivity at the Industry Level* – The India KLEMS Database. Reserve Bank of India (RBI), 12 July 2019

ii. *The Bharat Microfinance Report* 2019 by Sa-Dhan

iii. *Industry Report* Apr 2019, India Brand Equity Foundation

iv. *Report on Scheduled Commercial Banks - Business in India/ Bank Deposits of SCBs* - Region, State, District, Bank Group, Population Group-Wise - Annual

v. S. Visalakshmi, Dr. R. Ratneswary and V. Rasiah, *Impact of Disruptive Technology on Indian Banking Sector, International Journal of Mechanical Engineering and Technology 8(9),* 2017, pp. 510–515.

vi. *Basic Statistical Returns of Scheduled Commercial Banks (SCBs) in India* – Volume 47, March 2018

vii. *Annual Report 2018-19* Data Security Council of India

viii. Insurance Regulatory and Development Authority of India (IRDAI). (2018). *Annual Report 2017-18*. November 2018, New Delhi, Delhi

ix. Insurance Regulatory and Development Authority of India. (2017). *Annual report 2016-17*.

x. Swiss Re Institute. (July 21018). Sigma 03/2018: *World insurance in 2017: solid, but mature life markets weigh on growth.*

xi. *The Insurance Laws (Amendment) Bill, 2015*; Bill No. 31 of 2015; Lok Sabha; New Delhi; India

xii. https://www.ibef.org/industry/insurance-sector-india.aspx

xiii. Kannan, M, and A Panneerselvam. "*The Microfinance in India- An Overview." International Journal of Current Research and Academic Review*, 2013, pp. 78–83.

xiv. Press Trust of India. "*Microfinance Industry Posts 38% Growth in 2018-19*", 3 June 2019

xv. *Status of Microfinance in India Report 2019*, MCID-NABARD

xvi. Tiwari, Vivek. "*How Adoption of Digital Technologies and Payments Methods Are Boosting Delivery of Credit in the Rural Areas.*" Entrepreneur, 28 Dec. 2018

xvii. Bharat Financial Inclusion Limited, Annual Report 2017-18

xviii. Gulati, Gopika; Gaurav Chakraverty; '*Grameen Foundation-Digital Winds of Change in Rural India'*

xix. Das, Shashikanta; '*Opportunities and Challenges of Fintech;'* Delivered at the NITI Aayog's Fintech Conclave 2019 on Monday, March 25, 2019

xx. https://knowledge.wharton.upenn.edu/article/whats-driving-indias-Fintech-boom