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Disruption to the Skills Ecosystem of India in the Wake of the New Normal Emerging Post 'COVID-19'

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ABSTRACT

Every new scenario that has unfolded in the canvas of time has brought with it, an impetus for society's progress. In this perspective, the COVID-19 pandemic, (believed to be caused by an organism of 65-125 nm) has dramatically churned the times we are into today. Businesses, Economies and systems worldwide are undergoing unprecedented dynamic changes towards 'Adaptability' and adoption of newer models that could increase their pace of recovery in the wake of the new normal. The Skills ecosystem in India has been no different. Ever since the inception of the Skill India movement in the early 2015, this system has evolved into a vibrant integrated mission encompassing both Academic and vocational skill training courses. In this article we present to you what has been trending in the world of IT/ITeS skills and how the new normal is expected to emerge and progress from here.

Keywords: Skills ecosystem, IT/ITeS skills, Digitization of economy

1 INTRODUCTION

COVID analysis has been common course statistics these days. Each one of us are constantly wired to information from different quarters on the rise and spread of the outbreak turned epidemic turned pandemic, mainly on account of the raging concerns of its impact on our lives and livelihood. A number of these studies suggest that the post pandemic world would be one overtaken by a Digitized economy. A Digitized economy would need a workforce equipped to meet its demand, by having the right kind of skills to enhance consumer spend and business continuity in the future. (Singhal & Sneader, 2020)

Analytics, Machine learning, Data Science have been taking top seats among most demanded for skills in IT/ITeS sector today. (NASSCOM B2B, 2019)

The University Grants Commission has sought to address the popular need of promoting Online Education and Distance Learning through its institutes by relaxing the existing norms of eligibility for Online education to all. This would turn out to be the new normal going forward in imparting education accessible to all. These decisions pertaining to the mode of imparting education in the General Educational system would pave a similar path in transitioning the mode of skills education to the workforce population of the country in large.

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The Skills ecosystem in India has been a significant milestone in the development of newer models of Education in India with a focus on employability. Ever since the inception of the Skill India movement in the early 2015, this system has evolved into a vibrant integrated mission encompassing both Academic and vocational skill training courses (Mehrotra, 2016). It has had its tremendous outreach into the rural and urban sections of Indian population and has tumulted a twist to better mobility of skills nationwide and to employment pockets abroad. In this article we present to you what has been trending in the world of IT/ITeS skills and how the new normal is expected to emerge and progress from here.

2 LITERATURE REVIEW

2.1 THE SKILLS ECOSYSTEM IN INDIA

The Skills ecosystem in the country has been a significant conduit for education and employability expansion for the Indian economy. A vast infrastructure, that has been growing in size and over the years, several streams have been adding skill sets into its existing corpus from Academics, Industrial training and Research areas. It has also been innovating new skills under the 52 different sectors of Indian economy over the years (NCO 2015). The initiation of the Ministry of Skills Development & Entrepreneurship (MSDE) in 2015 has given needed impetus to the growth of the system of Skill Development training in India from its nascent state to what has come out as it appears in its structure today. While there are further improvements being thought of in the nature of merger of the current streams of Academic courses with the Vocational educational structure, more awareness and acceptance of skill development among the workforce would be a long term desirable task the Government and Education experts would need to prioritise to accomplish in the upcoming years to envision development for the country. (Mehrotra, 2016)
A National Skills Qualification framework (NSQF) has been set up by the National Skills Development Corporation of India (a nodal agency of MSDE) that organizes varied skills (pertaining to distinct job roles in the industry) into four grades of I, II, III and IV. Job roles or occupations are enlisted with their specific skills sets aligned to the NSQF which tallies with international standards of employability to jobs of such kind (National Policy for Skill Development and Entrepreneurship, 2015). This standardization in skills has been assured on skills taught by the varied Skill Development institutes of the country, that have emerged as a result of Skills India movement in 2015. (National Skill Development Mission, 2015)

New Programmes for skill upgrade under the Skill India Campaign 2015

1. Pradhan Mantri Kaushal Vikas Yojana (PMKVY)
2. Pradhan Mantri Kaushal Kendras (PMKK)
3. Sankalp (Skills acquisition and knowledge awareness for livelihood promotion)
4. Skill Strengthening for Industrial value enhancement (STRIVE) scheme
5. UDAAN (For UT of J&K only)
6. Polytechnics submission transfer
7. Vocational Educational Institutions under Universities

2.2 IT/ITeS SKILLS ECOSYSTEM CONTRIBUTING TO GROWTH FOR INDIA

Information technology and allied services skills have always assumed forefront position among skills officially classified as relevant in enhancing skills ecosystem of the country. An integrated view of the National list of Occupations and progressive studies that have culminated in the launch of Skill India movement, has identified IT/ITeS skills sector as prominent and significant for upgrading the workforce and equipping them for the Fourth Industrial revolution.

- Firstly because of the Sector's contribution to the GDP of India which as per latest Official statistics is recorded at 8%. (IT/ITeS Industry report, IBEF, December 2019).

- Secondly it being a $100 Billion industry that employs over 2.8 million skilled workforce of the country. (Economic Survey 2018-19)
- Also considering the annual rate of growth of this sector that looks at a promising 10% (CAGR 10.45%) (NSDC IT/ITeS Infographics September 2019)

2.2.1 WHAT ARE IT/ITeS SKILLS?

Information Technology and Technology enabled skills would comprise the following four categories of skills (Again distributed as services to many Industry verticals like Banking, Financial Services, Insurance, Telecom, Manufacturing and Retail) (IT and ITeS Industry sector skill requirement report, 2019)

1. IT Services
2. Engineering Services & Research
3. Business Process Outsourcing services/Knowledge Process Outsourcing Services
4. Software product design

Figure 1 below depicts the contribution of each of these Segments of IT/ITeS to growth of the Country as of 2019

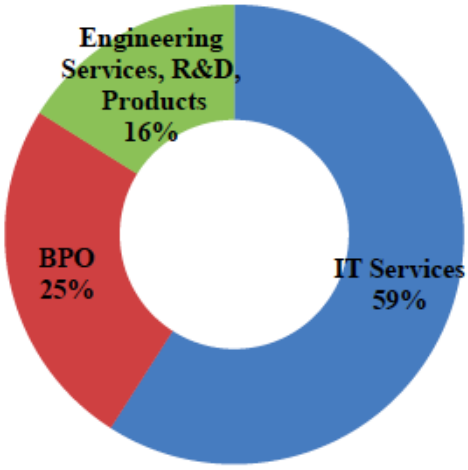

Figure 1. Major Segments that comprise IT/ITeS sector

(Source: NASSCOM and IMaCS analysis - IT/ITeS Industry Skill gap report 2019)

These Segments would not just impact the IT sector but the entire gamut of employers that provide services of the following type as enclosed in Table 1 below.

Table 1. IT aligned Industry Verticals

(Source: NASSCOM and IMaCS analysis - IT/ITeS Industry Skill gap report 2019)

Marketing Companies	Financial Institutions	Insurance Business
Telecom companies	Healthcare	Publishing companies
Sports Franchises	Non-Profit Organizations	Government administration

The Figure 2 below sketches the entire IT/ITeS skills ecosystem in the country as it evolved over the years and towards where it is headed to in the backdrop of events that have constituted the new normal.

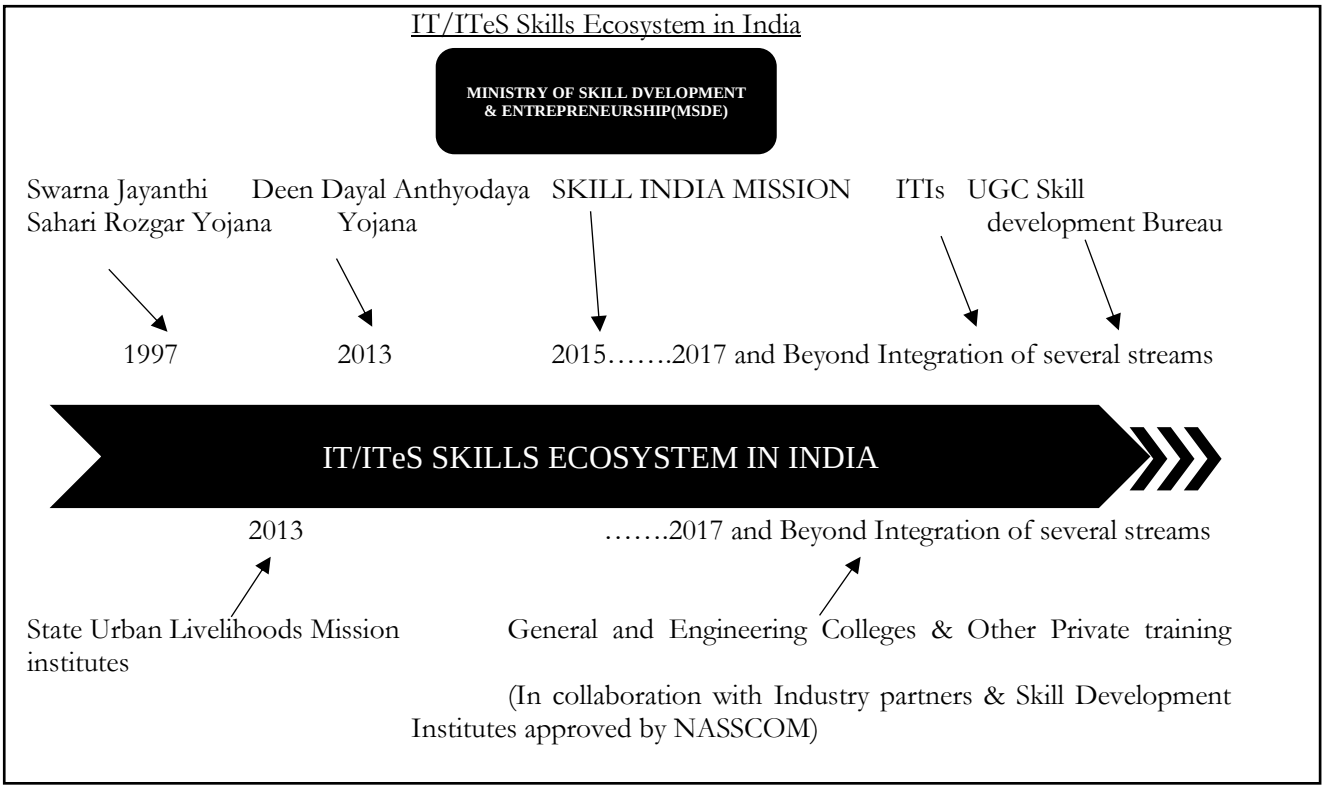

Figure 2. IT/ITeS Skills ecosystem in India *(Adopted Details from NSDC Official website)*

2.3 WORLDWIDE SKILLS ECOSYSTEM - TRENDS

European Skills Survey of 2014, when used to analyse the impact of Informal Skill Development learnings and trainings among workers in Europe both - Under skilled and those who were skilled proved to be beneficial in contributing towards improving skill upgrade and negating skill Obsoletion. (Ferreira et.al, 2016)

A review on how Career management skills are assuming prominence in employment and lifelong learning for citizens in Europe was endorsed by the European Lifelong Guidance Network (ELGPN) in its resolution of member states passed after 2007 (Ronald, 2012). The paper brought out the modalities of how these skills are defined, assessed and how training was imparted in several countries of EU – throwing light on how these skills were integrated into the mainstream education system of the countries.

The World Economic Forum has predicted a rapid disruption in the workplace resulting in the creation of 133 new roles in place of 75 million that would be removed from industry owing to automation and unprecedented move to a digitized economy. Off late studies have proven that Data Science and Analytics holds tremendous scope in shaping future course of businesses. Many of the skill upgrades demanded by employers worldwide point to the drastic changes in conventional Analytics & Business Intelligence jobs. Thus, a shift towards

1. Robotics Process Automation jobs
2. Artificial Intelligence and Machine Learning jobs
3. Applications Design experts (that enable operational costs reduction through elimination of repetitive tasks or activities.)
4. Coding experts

5. Data Scientists (data wrangling, mining, visualization, analytics)
6. Cloud Computing technical experts
7. Cyber Security experts

(NASSCOM B2B, 2019)

2.4 NEW SKILL TRAINING MODALITIES - IT SKILLS IN INDIA

Those institutions in Bangalore and other parts of India that offer skill upgrade programs in IT are many. Apart from the Government sponsored Pradhan Mantri Kaushal Vikas Yojana (PMKVY) referred to earlier, there have been introduced innovative means of skill upgrade through the general Education stream of the country.

Many General colleges in collaboration with Industry experts offer these programs along with their conventional graduate programs. Some of the colleges in Karnataka (approved under UGC Skill Development Bureau) that provide IT skills training through the academic stream as approved per the Skill India movement are as depicted in Table 2 below.

Table 2. Advanced Diploma & Vocational Graduate courses offered for IT/ITeS skill development. (https://www.ugc.ac.in/skill/BVoc.html)

DIPLOMA/ADVANCED DIPLOMA & VOCATIONAL GRADUATE COURSES	
· Data and Web Analytics · Medical Lab Technology	· Analytics · Hospitality & Tourism
Advance Diploma in (a) Retail Management; and (b) Animation and Multimedia	Certificate in Computer Application; and Diploma in Health Care
Diploma in a) Accounting & Taxation b) Financial Planning	Diploma in a) Accounting & Taxation b) Clinical Nutrition and Dietics
Diploma in a) ITES b) Retail Services	· Visual Media & Film Making · Digital Media & Animation
Diploma in a) Phyto Pharmaceutical Technology	Diploma in a) Computer Animation & Multimedia b) Travel & Tourism
· Software Development · Retail Management	· Food Processing and Engineering · Software Development
· Hardware Technology and Networking · Visual and Applied Arts	· Banking and Finance · Theatre Arts

3 GAPS IN LITERATURE

An analysis of the entire IT skills ecosystem in India (including the Skill India movement initiatives) into modes of imparting training, type of IT/ITeS skills defined and provided was to be conducted to glean through three major objectives so discerned:

1. Evaluating the existing structure of skill development network since inception of the new framework of 2015
2. Suggesting improvements to better cater to obtainment of program objectives
3. Effectively equipping our resources to meet the demands of changing market conditions

4 METHODOLOGY

A survey on 50 Training Institutions in the IT/ITeS sector in India was undertaken as to the type of skill sets provided to their trainees. On interviewing them, a list of 25 skillsets were collated and their perception on grading of skills based on significance to employability was taken up. The analysis helped segment IT skills into 4 major quadrants. These were – PROTECT, ACCOMMODATE, EMERGE and IMPROVE quadrants.

The set of 25 significant IT/ITeS skills were sought to be rated by these 50 trainers on a 9-point scale of horizontal and vertical attributes for each of the skills. While the Horizontal traits enumerated for ranking were

	Horizontal Attribute
1 =	Conventional IT skills
5 =	Equal mix of both
9 =	Analytics & Applicability to Service

These skillsets were put for rating also based on those Vertical attributes as below:

	Vertical Attribute
1 =	Lower Future Value of Cost
5 =	Equal mix of both
9 =	Higher Future Value of Cost

The analysis facilitated an additional advantage of exploring possible permutations and combinations that would encourage and promote skilling, reskilling and upskilling among youth. In other words, advance the propensity to upskilling among IT skilled workforce in the country.

Mapping of the entire IT skills ecosystem in India (including the Skill India movement initiatives) into the above mentioned four quadrants brought forth valid insights for:

Evaluating the existing structure of skill development network since inception of the new framework of 2015

Suggesting improvements to better cater to obtainment of program objectives

Effectively equipping our resources to meet the demands of changing market conditions

Figure 3. The figure below is a Perception map of Propensity to upskill in IT/ITeS skills, which has been drawn encompassing a number of factors (from interviews taken on a sample of 50 Skill Training institutions in India). Similar to the BCG matrix, the two critical inputs to align to IT/ITeS Skills Ecosystem in India that have been factored into are: Skill type and Future value of cost.

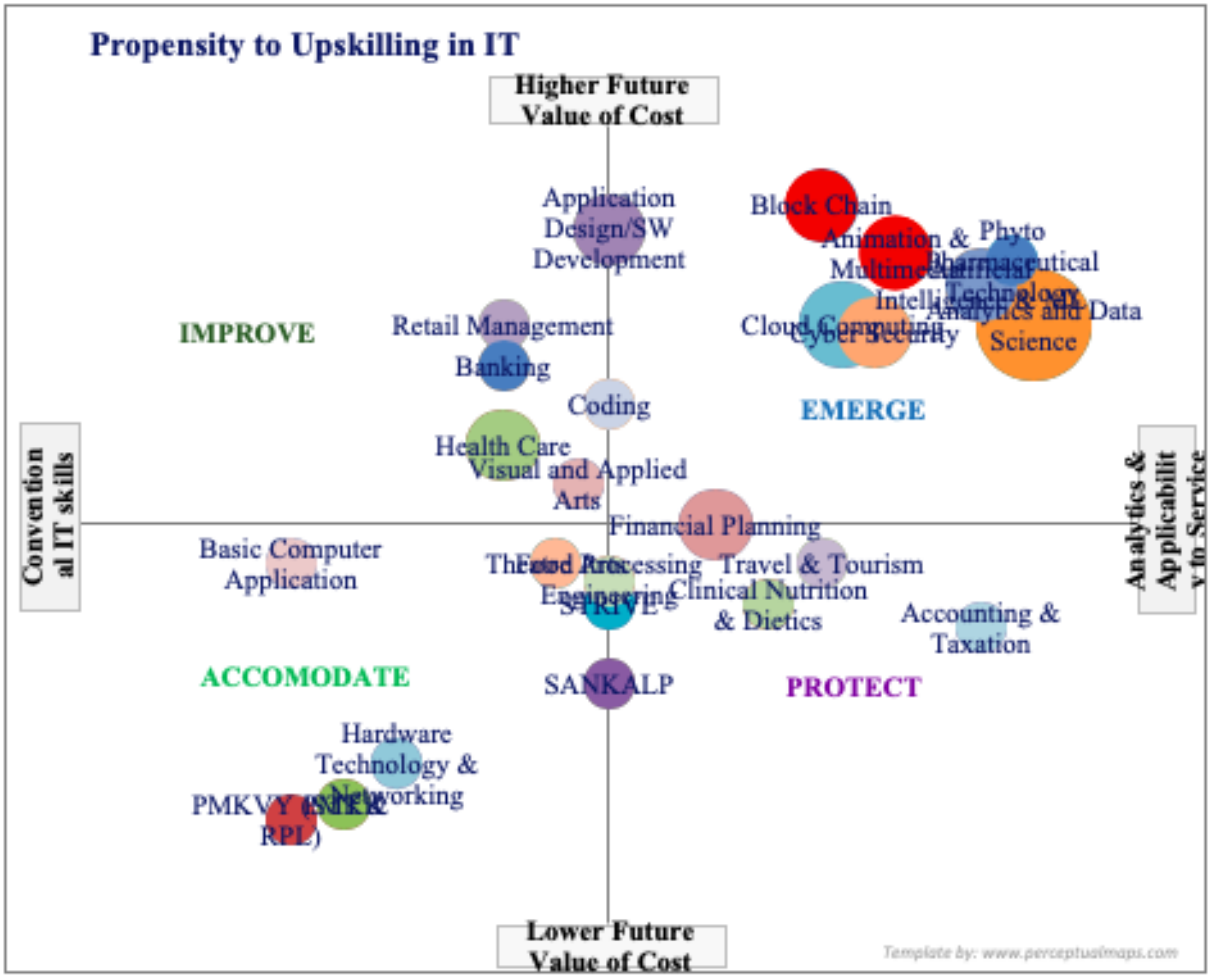

Figure 3. A Perception map of Propensity to upskill in IT/ITeS skills

5 RECOMMENDATIONS FROM THE ANALYSIS

5.1 Teaching problems or challenges impacting these new courses:

- These programs are usually offered on campus and their reach available to only a few students.
- Lack of awareness of these programs and non-availability of online programs has constituted a major setback to the effectiveness and goals of the Skill India movement.
- On the other hand, we find the mushrooming of Private Training institutes offering Online training programs at costs often unaffordable to common man. Many of these institutions offer not just course work but also training in resume preparation for novice students, offer live projects and Industry experience, Interview preparation and company connect.
- Many of the courses offered by Academic colleges today are currently temporarily closed due to lack of infrastructural support for Online education.

5.2 Suggestions for improving the Indian IT/ITeS Skills Ecosystem under Skill India movement that the study brings before us:

1. Skills sets like Data Science and Analytics, Cloud Computing, Cyber Security, Phyto Pharmaceutical technology classed under 'EMERGE' were proved to be highly disruptive in business continuity and resilience, specific to the Covid-19 impact.
2. Conventional skill sets (those that found themselves under 'ACCOMMODATE' space) though not impactful to the economy, are not to be neglected by any progressive economy.
3. 'PROTECT' category skill sets – contributive to steady livelihood through entrepreneurship and impetus to consumer spending were to be protected.
4. Expanded focus on skillsets classified as 'EMERGE', while maintaining courses in the 'PROTECT' and 'ACCOMMODATE' quadrant.
5. Inducing more funds into the 'IMPROVE' category of skill sets, as they would need to improvise to facilitate recovery and growth of economy in the future.
6. Increase accessibility to Online IT/ITeS skill development programs.
7. MSDE and NASSCOM to promote the availability of more free online courses in emerging technologies.
8. Enhancing Industry collaboration in course curriculum design to incorporate immediate needs of the market.
9. Promoting more International collaborations or MOU on IT/ITeS skill development and cross border mobility of skilled workforce
10. World Skills competition to focus more on IT/ITeS skilled personnel to demonstrate India's IT skill potential and for India to be the global skills capital as envisaged by Skill India movement.

6 CONCLUSION

Digitization of the Skills Ecosystem in India is one sure step that would proactively disrupt the economy towards recovery. It would help improve the skill sets of IT workforce and thereby position them market ready to embrace the future. Where Upskilling would need to start with, as derived by this study shows Data Science and Analytics, Cloud Computing, Cyber Security, Phyto Pharmaceutical technology, few major ones to recon with. Opening up the possibilities of imparting skill training in these domain areas will determine how well we equip our potent workforce towards change and adaptability. How the new normal would unfold to bridge the IT/ITeS employability skills gap in India? Increased propensity to upskilling could be the one favourite metric, the mantra that would be used by all alike (Industry, Workforce and Governments) to measure our pace of recovery from today's slow down.

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