

A STUDY TO IDENTIFY

EMERGING JOBS AND JOB SEGMENTS

IN THE ELECTRONICS SECTOR

4 SUB SECTORS

- CONSUMER ELECTRONICS
- COMMUNICATION ELECTRONICS
- IT HARDWARE
- EMS

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FOREWORD

The Indian Electronics industry is on track full steam in achieving its full potential of manufacturing, services and designing capabilities. A significant milestone on the path towards becoming a manufacturing hub was achieved in 2016-17, when India's domestic electronics production exceeded imports of electronic goods into the country. The demand for electronics hardware in the country is projected to increase from USD 45 billion in 2009 to USD400 billion by FY 2020.

However, to unlock the full potential of the Indian electronics industry, it is imperative to create a supportive ecosystem to facilitate manufacturing, and service competitiveness. And a key ingredient in this is to fulfil the requirement of suitably skilled manpower.

Thus, making the role of facilitators like the Electronics Sector Skills Council of India (ESSCI), strategic and very important.

The ESSCI is a Not - for - Profit Organization, registered under the Indian Companies Act, 1956. The Council has been promoted by Six Associations, viz., the CEAMA, ELCINA, IESA (formerly ISA), IPCA, LEDMA and MAIT, with financial support from the National Skill Development Corporation (NSDC).

The ESSCI's vision is to facilitate an excellent and dynamic ecosystem for industry-oriented Skill Development, with an eye to enhance the employability of the Indian Human Resources; thereby addressing the needs of the fast-growing electronics manufacturing and services industry.

The ESSCI is responsible for STANDARDS, ASSESSMENT & CERTIFICATION as per the NSQF (National Skill Qualification Framework) to augment the employability of the Indian workforce globally.

As a part of its forward-looking agenda, the ESSCI, partnered with Feedback Consulting, a premier research and consulting firm, to undertake an in-depth study into the current and emerging Job Opportunities market in the Electronics Industry.

The objective of the study was primarily two-fold, viz., to identify existing segments with large volume skilled labour requirements and ascertain areas of up-skilling. The report has also been crafted to look into areas of composite-skill requirements with an eye to address these skill gaps. Focus has also been on recommendations to generate low to mid-level employment opportunities in the services segments in the 4 sub sectors of Consumer Electronics, IT Hardware, Communication & Broadcasting and EMS in the next 4 years.

The report aims to bring in the required clarity for the Industry and for the ESSCI to develop a suitable action-plan that is far reaching and implementable; thereby further empowering the Electronics Industry to grow to its full potential.

N K Mohapatra
CEO, Electronics Sector Skills Council of India (ESSCI)

EXECUTIVE SUMMARY

Background and approach

ESSCI commissioned Feedback Consulting, a premier market research company, to conduct a study to understand the current market scenario and job potential in the Electronics value chain in India across the existing and new emerging sectors. Additionally, they were also looking at having a detailed study of the emerging scenario of the job market and skill requirements in the industry along with implementable recommendations, for the Ministry and the Industry to work towards.

The focus of the study was 4 identified sub-sectors viz., Consumer Electronics, IT Hardware, Communication & Broadcasting and EMS. The Mobile industry being one of the fastest growing sectors within these segments was divided into two based on the offerings - Manufacturing and

Services. Thus, Mobile Manufacturing has been classified under EMS; while the Organized and Unorganized Mobile Services sectors have been accounted for under Consumer Electronics.

Primary and secondary data was collated and analysed, and the findings were verified further following in-depth interviews and discussions with industry experts and associations.

To present a clear picture backed by data and qualitative analysis, Feedback Consulting adopted a 'Norms' driven approach, in estimating current and future job requirements.

The report thus developed forms the foundation for skill-development in targeted segments for the Electronics Industry in the next 5 years.

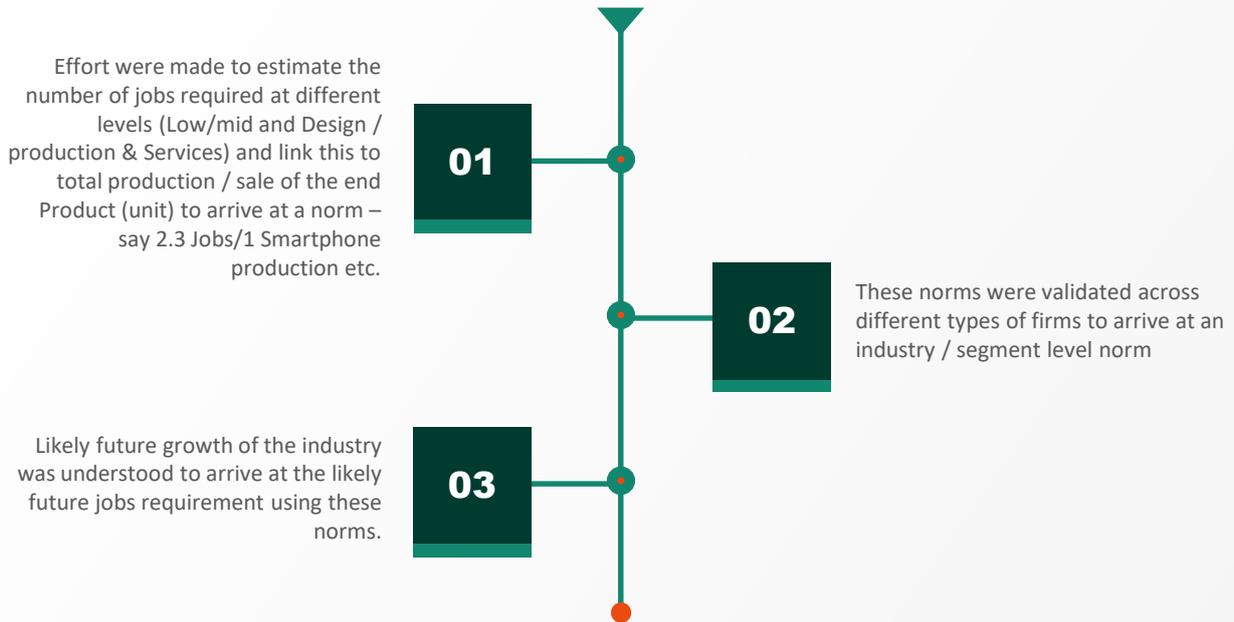
Our Approach

Feedback's approach towards estimating current and expected Job requirements was essentially

driven through a strategic 'Norms'-driven exercise.

APPROACH

APPROACH TO ARRIVING AT THE CURRENT JOB ESTIMATION



Data on Jobs per sector was collated through primary research from over 230 companies and around 1024 indirect responses, across the board, and from various Industry associations. In-depth interviews were conducted with HR and department heads of companies in all the different product segments, including large, medium and even a few identified smaller players. This helped in gaining qualitative datapoints and in understanding the current trends and employee strengths in the Design, Manufacturing and Service departments.

An extrapolation exercise with norms of each of the product segments was then arrived at. These norms were then validated across companies in

different segments to arrive at a per industry norm and subsequently at universe numbers.

This exercise threw-up several interesting trends.

For instance, it was observed that in the Consumer Electronics (including Mobile) segment and the IT hardware sector, there was a large section of unorganised service personnel (comprising mainly of standalone repair shops).

A detailed approach was thus undertaken to estimate the unorganised jobs market as well, following which the norms-driven approach was applied here too. This data was then extrapolated to arrive at a universe number subsequently.

Current and Expected future Jobs scenario in India

As per Feedback research, India's electronics demand is poised to grow exponentially to become one of the largest in the world.

The penetration of Electronics products in Indian households is estimated to be one of the fastest and with new initiatives like Digital India, Start Up India, GST introduction, Smart Cities, Other favourable ESDM Policies (M-SIPS, EMC, EDF, FABs, PMA etc), fast paced Mobile revolution and increase in E-commerce, it is poised to grow at an

exponential rate going forward.

Following this development, greater focus on 'Make in India' in Electronics, has witnessed gained emphasis by the Government of India, via policies and regulations.

Policies promoting mobile phone manufacturing and assembling resulting in a marked increase in these units in the last 3 years is one of the clear

evidences of this.

FY 2015 at a CAGR of 33%.

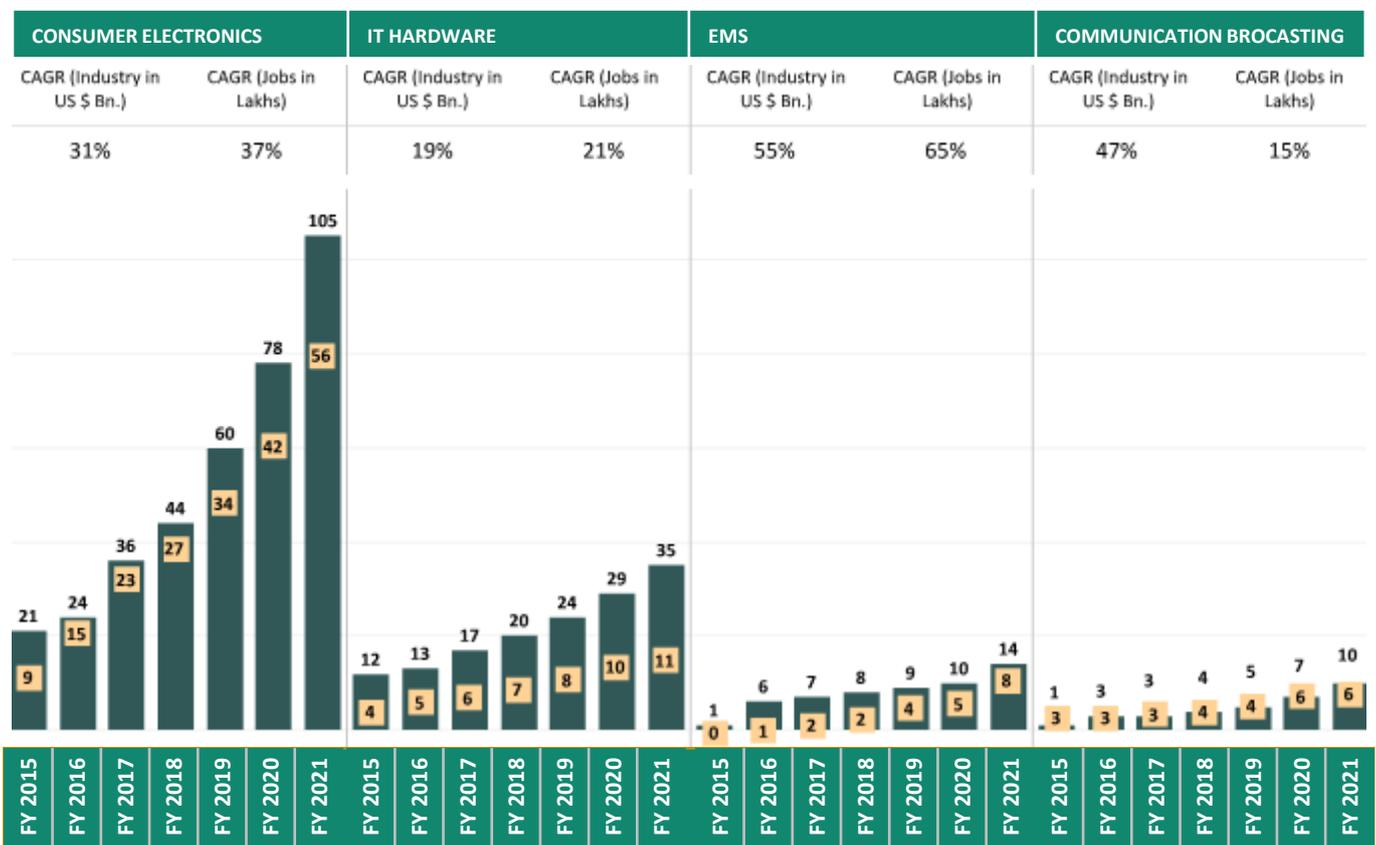
The Size of the Electronics market for the identified 4 sub-sectors of interest has grown to US \$ 62 billion in FY 2017, from US \$ 35 billion in

This is further expected to grow to touch US \$ 124 billion by FY 2024 with a composite CAGR of 29% in the period FY 2015 to FY 2024.

Jobs in these 4 sub-sectors have grown to 33.4 lakhs in FY 2017 from 15.1 lakhs in FY 2015, a CAGR of 33%. Going forwards this is expected to grow further to touch 80 lakhs by FY 2021.

With the adoption of exponential technologies, rapid skill enhancements and new work strategies and processes, approximately 47 Lakh new jobs are expected to be created in the next 4 years.

■ Industry in US \$ Bn.
■ Jobs in Lakhs



CONSUMER ELECTRONICS

Products	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created	Likely future jobs and skills requirement
Televisions	The Industry has both Permanent employees and Contractual employees. The Total employees including Contractual employees stands at around 1.6 lakhs employees in the TV sector. The Permanent employees in the Current year and the trend over last 3 years for products(TV)– (2015-2017) is shown below: * No. of people employed in the year 2015: 0.40 Lakhs * No. of people employed in the year 2016: 0.43 Lakhs * No. of people employed in the year 2017: 0.62 Lakhs	No. of Permanent employees estimated to be employed in the next 4 years(2018-2021) in product market (TV) * 2018E : 0.7 Lakhs * 2019E : 0.8 Lakhs * 2020E : 0.9 Lakhs * 2021E : 1.0 Lakhs	In Consumer Electronics & IT Hardware, the changing market landscape is impacting the skills requirement in all dimensions of the business - Design, Manufacturing & Services.
Air Conditioners	The Industry has both Permanent employees and Contractual employees. The Total employees including Contractual employees stands at around 4.20 Lakhs nos. The Permanent employees in the Current year and the trend over last 3 years for Products (AC)– (2015-2017) is shown below: * No. of people employed in the year 2015: 01 Lakh * No. of people employed in the year 2016: 1.3 Lakhs * No. of people employed in the year 2017: 1.9 Lakhs	No. of Permanent employees estimated to be employed in the next 4 years (2018-2021) in product market (AC) * 2018E : 2.1 Lakhs * 2019E : 2.4 Lakhs * 2020E : 2.8 Lakhs * 2021E : 3.2 Lakhs	Design: New Technologies such as IOT, 'Smart' Products & AI are becoming a new norm. Software integration is coming in a big way in most CE products. Most firms are looking for Designers who can understand the changing market dynamics and Customer needs and help them meet these requirements. Design Engineers with a flair for New Product Introduction mindset is the need. New Jobs that are being created are, Computer Vision Engineers (Build and improve computer vision and machine learning algorithms and analytics to detect, classify, and track objects) and Machine Learning Engineers (Advanced programmers who develop AI machines and systems that can learn and apply knowledge)
Water Purifiers	Total no. of Permanent and Contractual employees in 2017 is about 135,900 nos. The Overall Permanent employees estimation in 2017 was about 62,578 nos. Organised Sector employees was about 52,578 nos only and the Unorganised Sector Employees was about 10,000 nos. The last 2 year trends for Overall Permanent employees were ~44,000 in 2015 and 50,000 in 2016. There were about 73,333 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Washing Machines is likely to be: * 2018E: 69,300 nos * 2019E: 77,616 nos * 2020E: 88,258 nos * 2021E: 100,000 nos	
Washing Machine	Total no. of Permanent and Contractual employees in 2017 is about 270,500 nos. The Overall Permanent employees estimation in 2017 was about 123,825 nos. Organised Sector employees was about 93,825 nos only and the Unorganised Sector Employees were about 30,000 nos. The last 2 year trends for Overall Permanent employees were ~82,000 in 2015 and 100,000 in 2016. There were about 146,675 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Washing Machines is likely to be: * 2018E: 143,400 nos * 2019E: 163,800 nos * 2020E: 188,325 nos * 2021E: 200,000 nos	
Refrigerators	Total no. of Permanent and Contractual employees in 2017 is about 198,000 nos. The Overall Permanent employees estimation in 2017 was about 88,000 nos. Organised Sector employees was about 68,000 nos only and the Unorganised Sector Employees was about 20,000 nos. The last 2 year trends for Overall Permanent employees were 65,000 in 2015 and 75,000 in 2016. There were about 110,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Refrigerators is likely to be: * 2018E: 91,840 nos * 2019E: 102,861 nos * 2020E: 115,204 nos * 2021E: 122,000 nos	Manufacturing: Since the new age IIOT is coming in most manufacturing lines, CE lines are also thinking of adapting new techniques and they need their Staff and Managers to have new skill sets in Handling Robotics, Data analytics ability, VR, AR, AI
Mixer/Grinder/Juicer	Total no. of Permanent and Contractual employees in 2017 is about ~62,000 nos. The Overall Permanent employees estimation in 2017 was about 25,220 nos. Organised Sector employees was about 10,220 nos only and the Unorganised Sector Employees were about 15,000 nos. The last 2 year trends for Overall Permanent employees were 23,000 in 2015 and 24,000 in 2016. There were about ~37,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Mixer / Juicer / Grinder is likely to be: * 2018E: 27,220 nos * 2019E: 32,220 nos * 2020E: 40,220 nos * 2021E: 44,500 nos	Services: Most CE Products are now coming out with new features and more advanced features. So essentially, the entire Service networks which has been addressing these products need learning and skill development in new technologies used in the CE products. Also the New Environmental challenges and regulations in the AC sector needs the AC Service men to be skilled with these new techniques and knowledge levels. With LCD Panels now being manufactured in India, the need for Mobile and TV LCD panels service technicians is rising.
Ecommerce	The overall employee trends in the E-Commerce Sector for Electronics Goods & Services for the last 3 years: * No. of people employed in the year 2015: 0.05 Lakhs * No. of people employed in the year 2016: 0.1 Lakhs * No. of people employed in the year 2017: 0.1 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (E-Commerce Electronics): * 2018E: 0.1 Lakhs * 2019E: 0.2 Lakhs * 2020E: 0.3 Lakhs * 2021E: 0.4 Lakhs	
Mobile Phones	The overall employee trends in the Mobile Sector for the last 3 years: * No. of people employed in the year 2015: 1.4 Lakhs * No. of people employed in the year 2016: 5.7 Lakhs * No. of people employed in the year 2017: 10.0 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Mobile) * 2018E: 12.66 Lakhs * 2019E: 17.22 Lakhs * 2020E: 23.11 Lakhs * 2021E: 30 Lakhs	

IT HARDWARE

Products	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created	Likely future jobs and skills requirement
"Personal computers & peripherals"	Total no. of Permanent and Contractual employees in 2017 was about 142,100 nos. The Overall Permanent employees estimation in 2017 was about 56,600 nos. Organised Sector employees was about 36,600 nos only and the Unorganised Sector Employees was about 20,000 nos. The last 2 year trends for Overall Permanent employees were 52,000 in 2015 and 54,000 in 2016. There were about 85,500 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Storage Devices is likely to be: * 2018E: 39,110 nos * 2019E: 41,930 nos * 2020E: 60,000 nos * 2021E: 75,000 nos	"In Consumer Electronics & IT Hardware, the changing market landscape is impacting the skills requirement in all dimensions of the business - Design, Manufacturing & Services.
Storage devices	Total no. of Permanent and Contractual employees in 2017 was about 90,400 nos. The Overall Permanent employees estimation in 2017 was about 36,400 nos. Organised Sector employees was about 26,400 nos only and the Unorganised Sector Employees is about 10,000 nos. The last 2 year trends for Overall Permanent employees were 33,000 in 2015 and 35,000 in 2016. There were about 54,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Storage Devices is likely to be: * 2018E: 28,633 nos * 2019E: 31,195 nos * 2020E: 34,168 nos * 2021E: 37,500 nos	Design: New Technologies such as IOT, 'Smart' Products & AI are becoming a new norm. Software integration is coming in a big way in most CE products. Most firms are looking for Designers who can understand the changing market dynamics and Customer needs and help them meet these requirements. Design Engineers with a flair for New Product Introduction mindset is the need. New Jobs that are being created are, Computer Vision Engineers (Build and improve computer vision and machine learning algorithms and analytics to detect, classify, and track objects) and Machine Learning Engineers (Advanced programmers who develop AI machines and systems that can learn and apply knowledge)
Servers	Total no. of Permanent and Contractual employees in 2017 is about 69,500 nos. The Overall Permanent employees estimation in 2017 was about 27,500 nos. Organised Sector employees was about 12,500 nos only and the Unorganised Sector Employees was about 15,000 nos. The last 2 year trends for Overall Permanent employees were 25,500 in 2015 and 26,500 in 2016. There were about 42,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Servers is likely to be: * 2018E: 15,000 nos * 2019E: 18,000 nos * 2020E: 25,000 nos * 2021E: 30,000 nos	Manufacturing: Since the new age IIOT is coming in most manufacturing lines, CE lines are also thinking of adapting new techniques and they need their Staff and Managers to have new skill sets in Handling Robotics, Data analytics ability, VR, AR, AI
Projectors	Total no. of Permanent and Contractual employees in 2017 was about 82,500 nos. The Overall Permanent employees estimation in 2017 was about 33,350 nos. Organised Sector employees was about 18,350 nos only and the Unorganised Sector Employees was about 15,000 nos. The last 2 year trends for Overall Permanent employees were 30,000 in 2015 and 32,000 in 2016. There were about 49,500 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Projectors business is likely to be: * 2018E: 20,920 nos * 2019E: 23,850 nos * 2020E: 27,190 nos * 2021E: 31,000 nos	Services: Most CE Products are now coming out with new features and more advanced features. So essentially, the entire Service networks which has been addressing these products need learning and skill development in new technologies used in the CE products. Also the New Environmental challenges and regulations in the AC sector needs the AC Service men to be skilled with these new techniques and knowledge levels. With LCD Panels now being manufactured in India, the need for Mobile and TV LCD panels service technicians is rising."
Printers & copiers	Total no. of Permanent and Contractual employees in 2017 was about 99,800 nos. The Overall Permanent employees estimation in 2017 was about 39,800 nos. Organised Sector employees was about 19,800 nos only and the Unorganised Sector Employees were about 20,000 nos. The last 2 year trends for Overall Permanent employees were 37,000 in 2015 and 38,000 in 2016. There were about 60,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Printer & Copier is likely to be: * 2018E: 21,800 nos * 2019E: 25,300 nos * 2020E: 29,300 nos * 2021E: 34,000 nos	
POS	Total no. of Permanent and Contractual employees in 2017 was about 20,210 nos. The Overall Permanent employees estimation in 2017 was about 8,210 nos. Organised Sector employees was about 6,210 nos only and the Unorganised Sector Employees were about 2,000 nos. The last 2 year trends for Overall Permanent employees were 6,000 in 2015 and 7,000 in 2016. There were about 12,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in POS is likely to be: * 2018E: 7,015 nos * 2019E: 8,068 nos * 2020E: 9,279 nos * 2021E: 10,500 nos	

EMS

Products	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created	Likely future jobs and skills requirement
EMS	Total nos of Permanent and Contractual employees in 2017 was 1.5 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (EMS) * 2018E: 2.4 Lakhs * 2019E: 4.0 Lakhs * 2020E: 4.7 Lakhs * 2021E: 8.6 Lakhs	<p>In EMS segment, the changing market landscape is impacting the skills requirement in all dimensions of the business - Design, Manufacturing & Services.</p> <p>Design: New Technologies such as IOT, 'Smart' Products & AI are becoming a new norm. Software integration is coming in a big way in most EMS processes. Most firms are looking for Designers who can understand the changing market dynamics and Customer needs and help them meet these requirements. Design Engineers with a flair for New Product Introduction mindset is the need. New Jobs that are being created are, Systems Managers (Experience in performing integration and test on complex real time embedded system, Apart from software programming languages, Real Time Operating Systems (RTOS) knowledge, Greenhills, and/ or VxWorks/Wind River+ Experience with communications protocol or with JTRS waveforms (Link-16, TTNT, WNW, SRW, SINCAGARS, EPLRS, etc.) + Familiarity with IP/Networking/VLANs.), Computer Vision Engineers (Build and improve computer vision and machine learning algorithms and analytics to detect, classify, and track objects) and Machine Learning Engineers (Advanced programmers who develop AI machines and systems that can learn and apply knowledge). The additional Skill includes related certification/courses for e.g. : VLSI for designing, IT hardware networkers, chip design and testing, emended systems, IOT matlab etc. for the mid level jobs.</p> <p>Manufacturing: Since the new age IIOT is coming in most manufacturing lines, New EMS lines are also adapting new techniques and they need their Staff and Managers to have new skill sets in Handling Robotics, Data analytics ability, VR, AR, AI and Familiarity with Nanotechnology and robotics.</p> <p>Testing: New Jobs which are emerging are Systems Engineer (Developing, integrating and testing complex communication systems.)</p>

COMMUNICATION AND BROADCASTING

Products	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created	Likely future jobs and skills requirement
Networking products	Total No. of Permanent and Contractual Employees employed in the year 2017: 10,750 nos	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Networking Products) * 2018E: 12,050 nos * 2019E: 13,850 nos * 2020E: 15,925 nos * 2021E: 18,000 nos	In Communication & Broadcasting, the changing market landscape is impacting the skills requirement in all dimensions of the business - Design, Manufacturing & Services. Design: New Technologies such as IOT, 'Smart' Products & AI are becoming a new norm. Software integration is coming in a big way in most C&B products. New Jobs that are being created are, Systems Managers (Experience in performing integration and test on complex real time embedded system, Apart from software programming languages, Real Time Operating Systems (RTOS) knowledge, GreenHills, and/ or VxWorks/Wind River+ Experience with communications protocol or with JTRS waveforms (Link-16, TTNT, WNW, SRW, SINCAGARS, EPLRS, etc.) + Familiarity with IP/Networking/VLANs.), Computer Vision Engineers (Build and improve computer vision and machine learning algorithms and analytics to detect, classify, and track objects) and Machine Learning Engineers (Advanced programmers who develop AI machines and systems that can learn and apply knowledge)
Set top box	Current year and the trend over last 3 years for Products (Setup Box)- (2015-2017) * No. of people employed in the year 2015: 0.1 Lakhs * No. of people employed in the year 2016: 0.2 Lakhs * No. of people employed in the year 2017: 0.4 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Setup Box) * 2018E: 0.4 Lakhs * 2019E: 0.5 Lakhs * 2020E: 0.6 Lakhs * 2021E : 0.6 Lakhs	Manufacturing: Since the new age IIOT is coming in most manufacturing lines, CE lines are also thinking of adapting new techniques and they need their Staff and Managers to have new skill sets in Handling Robotics, Data analytics ability, VR, AR, AI and Familiarity with Nanotechnology and robotics. New Jobs such as Cyber security Engineer/ Security Analyst (Threat-hunting, artificial intelligence-enhanced model building) are emerging
Cable technicians	Current year and the trend over last 3 years for Products (Cable Technicians)- (2015-2017) * No. of people employed in the year 2015: 1.8 Lakhs * No. of people employed in the year 2016: 2 Lakhs * No. of people employed in the year 2017: 2.2 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Cable Technicians) * 2018E: 2.5 Lakhs * 2019E: 3.1 Lakhs * 2020E: 4.5 Lakhs * 2021E: 5.2 Lakhs	
EPABX	No. of people employed in the year 2017: 720 nos	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (EPABX) * 2018E: 807 nos * 2019E: 811 nos * 2020E: 816 nos * 2021E: 825 nos	
FTTH / DOCSIS - PON	No. of people employed in the year 2017: 4040 nos	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (FTTH/DOCSIS) * 2018E: 4040 nos * 2019E: 4250 nos * 2020E: 4500 nos * 2021E: 4750 nos	Services: New Jobs which are emerging are Electronics Communication Technician (Repair and servicing of complicated high end communication devices - knowledge of OFC, IT and Networking. Technicians are responsible for laying new OFC lines for changing to IP based TV network.) Sales: New Jobs emerging in sales function are Technical Sales Manager (Understanding of AI, Robotics and Nanotechnology + Digital embedded systems)

Key factors impacting recruitment in sub sectors

As per Feedback analysis almost 55% of the respondents expect to increase their headcount in FY 2018-19. About 22% also plan to enhance staff strength and skills during this period. Over 76% of the companies plan to increase their recruitment budget significantly in FY 2018-19.

This phenomenal change in recruitment strategies can be attributed to various factors impacting the work-culture of these companies.

- At the top of the list is technology.

The industry has been witnessing increased adoption of technologies like Artificial Intelligence (AI), quantum communication and big data intelligence, robotics, digital manufacturing, blockchain, 3D Printing, Machine learning and Internet of Things (IoT), as the 'Digital India' Initiative gains momentum.

Going forward, it is estimated that several new jobs with multiple-skillsets, will be in demand across the board. And over 9% of India's 600 million estimated workforce will be deployed in these new jobs.

- The other key impacting factor is the revival of Start-ups, and Small & Medium Sized Enterprises (SMEs). Going forward these are expected to play a decisive role in development of the industry.

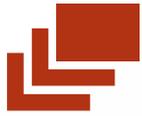
- Almost all infrastructure and manufacturing sector companies are in expansion mode today, in terms of products and services. With the expected push to drive their businesses, job opportunities in existing departments like sales and marketing too are expected to increase.

The Economic growth rate of the segment is expected to increase by 7.3% in FY 2018-2019.



About 90% of respondents in Mobile, 85% in Consumer Electronics and 75% in the EMS segment were open to external agencies to help address their skill gap requirements

- One of the key queries posed to the target respondents was about the skill-gap issues faced by them. Qualitative data regarding requirement of training and skill enhancement programs was thus collated. Data regarding existing courses in the domestic market vis-à-vis their global counterparts was all collected.
- As per the study, almost 90% of the respondents in Mobile, 85% in Consumer Electronics and 75% in the EMS segment were open to external agencies to help address their skill gap requirements.
- In the IT Hardware and Communication Electronics sectors however, a significantly lower demand for external training was observed. This was primarily due to the emphasis on in-house training by both these segments, consistently for the last 7-8 years. Also, both, the IT Hardware and Communication Electronics sectors are less dependent on the Unorganised Services sector in providing after sales support and hand holding, as compared to the others.
- All companies across the board evinced suitable capabilities at Top-management levels; it was mostly in the lower-, entry- and Services levels that they felt acute shortage of adequately skilled manpower.
- The EMS sector, one of the fastest-emerging industries, evinced higher demand for PhDs and other technical staff as their top priority, to address their R&D initiatives.



Key challenges & initiatives to address them

- A key requirement for this mega industry is the presence of a ready pool of multitalented manpower to rely-on on a regular basis. Lack of this ready talent-pool has resulted in low employability of new entrants into the workforce.
- Companies are currently investing capital and time to train their employees to make them job-ready.
- Another key challenge is of lack of technical competency. Many of the latest manufacturing plants require niche skills, in addition to computer knowledge, and this combination-skill is currently not readily available in the job-market.
- The ability of employees to quickly adapt to new technologies has also been observed to be low, across almost all segments.
- With the industry becoming more and more global, lack of soft skills among prospective-hires affects the hiring process. Poor verbal and written communication skill are increasingly being viewed as a drawback, given the growing number of customer-touch-points the industry is witnessing today.
- Most employees face financial constraints when it comes to self-learning, especially in the Services segment. Migrant workers, having come from rural areas, often lack financial muscle to self-train and upgrade their existing skills.

INDUSTRY INITIATIVES TO ADDRESS SKILL CHALLENGES

One key challenge faced by almost all the players in this industry is the lack of adequate number of educational institutions focusing on quality training for installation, service and repairs.

Other pointers raised include, inadequate government support for this initiative and

out-of-sync academic courses that are impacting the skillset availability in the services segment.

To counter this, OEMs have taken up the onus of providing training and certifications for their own service teams as well as technicians at the franchisee-levels.

The industry has so far implemented a few basic training and upskilling initiatives. These include:



Conventional Training & Induction

Under this program trainers travel to different locations where Group or Team Leaders are asked to come together, and training is imparted at the zonal location.



Specialized training

This form of training is targeted mainly at Mid-level employees, wherein Engineers and Senior Technicians are provided training at the company training centres.



Ad hoc training

This is mainly for the Senior Management and consists primarily of online courses and on-site global visits on a need-basis.

RECOMMENDATIONS



01

NEED FOR HYBRID SKILLS

With newer technologies emerging every day, conventional recruitment processes and needs are expected to change going forward. The emerging trend is the need for candidates with “Hybrid Skills”. Tech Savvy candidates with social skills and/or multifaceted-combination requirements would be the need of the hour going forward.

Thus, candidates need to be skilled in Multidisciplinary requirements acquired from varied conventional and non-conventional courses and Certification Programs. These may include Big Data, Cloud Computing, Analytics, Communication

Skills and Leadership training and problem solving and client servicing to name a few.

In fact, the need of the hour for the entire sector, as per Feedback analysis, is for ‘System Thinkers’. As in those who not only have domain knowledge but are also skilled in the ability to take a creative and synergetic approach to problem solving.

The demand going forward thus will be for HR Technologists, IT Communication Specialists, Creative Technologists, IoT Marketing Technology Strategists, User Experience Designers, Digital Storytellers and the like.



02

CONTENT DEVELOPMENT FOR DIGITAL LEARNING

India’s digital learning market is growing at a fast pace. Use of Information and Communication Technologies (ICT) in education has led to the growth of Digital Platforms including Smart classes, e-learning courses, blended learning and app-based learning.

Industry players as per the study are open to this mode of training, provided it adheres to global quality standards.

One way to promote this could be to, subject to

AICTE Regulations, invite Foreign institutions or Universities into India to provide training and award Degrees, Diplomas and Post Graduate Diplomas in Technical Education by partnering with Indian institutions or be allowed to set up shop on their own.

Alternately, companies in this segment could be encouraged to partner with targeted colleges and institutes in offering vocational training and internships in order to have job-ready candidates.



INCREASING INDUSTRY FOCUS ON CHANGING ROLE OF HR

The role of the HR personnel today has evolved from being a mere 'recruiter' to a 'creator'. Decision-makers need to be made aware of this transition and facilitate **the Role of HR to improve and expand the skills, enabling creation of right jobs and matching it with the requisite skillsets as per sector requirements.**

One way to achieve this could be by partnering with targeted colleges and universities in offering industry-specific vocational training and internships

with an eye to developing job-ready candidates.

The other recommendation is to enable change in company-thought processes, by focusing on aligning talent acquisition with business strategy. This can be achieved through seminars and business meets and workshops. Targeted at the senior-mid and top management, these initiatives would encourage in developing a blended methodology of recruitment and retention along with the right skill sets.



INITIATIVES TO SKILL PERSONNEL FROM UNORGANISED SECTORS

An integrated approach needs to be adopted when it comes to skilling this key segment of personnel, who form a vital chain in the performance of any company in this sector. Thus, all stakeholders from OEMs, Franchisees, Training Institutes and organizations like the ESSCI need to make a consolidated effort in developing suitably trained manpower.

Setting up of institutes on the lines of the ITI but offering industry-specific skills in rural areas would be a key step in the right direction. In fact, a comprehensive cohesive initiative, focusing mainly in rural areas will help bridge the skill needs and demand-supply gap effectively. The OEMs as well as the Government need to work towards bringing the Unorganized Service Personnel into the organized mainstream in the long run.

This move would also help in re-aligning the course curriculum of the existing institutes like the ITIs and other training institutes, currently imparting training for this segment. **The Government must be a key stakeholder in this partnership by providing financial assistance in setting up new institutes and**

reorganizing or expanding the offerings of existing ones.

New and advanced technologies like connected devices, IoT, etc. need to be introduced in courseware, with an eye to future requirements by corporates, at academic institutions.

Existing academic curriculum needs to be restructured with a greater focus on soft-skills training as well.

In addition to Government initiatives, various industry associations and bodies, that come under the ESSCI purview, also need to be actively involved in developing technical curriculum; industry-specific need-based training modules and schedules. Focus areas recommended include skill upgradation programs and ongoing composite skill programs, to encourage continuous progress throughout the tenure of the service personnel.

A complete cohesive initiative, focusing more in rural areas will help bridge the skill gap requirements and help balance the demand-supply effectively.

The OEMs as well as the Government need to work towards bringing the Unorganized Service Personnel into the organized mainstream in the long run.



3 POINT STEPS

To be followed to increase skill enhancement activities in India at an overall level



Increase awareness amongst corporates



Increase Partnership Programs with Corporates



Expand reach of more vocational training centres

ENGAGEMENT BACKGROUND

Feedback Consulting is a 33-year-old Industrial research and B2B research-based Consulting firm. The Bangalore Head-Quartered company brings to the table extensive experience gathered across industry segments and has been in the forefront of new technology and business evolution in India.

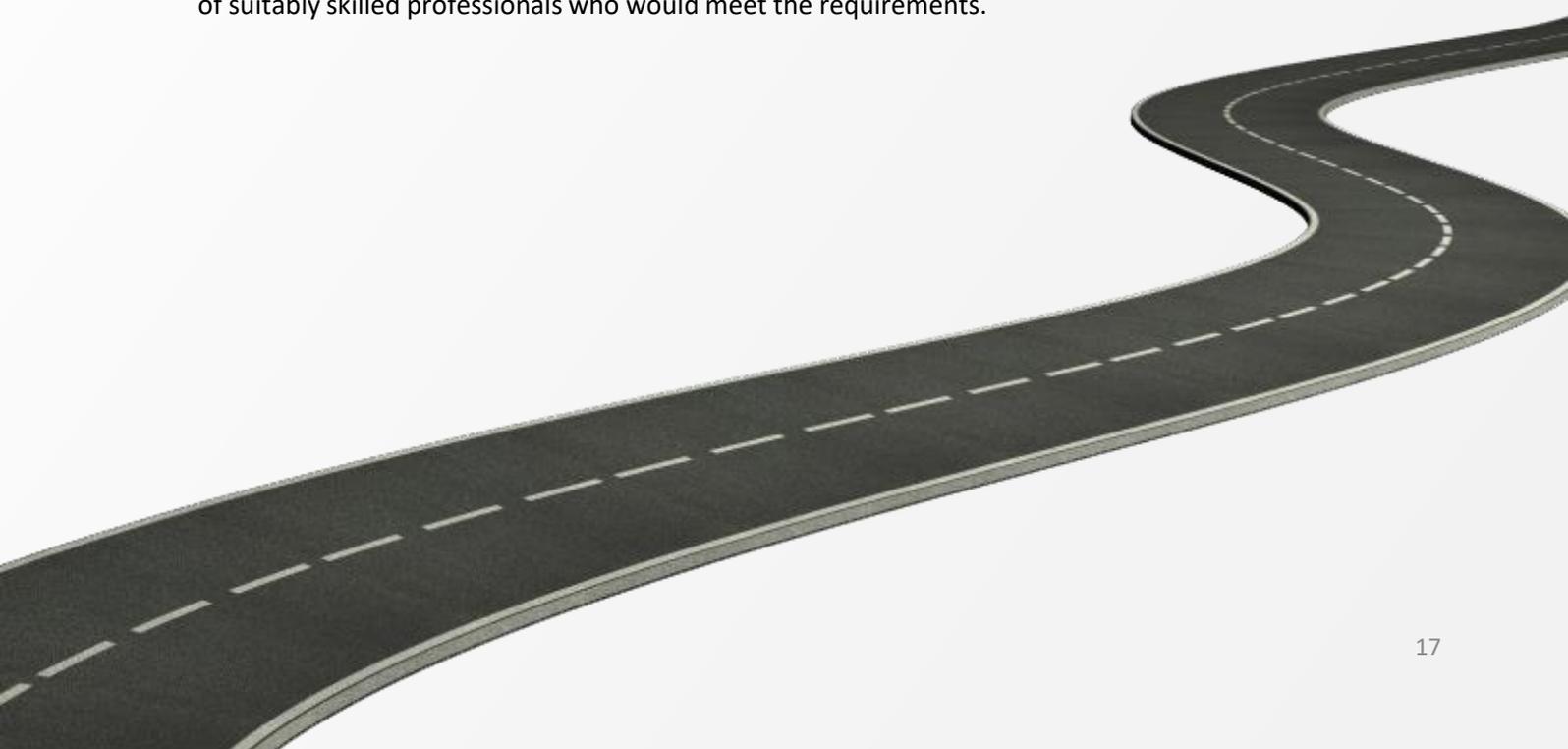
Feedback was commissioned by the Electronics Sector Skills Council of India (ESSCI) (the client), to conduct an in-depth research on the identified subject.

The ESSCI, envisions to enable a world class Electronics Manufacturing industry in India. The organization aspires to create an ecosystem for skill development with an eye to enhancing the employability of the large number of Indian human resources spread across the country.

As part of its forward-looking agenda, the ESSCI undertakes regular market research to identify industry trends which in turn lead to emergence of new jobs and connected Job Roles in the Electronic Design, Manufacturing and Services segments.

We, at Feedback Consulting, through our research have endeavoured to equip the ESSCI in understanding the current and changing scenario and the potential for jobs in the Electronics value chain in India, across the existing and new emerging sectors.

The objective was to develop a detailed study of the market, complete with recommendations for the Ministry and the Industry, to work towards not just more job creation but also to create a pool of suitably skilled professionals who would meet the requirements.



TERMS OF REFERENCE

The objective of the survey was many-fold.

Primarily, the objective was to identify existing segments with large volume skilled labour requirements. The aim was also to ascertain areas of employment and possible up-Skilling; and expected skill requirements in the future for low-to mid-level jobs, for the next 3 years with an eye to balance the demand and supply gap.

The conducted survey was comprehensive, incorporating the service-offering vertical found across industries like the Consumer Electronics segment, the Electronic Component Industry and the Manufacturing segment.

Identify emerging technology areas, especially the Industry-4.0 (IoT, Robotics), with an eye to understanding the skill requirements, that have a higher probability of creating substantial new Jobs / Up-skilling also formed a key part of the data collation.

Other focus areas included skill requirements in the Electronic Hardware Design, (in proto type Testing) and in the Electronics Hardware Product Start-up companies

The Approach

Feedback Consulting adopted a strategic Norms-driven approach in data collation and analysis. The stake-holders-of-interest from whom data points and expertise was collated included a wide segment of industry players in this segment, industry experts and targeted research reports and job aggregators.

Data Sources

The study deployed several key initiatives in identification of stakeholders and in the study of existing literature. Following which a qualitative as well as quantitative analysis was undertaken; post which trends and projections followed by recommendations were derived at.

To get a clear picture at the shop-floor level, extensive data collection from various sources was undertaken by Feedback Consulting. **These included:**

Centralized Desk-based Research to identify existing literature (within the timeline 2013-2017). Thus, review of several identified surveys and reports generated by Industry Associations, Government Organizations, Labour Bureau and Market Research organizations was carried out. The data collated also included published research reports from large job aggregators such as Naukri, Monster, Timesjobs & Indeed to name a few.

Interviews with HR Leaders, CEO's and Policy Makers, deemed relevant to EESC study. This was conducted over Phone, Video &/or Email via structured questionnaire-based queries that were wide-ranging and in-depth.

ENGAGEMENT FRAMEWORK

As part of Phase-1, focus of the survey was restricted to 5 key sectors. These included Consumer Electronics, IT Hardware, Communication & Broadcasting Equipment, Mobile phones and EMS.

The Engagement framework encompasses the existing electronics sectors namely Electronic Design Jobs, Manufacturing Jobs and Services Jobs. It explores the

current potential jobs and skills required for them. Using the framework of New investments, Traditional Industry growth and new emerging technology trends, an attempt was made to predict the potentials across sectors and skills required for these jobs.

The Electronics Industry comprises of several sectors and sub-sectors, each of which come with their range of product offerings.



SUB-SECTOR & PRODUCTS

Consumer Electronics

- Television
- Air-conditioners
- Refrigerators
- Mixer/ Grinders/ Juicers
- Washing Machines
- Other Small Home Appliances (Cooking + Motorized + Refrigeration) + Smart Energy Meter + handheld personal medical devices
- Water Purifiers
- Mobile phone services

IT Hardware

- Personal Computers (Desktop)
- Laptops & tablets (PDA)
- Servers
- Projectors
- POS Machine (at D Mart, Big bazar as well as hand held by courier/ deliver firms)
- Printers/ Copiers
- Storage

Electronics Manufacturing Service (EMS)

- All products
- Mobile phones

Communication Broadcasting

- Network products: Modems, Routers, Switches
- Switches
- Set top boxes
- EPABX +FTTX / DOCSIS

APPROACH TO JOBS ASSESSMENT

Feedback approach to evaluate 'current' and 'projected Job requirements going forward' involved a systematic 'Norms-driven' approach.

The various steps undertaken included:

1. **Collection of primary data:** on the number of jobs required at different levels across the board (including Low-, mid-levels and Design, Production and the Services sectors). The data so collated was then linked to the total production or sale of Product (or unit) to arrive at a Norm, of say 2.3 Jobs for every one Smartphone-production.
2. These norms were then validated across different companies in various sub-sectors, to arrive at an industry or segment-specific Norm.
3. Projected growth of the industry was then evaluated and 'taken into account' to arrive at the estimated job requirements using these Norms.

An estimate of the required of Jobs per Sector was then validated through several different sources. These included:

1. Primary source of 'Norms'-estimation exercise as mentioned above
2. Validation through published news reports and industry as well as ministry reports
3. Validation post interviews and verifications by Industry leaders and major players. Data points were collated regarding their views on the likely trends and employment possibilities going forward.

PRIMARY RESEARCH DATA

As a sample coverage, though initially 85 companies were listed, to gain a greater understanding of the reality at the ground level the research was extended to cover over 230+ direct interviews and 1024 + indirect firms input.

SEGMENT	SUB SEGMENT	LARGE	MEDIUM	SMALL	TOTAL
Mobile phone EMS	Mobile phone	6	5	4	15
	EMS	11	5	4	20
Consumer Electronics (80 interviews)	AC	3	7	5	15
	water purifier	15	5	5	25
	Refrigerator	5	4	3	12
	Mixer/juicer/grinder	10	5	3	18
	Others	5	3	2	10
IT hardware (72 interviews)	PC	6	5	4	15
	Storage	8	5	2	15
	Server	5	3	2	10
	POS	3	2	2	7
	Projector	4	6	5	15
	Printer/ copier	4	2	4	10
Communication Electronics (45 interviews)	Networking products	3	4	3	10
	Set top Box	3	4	3	10
	Epabx	4	4	2	10
	FTTH/DOCSIS (PON)	5	5	5	15
Grand total		100	74	58	232

APPROACH TO ARRIVE AT JOB ESTIMATION

To arrive at the Job Estimation figures, a comprehensive and complex methodology was adopted to get the Best-Estimation.

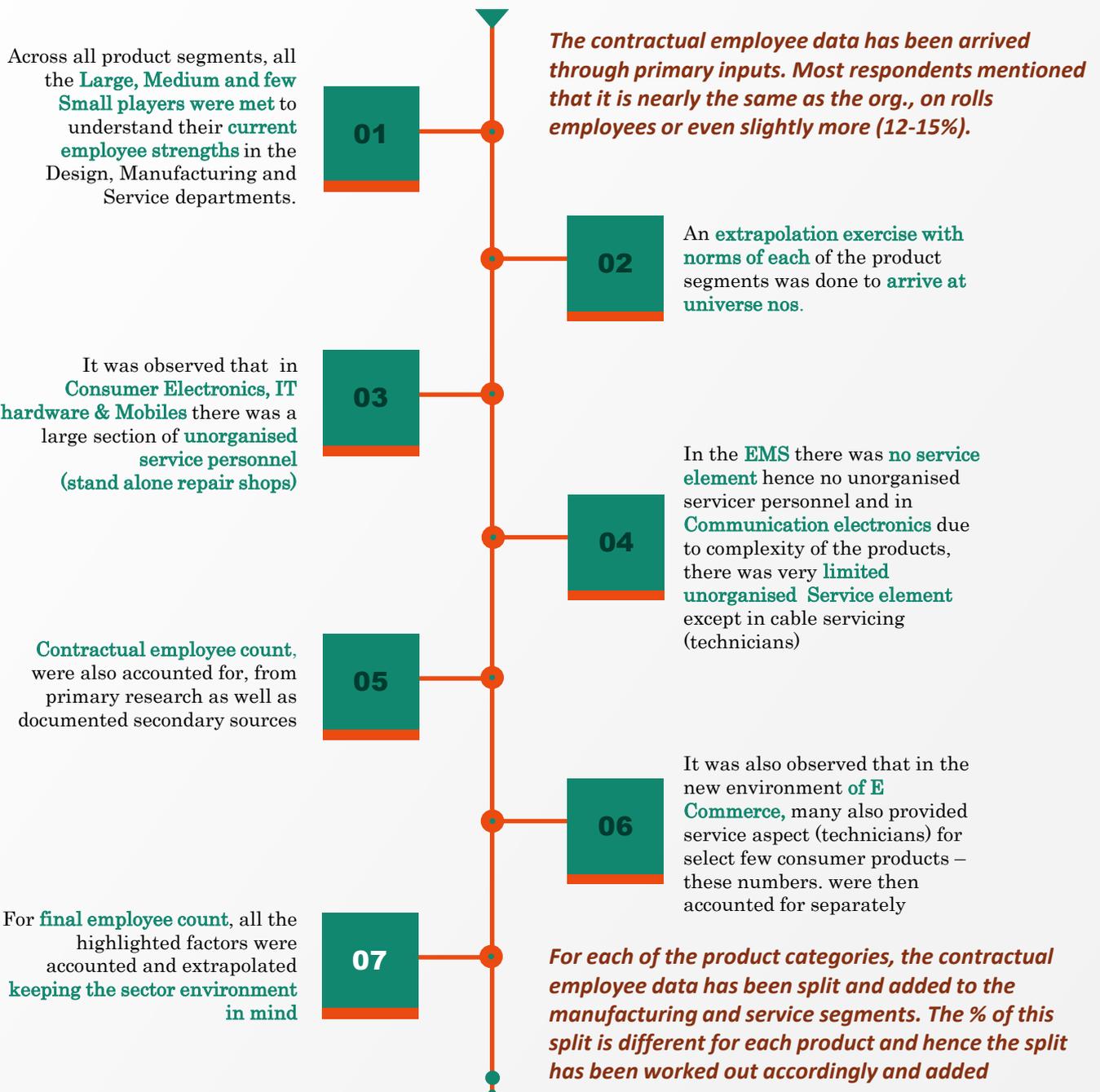
As the first step, information across all product segments, encompassing all, the Large, Medium and even the few Small players was collated. This ensured a greater understanding of the industry scenario, in terms of their current employee strength in the Design, Manufacturing and Service departments.

Next, an extrapolation exercise with the Norms-estimation methodology, was undertaken for each of the product segments to arrive at Universal Numbers.

It needs to be kept in mind at this juncture, that in the Consumer Electronics, IT hardware & Mobiles sectors, there is a large section comprising of the unorganised service personnel (and standalone repair shops). Thus the final estimation, for these industries, was arrived at keeping this sector in mind.

APPROACH

APPROACH TO ARRIVING AT THE CURRENT JOB ESTIMATION



The other influencing factor in the estimation, was the EMS (Non Mobile) sub-sector. This segment has no service element attached to it. Hence the factor of 'unorganized service personnel' in this sector, as well as in the Communication Electronics segment was very limited. Thus, this influencer was taken into account, separately.

The key factor of the Services element (excluding the cable servicing {technicians} contractual employee count which was factored-in separately), was also accounted for, from primary research as well as from documented secondary sources.

As several Ecommerce companies also provided

service-offerings (in the form of technicians) for select consumer products – effort was made to include these separately in the Job Estimation analysis.

Contractual employee count was also accounted for, in the estimation. The data for which was derived from primary research as well as documented secondary sources.

For each of the product categories, thus, contractual employee data was split and added to the manufacturing and services segments. As the percentage of this split varies with each product, each number was worked out separately and added accordingly.

Approach Applied for Consumer Electronics, Mobiles and IT Hardware sectors

The 2011 Census data was employed to establish the number of Metros, Tier -1, Tier 2, Tier- 3 cities, towns and villages, across India. This data was then used to gather information regarding number of outlets servicing all the electronic consumer durables and appliances, apart from the IT and Mobile sectors. Villages were discounted since most villages were serviced from nearby towns or by Mobile Vans and Roaming Service Engineers.

Primary interviews were conducted with the organised sector as well as with the handful of independent repair shops spread across centres.

Both authorised service centres as well as franchisees were considered when calculating these numbers. Thus, the number of personnel included encompasses people working in both type of outlets, across centres.

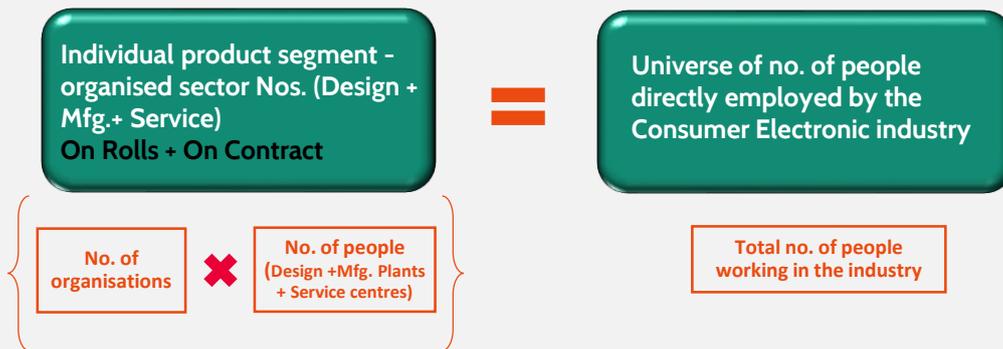


- Census data 2011 was employed to establish no. of Metros, Tier 1, Tier 2, Tier 3 cities, towns and villages, all India
- This data was used essentially for arriving at no. of outlets servicing all the electronic consumer durables and appliances apart from IT and Mobile sectors
- Villages were discounted since most villages serviced from nearby towns and Mobile Vans and Roaming Service Engineers
- Primary interviews were conducted with organised sector and handful of independent repair shops across centres to assess their nos.
- For organised sector, both authorised service centres as well as franchisee were considered for our calculations going forward – the no. of personnel includes people working in both type of outlets, across centres

Approach Applied for the EMS sector

It was observed that there were very few independent service set ups. The universe of number of people directly employed by the Consumer Electronic industry was arrived at by calculating the individual

product segment in the organized sector including the Design, Manufacturing and Services sector, covering the on-rolls and on contract personnel.



SECTOR OVERVIEW



CONSUMER ELECTRONICS

The products categorised in this section includes:

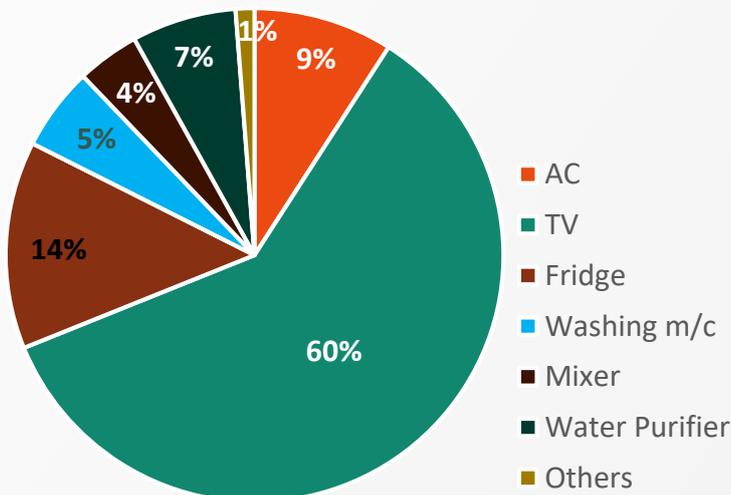
-  Television sets and remote control
-  Washing Machines
-  Air-conditioners
-  Water Purifiers
-  Refrigerators
-  Personal Medical Devices
-  Mixer/ Grinders/ Juicers
-  Other Small Home Appliances
-  Services for Mobile Phones

Estimated at \$ 22 Billion USD, India is one of the largest growing electronics markets in the world and is expected to grow at approximately 15% CAGR between FY 2017-20.

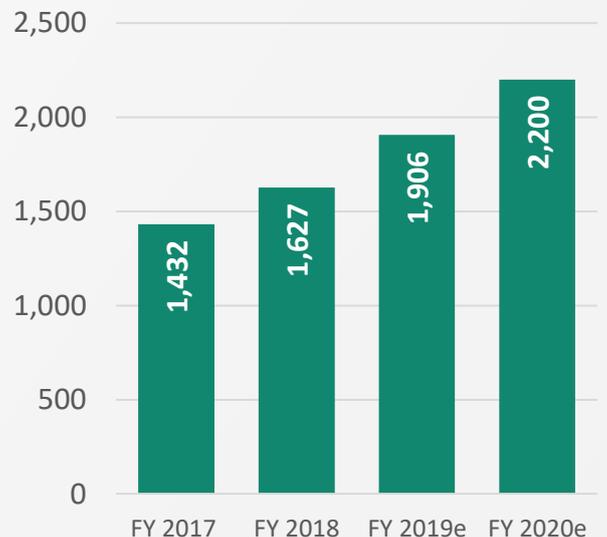
The consumer electronics market in India increased at a 11% CAGR during the period FY12-17 to reach Rs. 1.4 Trillion (US \$ 21.70 billion) in FY 2017.

Consumer Electronics Market Segmentation by Products of Interest – FY 2017

Consumer Electronics Market ~ INR
1432 INR Bn FY 2017



Consumer Electronics estimated growth in the next 3 years INR Bn



Growth Drivers



This segment has recorded remarkable growth in the last few decades. With rising disposable incomes and easy access to credit, the growth in demand is expected to accelerate going forward.

Increasing electrification of rural areas and increasing online sales are projected to further aid growth, in the future.

Yet another factor expected to stimulate demand is the rise in the working age population.

Despite the increase in demand, there is still a huge market that is hitherto untapped. Currently only 29% of households in India own a refrigerator, while just 11 % own a washing machine and a minuscule 6% own a computer or a laptop.

Future markets the players plan to make inroads into include, smaller towns and tier-III cities and the rural areas. As per several industry studies these areas hold a great potential for appliances like microwaves and refrigerators.

This sector has attracted significant investments over the years (even during the global downturn of 2009-10).

In the next few years the sector is expected to receive an investment of over US\$ 1 billion for production, distribution and R&D.

And this is triggering companies to launch their brands and look for mergers and acquisitions as a part of their expansion plans. In October FY 2017, Flipkart launched its private consumer appliances label 'Marq'; while in May of the same year, Havells completed its acquisition of the Lloyd Consumer durables business.

POLICY SUPPORT

Each subsequent Government has contributed its share in support of this segment by offering conducive Policies that have enabled further development.

Today 100% FDI is allowed in the electronics hardware-manufacturing sector under the automatic route. The National Electronics Policy (2012) gave it the necessary boost in investments. And Modified Special Incentive Package Scheme (M-SIPS) have been introduced to further promote growth of the consumer durable industry.

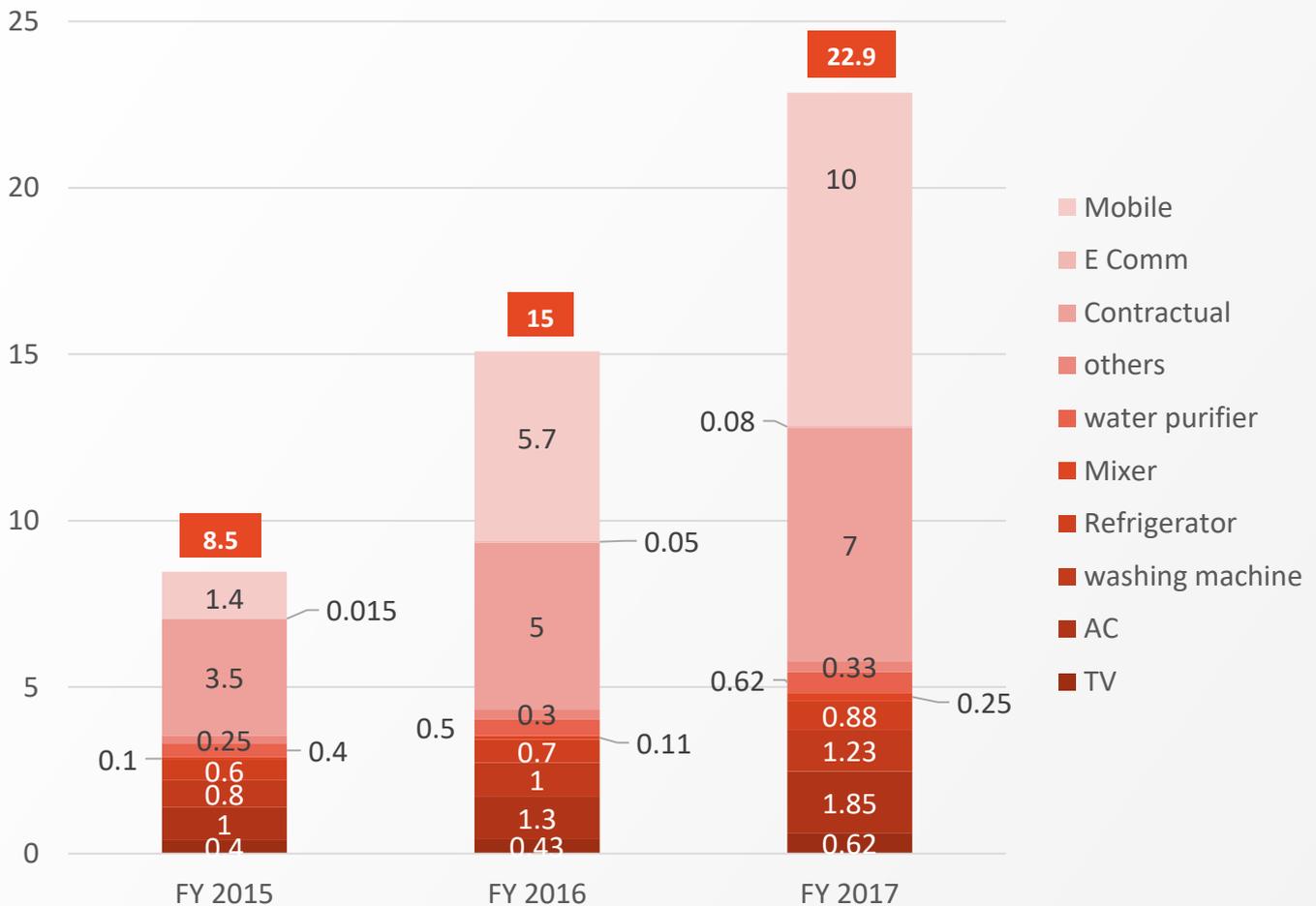
Current job estimates & need gaps

The Job Scenario in the Consumer Electronics sector, in the select products, over last 3 years, reveals several interesting trends.

This primary data collated was for the period FY 2015 to FY 2017, across various Products of interest in the sector.

Consumer Electronics - Job scenario of the industry in the select products, over last 3 years

Employee growth (Nos. in Lac) in the last 3 years across products in Lakhs



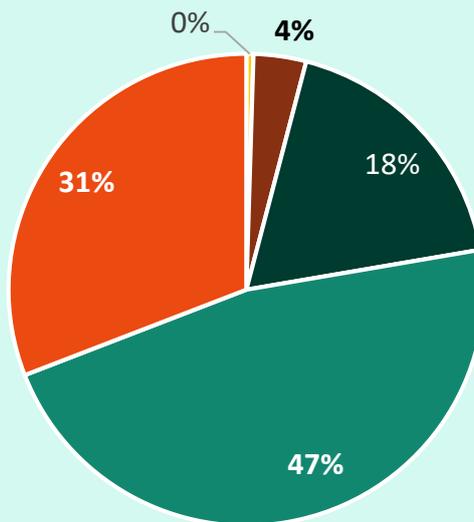
The number of people employed in this particular sector has increased over the years and the no has nearly tripled from FY 2015 to FY 2017

- As per research the mobile industry has recorded the biggest growth during this period.
- The Mobiles Sector which was hiring relatively in smaller numbers just a couple of years back recorded remarkable growth to top the employability list in 2017.
- Today this sector is projected to be one of the top recruiters going forward.
- Technical training combined with repair and soft skills are some of the competencies that would be required going forward, in this segment.

Current job estimates across this industry are as follows:

Type of jobs	Products								
	AC	Washing machine	Refrigerator	TV	Mixer/ juicer/grinder	Water purifier	Mobile	Others	Total
Design	1,194	1,593	1,500	2,226	861	2158		1,500	11,032
Manufacturing	13,848	7,232	11,500	14,997	6,195	23340		5,000	82,112
Service (org.)	1,25,000	85,000	55,000	30,000	3,164	27080	83,000	10,000	4,18,244
Service (unorg.)	45,000	30,000	20,000	15,000	15,000	10,000	9,16,000	15,000	10,66,000
E Comm. (Installation & After sales service)									8,000
Contract basis	2,32,222	1,46,667	1,10,000	97,778	36,667	73,333		12,222	7,08,889
Total	4,17,264	2,70,492	1,98,000	1,60,001	61,887	1,35,911	9,99,000	43,722	22,94,277

Total no. of people ~ 22.9 Lakhs



■ Design
 ■ Manufacturing
 ■ service - org.
 ■ service - unorg.+ Ecomm. Service + installation
 ■ Contractual

The Service industry is one of the largest employers in this segment recruiting nearly 40% of the total workforce. Contractual employees form a significant percentage of this data.

Of these, 65% are employed in the manufacturing sector while the remaining 35% are in the Services segment.



SKILL GAP

which needs to be addressed in the Consumer Electronics Sector

Low Level: ITI or Diploma are the additional preferred skills required to get entry in the Industries mostly for Service departments

Mid Level: Auto CAD/ Designing Tools are the additional skills required for Design Department

Certification in Production & Operation management are the additional skills required for Manufacturing Department

Good Communication Skills are the additional skills required for Service Department



Future Job Estimates

Potential job estimations were arrived at primarily by industry data and by conducting in-depth interviews with HR heads. Almost all the respondents were looking at increased hiring going forward, and expected growth to be about 7-10% across sectors.

With increasing focus on manufacturing and product development it was observed that though design departments may increase their manpower by 2% in 2019, they are expected to increase their hiring by 10% in the following 2 years.

Rapid growth in the Services Industry is also expected with increase in sales in the products sectors. As per

Feedback survey the Services Sector is expected to increase its hiring by about 18-25 %; while the Manufacturing Segment is predicted to report an increase of 15-18 % as compared to the previous 2 years. Going forward the Services Sector is expected to continue to outperform all the other sectors.

The unorganized sector too shows a healthy increase in people-hires. With the increasing presence of E-commerce players in this segment, contractual hiring and third party hiring for installations and after sales support is expected to grow.

APPROACH

APPROACH TO ARRIVING AT THE FUTURE JOB ESTIMATION

Across product segments, it was primarily established from the interviews conducted with the HR department heads

01

02

Most felt that for their industries, there would be a +ve growth in the employee hiring – moderately about 7-10% across sectors.

The industry growth across was considered as a good indicator for growth in hiring people

03

The manufacturing and service segments were expected to grow at a rate of 15-18% & 18-25% respectively – Service segment more robustly owing to companies relying on servicing to gain more customer base

05

It was observed that while the design department may increase their manpower by 2% in the next year, it could go up to 10% by 3 years owing to companies coming up with Newer designs.

04

It was unanimously acknowledged that the unorganized service sector was good in terms of people, there is likely growth expected in the E Comm. Providing 3rd party installation and after sales service people for this industry.

06

Primary data was collected across product segments, through interviews conducted with the HR and Department Heads.

estimated that companies could more than double their hires by FY 2025, provided they can address their requisite skills requirements in time.

Almost all respondents envisaged a conservative hiring of about 7-10% in their segment, going forward with the exception of the Manufacturing and Services segments, which are projected to expand their manpower at a much higher rate.

At the top of the list is the Mobile industry which currently leads the overall Service Industry recruitments. The E-commerce sector too is set to grow rapidly, primarily due to increase in demand for third-party service providers.

As per Feedback analysis, while hiring in the Manufacturing segment is expected to grow at a rate of about 15-18%, the Service segment is predicted to report an increase in recruitment of 18-25% in the future.

Though the Design departments within companies are currently expected to hire moderately (primarily due to designs going obsolete), one can expect them to increase their hires with the introduction of new and emerging technologies going forward.

The fast expansion in the Service sector is also expected to increase the presence of the Unorganized segment in the market, going forward. With increased presence of E-Commerce companies in this segment, third-party installation and after sales services are expected to grow triggering greater hiring in the unorganized sector.

The Manufacturing and Services segments are predicted to increase their hires at a rate of about 18% to 20%, in the coming years.

Rapid advancement in automation and upgradation to latest technologies are hugely impacting the job market in this segment. As per Feedback data, it is

Retirement rate has been observed to be low in the private sector. Thus, post primary collation, iteration rate of 3% and retirement rate of 0.5% was factored-in while calculating the overall growth. Also, for calculation purposes, the contractual figures have been split and suitably added to Manufacturing (65%) and Organized services (35%) sectors respectively.

EXPECTED EMPLOYEE GROWTH IN THE NEXT 4 YEARS

Expected growth rate	Design	Manufacturing	Services	Unorganised services	Ecomm	Contractual
2018	2%	18%	18%	5%	40%	32%
2019	10%	18%	25%	10%	50%	33%
2020	10%	20%	25%	10%	60%	35%
2021	5%	25%	25%	12%	65%	35%



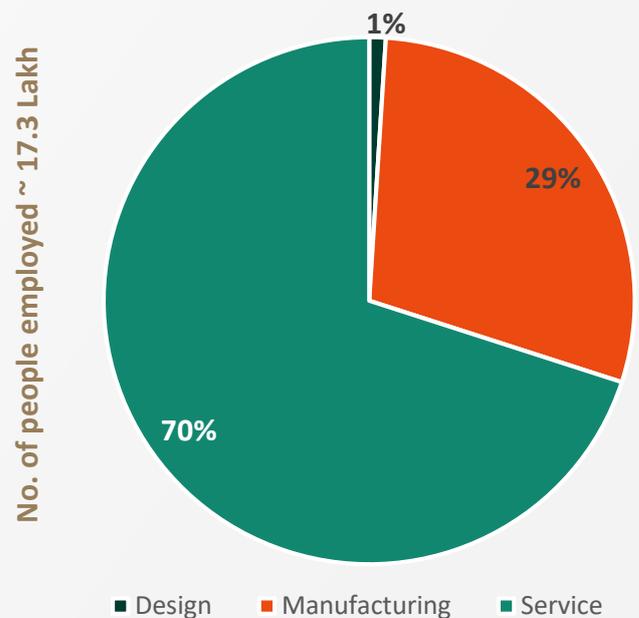
Service industry in the CE Sector

The Service industry in the CE Sector is expected to be a major Jobs Creator in India. The Service industry is also the preferred choice of millennials as it offers good pay packages and an opportunity to climb up the corporate ladder fast. Given this symbiotic relationship, prospective hires in this segment form the most desirable section of the population that could benefit the most from skill enhancement efforts. Skill enhancement is a key requirement to be recruited in this sector.

Of the 17 lakhs employed in the Services Sector nearly 10 lakhs are with the unorganized sector and because of this there is an acute skill-gap in the industry.

Out of nearly 10 lakh that graduate from ITIs & technical colleges, only 56% manage to get a placement primarily due to lack of required skills and technical know-how.

Other issues faced include lack of knowledge in english and cognitive skills which form a huge hurdle in making them employable.



In the absence of appropriate training this huge chunk of the population, may lose out on building a career, going forward, more so given the fast changes predicted with emerging technologies.

Minimum Qualifications for Hire in CE

Diploma holders were the largest hires in the CE sector, comprising nearly 25% of the total recruitment in the last few years. This was closely followed by ITI and Engineering degree holders, which stands at about 20% each.

Post Graduate hires (with MCS, M-Tech and MSc) form 15% of the recruitment pie. With increasing focus on R&D, this is expected to increase to 17% in the next 5 years.

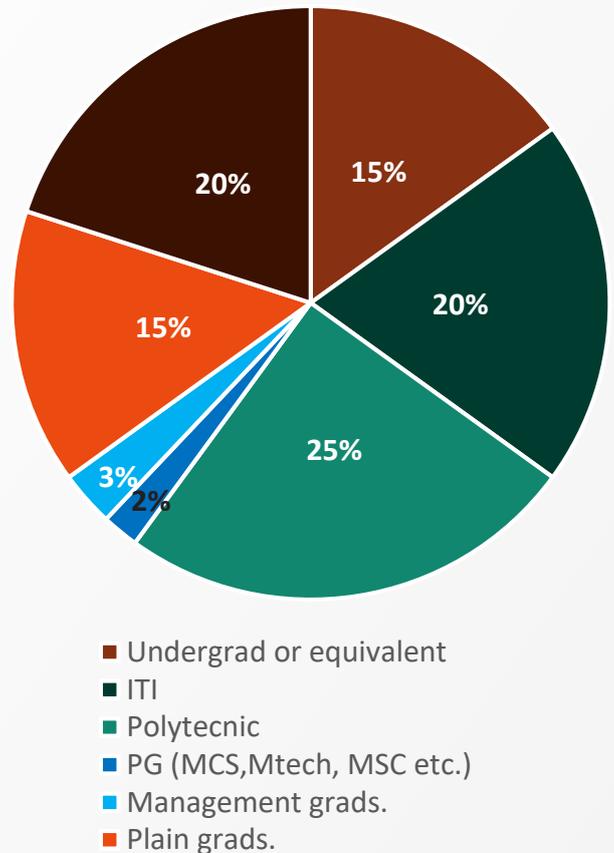
The CE segment has taken great strides in terms of upgradation and adoption of new technologies. The segment has witnessed the introduction of robotics, artificial intelligence and machine learning, ushering in a new age of automation.

This has resulted in increase in the recruitment of engineers, in the last couple of years.

With regards to upskilling to make employees job-ready, companies currently provide basic training at-site for all recruits across the board. These merely consist of theoretical and practical instructions relating to the trade, in addition to on-the-job-training.

Thus, right-skilling is predicted to be a key area of focus for all the industry players, in the next 5 years.

Average desired qualification of the industry



PRODUCT TABLE – Consumer Electronics

Products	Industry Structure	Industry overview	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created
Televisions	The firms in Television Industry is split by their manufacturing business models of CKD, SKD and EMS Models. 2 large players Samsung & LG dominate the market with another 15-16 brands active in the Indian market. Around 10 EMS firms active in making TV for other Branded firms	The Indian TV market stood at 5 million units in 2012 and grew to a 14 million units' market in 2017. It is likely to reach around 21 million Units by 2021. From FY16, the industry has witnessed a tremendous transformation with the consumers going for Smart TVs as the flat TV market in India has experienced a robust growth over the Years due to consumer shift from CRT to Flat TV.	The Industry has both Permanent employees and Contractual employees. The Total employees including Contractual employees stands at around 1.6 lakhs employees in the TV sector. The Permanent employees in the Current year and the trend over last 3 years for products(TV)– (2015-2017) is shown below: * No. of people employed in the year 2015: 0.40 Lakhs * No. of people employed in the year 2016: 0.43 Lakhs * No. of people employed in the year 2017: 0.62 Lakhs	No. of Permanent employees estimated to be employed in the next 4 years(2018-2021) in product market (TV) * 2018E : 0.7 Lakhs * 2019E : 0.8 Lakhs * 2020E : 0.9 Lakhs * 2021E : 1.0 Lakhs
Air Conditioners	Indian Room Air Conditioner Industry suppliers are categorized into 3 types: Large Medium and Small Players.Around 29-30 companies in Room Air Conditioner market in India with players like Voltas, LG Electronics & Samsung India having a predominant position. Most companies have manufacturing in India, while some rely on trading of products as well.	The market for Room AC for FY17 was~ INR 132 Bn. In the recent past, Room AC market had a CAGR of 6-7%, It has grown up to 9% in FY'17. Shift toward inverter ACs accelerates in the recent past– to be 50% of industry by FY20. Large players like LG, Voltas, Samsung are likely to increase the production capacity by 20% for 2018 . In next 3-4 years market is likely to grow at 13-14% due to extreme climate conditions in India. Expanding middle class and lifestyle, Large population base and key growth drivers for Room AC Market..	The Industry has both Permanent employees and Contractual employees. The Total employees including Contractual employees stands at around 4.20 Lakhs nos. The Permanent employees in the Current year and the trend over last 3 years for Products (AC)– (2015-2017) is shown below: * No. of people employed in the year 2015: 01 Lakh * No. of people employed in the year 2016: 1.3 Lakhs * No. of people employed in the year 2017: 1.9 Lakhs	No. of Permanent employees estimated to be employed in the next 4 years (2018-2021) in product market (AC) * 2018E : 2.1 Lakhs * 2019E : 2.4 Lakhs * 2020E : 2.8 Lakhs * 2021E : 3.2 Lakhs
Water Purifiers	There are 5 key players who dominate the industry with over 70% market share, namely, Kent RO, PureIT, Eureka Forbes, Live pure, TATA Swach. Apart from this, there are a host of many small regional and unorganised players in India. Estimated no of players in the Industry is about 2500 such firms who double up as both Sales and Services Providers.	India's water purifier market is expected to reach USD 2.6 Billion by the end of 2021 as compared to USD 1.3 Billion in 2016. During the forecast years of 2016 and 2021, the overall market is expected to register a CAGR of 28 percent. The various end users of these technologies are industrial, commercial and household. The commercial and household segments will see a high adoption of water purifying technologies. Between the forecast period of 2016 and 2021, the household segment is expected to register a CAGR of 15.4 percent	Total no. of Permanent and Contractual employees in 2017 was about 135,900 nos. The Overall Permanent employees estimation in 2017 was about 62,578 nos. Organised Sector employees were about 52,578 nos only and the Unorganised Sector Employees were about 10,000 nos. The last 2 year trends for Overall Permanent employees were ~44,000 in 2015 and 50,000 in 2016. There were about 73,333 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Washing Machines is likely to be: * 2018E : 69,300 nos * 2019E : 77,616 nos * 2020E : 88,258 nos * 2021E : 100,000 nos
Washing Machine	There are 4 key brands and about 12-15 other smaller brands in India in Washing Machines. There are about 6 EMS players who contract manufacturer for other players in India. Key players are LG, Samsung, Videocon and Whirlpool etc. They have complete facility to manufacture washing machine in India. They have local ancillaries to support for design, components and parts Indian brands (SKD).	India washing machine market volume increased from 3.77 Mn Units in 2014 to 4.79 Mn Units in FY 2018. The Washing Machine market in India is classified into: Semiautomatic (48%) and Automatic (52%). The Washing Machine market in India is expected to grow at a CAGR of 12 to 14% during the forecast period 2018-2022	Total no. of Permanent and Contractual employees in 2017 was about 270,500 nos. The Overall Permanent employees estimation in 2017 was about 123,825 nos. Organised Sector employees were about 93,825 nos only and the Unorganised Sector Employees were about 30,000 nos. The last 2 year trends for Overall Permanent employees were ~82,000 in 2015 and 100,000 in 2016. There were about 146,675 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Washing Machines is likely to be: * 2018E : 143,400 nos * 2019E : 163,800 nos * 2020E : 188,325 nos * 2021E : 200,000 nos
Refrigerators	The domestic Refrigerators industry has around 15-16 brands which are being sold in India. Key players are companies like LG, Samsung, Videocon, Whirlpool, Godrej and they have a complete end-to-end manufacturing of domestic refrigerators in India, these players also have component manufacturing facility within India.	Domestic Refrigerator are broadly split across economy class into three types: Low & Mid end (direct cool): Grown from 7.4 to 11.4 million units in 2015 to 2017 period. Estimated growth in FY 2018-2020 is 12.5-14.9 million units. Mid & High End (Top/Bottom Mount): In the FY2015-2017 market has grown from 2.2 to 2.4 million units. Estimated growth in FY 2018-2020 is 2.6-3.0 million units. High End (side by side): In the FY2015-2017 market has grown from 0.3 to 0.6 million units. Estimated growth in FY 2018-2020 is 0.6-1.0 million units.	Total no. of Permanent and Contractual employees in 2017 was about 198,000 nos. The Overall Permanent employees estimation in 2017 was about 88,000 nos. Organised Sector employees were about 68,000 nos only and the Unorganised Sector Employees were about 20,000 nos. The last 2 year trends for Overall Permanent employees were 65,000 in 2015 and 75,000 in 2016. There were about 110,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Refrigerators is likely to be: * 2018E : 91,840 nos * 2019E : 102,861 nos * 2020E : 115,204 nos * 2021E : 122,000 nos
Mixer/Grinder/Juicer	India mixer grinder market has two segments - Mass and Premium mixer grinder market. The market share of Mass Mixer Grinder is 60% in India, whereas market share of Premium Mixer / grinder is about 40% of the Overall M/J/G category.Key players are Philips, Bajaj, Maharaja, Preethi, Butterfly and Kenstar.	The market for Mixer Grinder stood at 9.5 Million Units in 2017 and it is expected to grow at a CAGR of 12% till 2021	Total no. of Permanent and Contractual employees in 2017 was about ~62,000 nos. The Overall Permanent employees estimation in 2017 was about 25,220 nos. Organised Sector employees were about 10,220 nos only and the Unorganised Sector Employees were about 15,000 nos. The last 2 year trends for Overall Permanent employees were 23,000 in 2015 and 24,000 in 2016. There were about ~37,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Mixer / Juicer / Grinder is likely to be: * 2018E : 27,220 nos * 2019E : 32,220 nos * 2020E : 40,220 nos * 2021E : 44,500 nos

PRODUCT TABLE – Consumer Electronics

Products	Industry Structure	Industry overview	Recent past and Current Jobs in the Product market	Likely future Jobs that are likely to be created
Ecommerce	E-Commerce industry structure is Divided into two models. Marketplace led model: Marketplace model adheres to the standards and directions of a zero inventory model. The e-commerce marketplace becomes a digital platform for consumers and merchants without warehousing the products. Major players are Shopclues and Naaptol. Inventory led model: Inventory led models are those shopping websites where online buyers choose from among products owned by the online shopping company or shopping website. It takes care of the whole process end-to-end, starting with product purchase, warehousing and ending with product dispatch. The major players are Flipkart, Amazon, Jabong.	India's E-Commerce market grew at a staggering 88% in 2013 to \$16 billion, riding on booming online retail trends and defying slower economic growth and spiralling inflation. India's E-Commerce market was about \$2.5 billion in 2009, it went up to \$6.3 billion in 2011 and to \$16 billion in 2013 and is expected to grow huge \$56 billion by 2023 that would be 6.5% of the total retail market.	The overall employee trends in the E-Commerce Sector for Electronics Goods & Services for the last 3 years: * No. of people employed in the year 2015: 0.05 Lakhs * No. of people employed in the year 2016: 0.1 Lakhs * No. of people employed in the year 2017: 0.1 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (E-Commerce Electronics): * 2018E: 0.1 Lakhs * 2019E: 0.2 Lakhs * 2020E: 0.3 Lakhs * 2021E: 0.4 Lakhs
Mobile Phones	In the Mobile business in India, there are more than 130 players in India. Of this, there are about 3 Brands who are present in India under the CKD Model (Samsung, Micromax and Lava) There about 100+ players in the CKD model and is divided amongst Indian Chinese and other players. There are around 10 firms in the Mobile EMS business. Includes players like Flextronics, Foxconn, Wistron Dixon, GDN. Rest are small players Support OEMs in PCB fabrication, assembly and testing.	India is the second largest mobile handset market in the world (after China), and is poised to become an even larger market. Currently, its share in global smartphone market is 7.6%. Indian mobile market is still dominated by feature phones which account for 57% of the total mobile phone market. In 2017, India had 299 million smartphones subscribers and this number is expected to grow to 468 million by 2020, making it one of the largest smartphone users country. In 2017 alone, the country's overall smartphone market registered 14 per cent annual growth with a total shipment of 124 million units.	The overall employee trends in the Mobile Sector for the last 3 years: * No. of people employed in the year 2015: 1.4 Lakhs * No. of people employed in the year 2016: 5.7 Lakhs * No. of people employed in the year 2017: 10.0 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Mobile) * 2018E: 12.66 Lakhs * 2019E: 17.22 Lakhs * 2020E: 23.11 Lakhs * 2021E: 30 Lakhs

LIKELY FUTURE JOBS AND SKILLS REQUIREMENT

In Consumer Electronics & IT Hardware, the changing market landscape is impacting the skills requirement in all dimensions of the business - Design, Manufacturing & Services.

Design:

New Technologies such as IOT, 'Smart' Products & AI are becoming a new norm. Software integration is coming in a big way in most CE products. Most firms are looking for Designers who can understand the changing market dynamics and Customer needs and help them meet these requirements. Design Engineers with a flair for New Product Introduction mindset is the need. New Jobs that are being created are, **Computer Vision Engineers** (*Build and improve computer vision and machine learning algorithms and analytics to detect, classify, and track objects*) and **Machine Learning Engineers** (*Advanced programmers who develop AI machines and systems that can learn and apply knowledge*)

Manufacturing:

Since the new age IIOT is coming in most manufacturing lines, CE lines are also thinking of adapting new techniques and they need their Staff and Managers to have new skill sets in *Handling Robotics, Data analytics ability, VR, AR, AI*

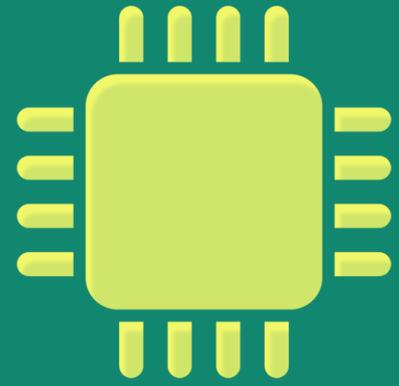
Services:

Most CE Products are now coming out with new features and more advances features. So essentially, the entire Service networks which has been addressing these products need learning and skill development in new technologies used in the CE products. Also the New Environmental challenges and regulations in the AC sector needs the AC Service men to be skilled with these new techniques and knowledge levels. With LCD Panels now being manufactured in India, the need for Mobile and TV LCD panels service technicians is rising.

CHAPTER 3

SECTOR OVERVIEW

IT Hardware



THE IT HARDWARE MARKET WITH SELECT PRODUCT OF INTEREST WAS AT INR 1,09,798 CRORES IN 2017

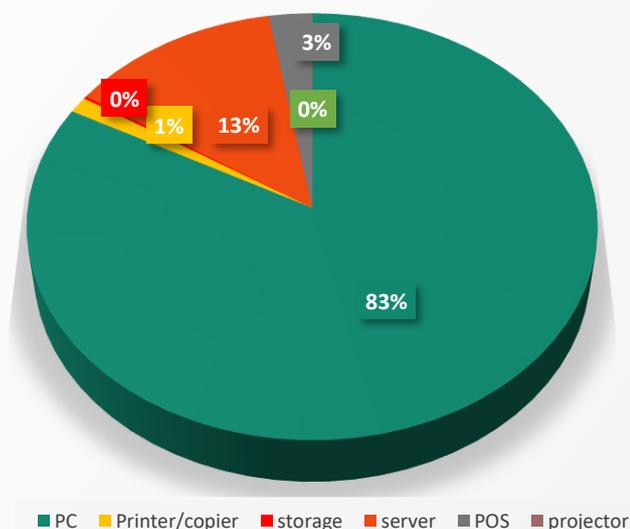
The IT hardware sector has recorded moderate growth across PoIs, with the exception of items like Pen drives and hard disks, which reported a sharp drop in sales. Increased shift to Storage on Cloud has been the reason attributed to this change.

As per data sale of PCs and Servers too have stagnated in the last couple of years.

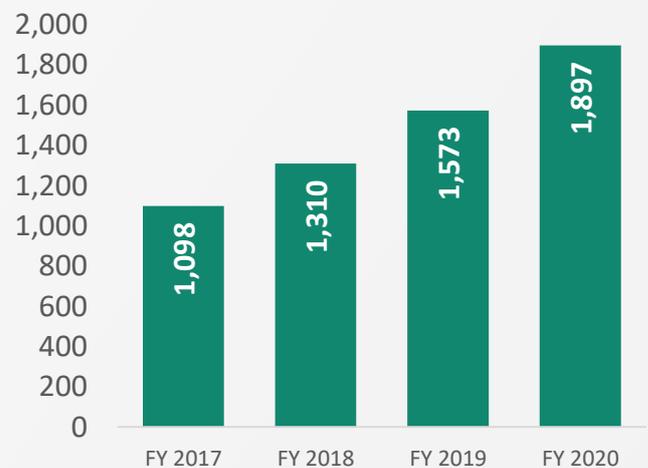
Going forward cloud computing and Virtual thin clients are expected to catch on faster. Given this scenario, the current status with regards to IT Hardware sales is expected to continue.

POS, on the other hand have reported slow increase in growth. With increase in digitalization, POSs are projected to grow at a healthier pace, in the future.

Size of IT hardware with Select Products of Interest ~ at INR 1097.9 INR Bn 2017



IT Hardware estimated growth in the next 3 years INR Bn



Growth Drivers



Demand from households, in tier-II and Tier-III cities, towns and rural areas, is set to increase with rising disposable income in the hands of these consumers, coupled with easy EMI options.

Increased spending by the Governments at state level and small and medium businesses is expected to spur demand in the next 4 to 5 years.

The greater awareness of IT and increasing usage of Digital Technologies and E-Governance initiatives the demand for IT hardware products has been felt across all levels of governments. Steady fall in prices of these products through the years have further promoted penetration.

Thus, going forward this hitherto not fully tapped market is all set to drive sales.

The market is expected to expand at a CAGR of 41.4 per cent in the period 2016–20. The Intended reduction in the government’s import bill is likely to boost domestic electronics manufacturers, which in turn is expected to have a positive impact on the IT hardware segment.

Investments have increased in this sector primarily due to Merger & Acquisition and FDI inflows. Companies across the board are planning to invest in distribution, R&D and production in the next few years. All of which are expected to have a positive impact on the IT Hardware sector.

The Government has received investment proposals to the tune of USD17.5 million for which they intend to provide incentives under the M-SIPS scheme. Applications received before July 2020 are being considered under this scheme.

Given this scenario, the investment trend is positive; a good sign for the future of the industry, in the coming years.

POLICY SUPPORT

The IT Hardware sector has received Government support in terms of favourable policies and regulations, for quite a few years now.

The government has allowed 100% FDI through automatic route, which has resulted in increased healthy competition, in this sector.

Initiatives like the Modified Special Incentive Package Scheme (M-SIPS) provide a capex subsidy of 20–25%, further benefiting the companies.

As per the Make in India Initiative, the Electronic Development Fund Policy has been approved to rationalise an inverted duty structure, providing more assistance to the players.

APPROACH TO JOB ESTIMATES

All major players in the industry were interviewed to understand the hiring process, the current employee strength and the skill requirements going forward in the segment.

To get a better understanding of the fast-emerging scenario, identified mid-sized firms were also included as part of the study.

THE APPROACH

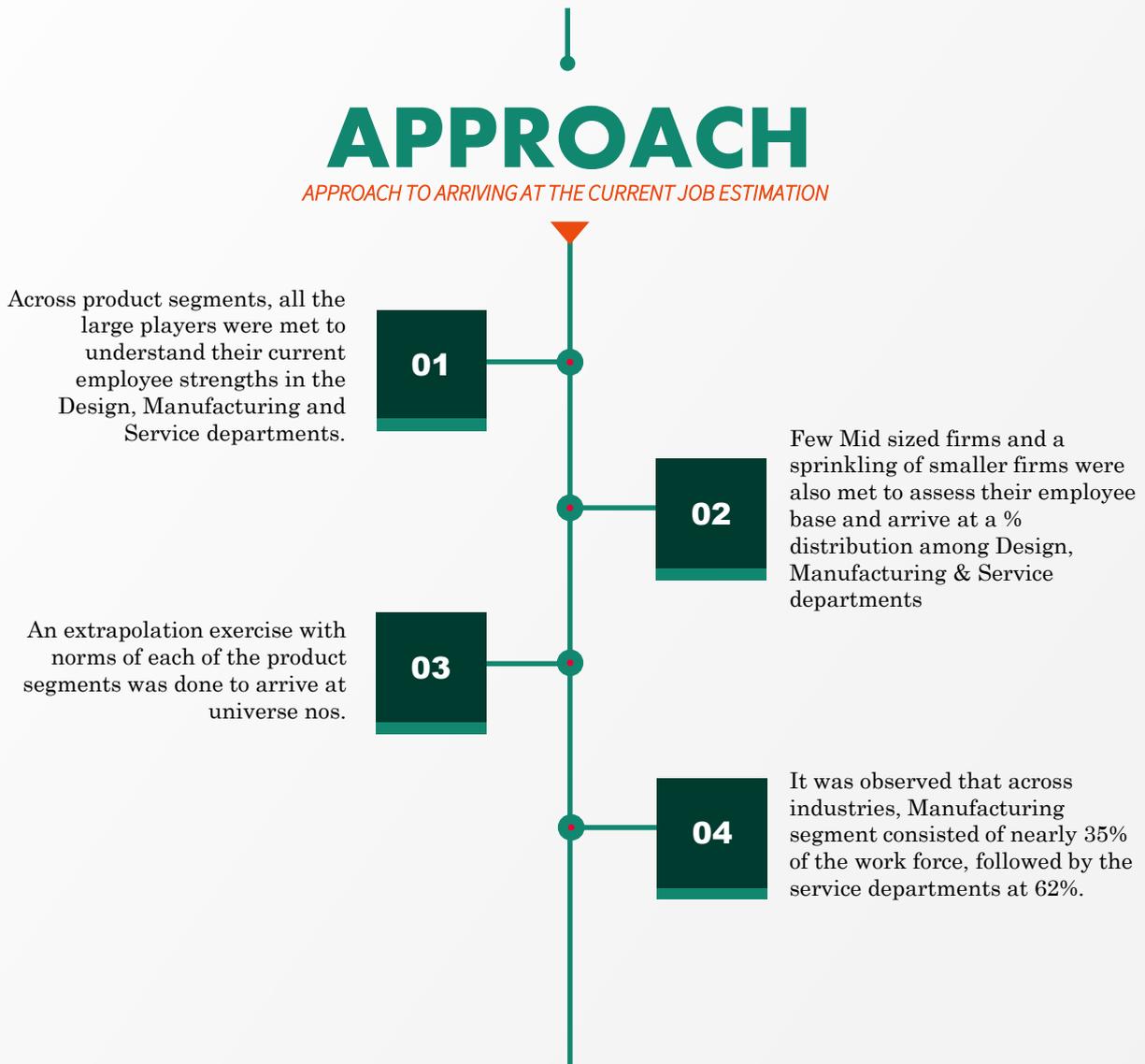
An extrapolation exercise with norms of each of the product segments was then undertaken to arrive at universe numbers.

As per data collated services providers comprised almost 62% of the workforce, followed by manufacturing which stood at 35%.

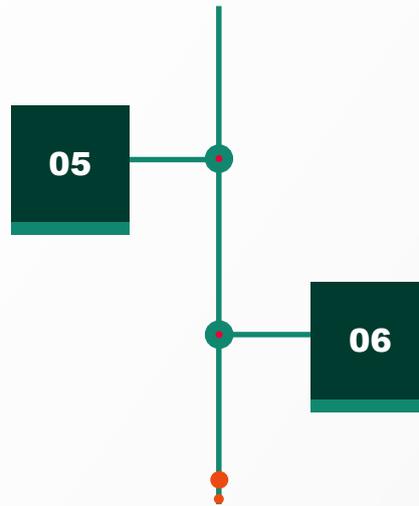
While this was the departmental percentage, on further research, it was found that there was another

larger subset of service personnel that were not employed by any organised sector but operated independently as standalone repair shops. And this was found across almost all the segments.

Hence, while calculating the current number of people employed in this sector, the figures that these independent repair shops threw-up on a PAN-India level were also included.



While this was departmental % was found to be true, it was found that for almost all segments, there was another larger subset of service personnel that were not employed by any organised sector players, but operated independently as standalone repair shops



Hence, while calculating the current no. of people employed in the servicing of the consumer electronics, these independent repair shops at a PAN India level were also considered.

Job scenario in IT Hardware

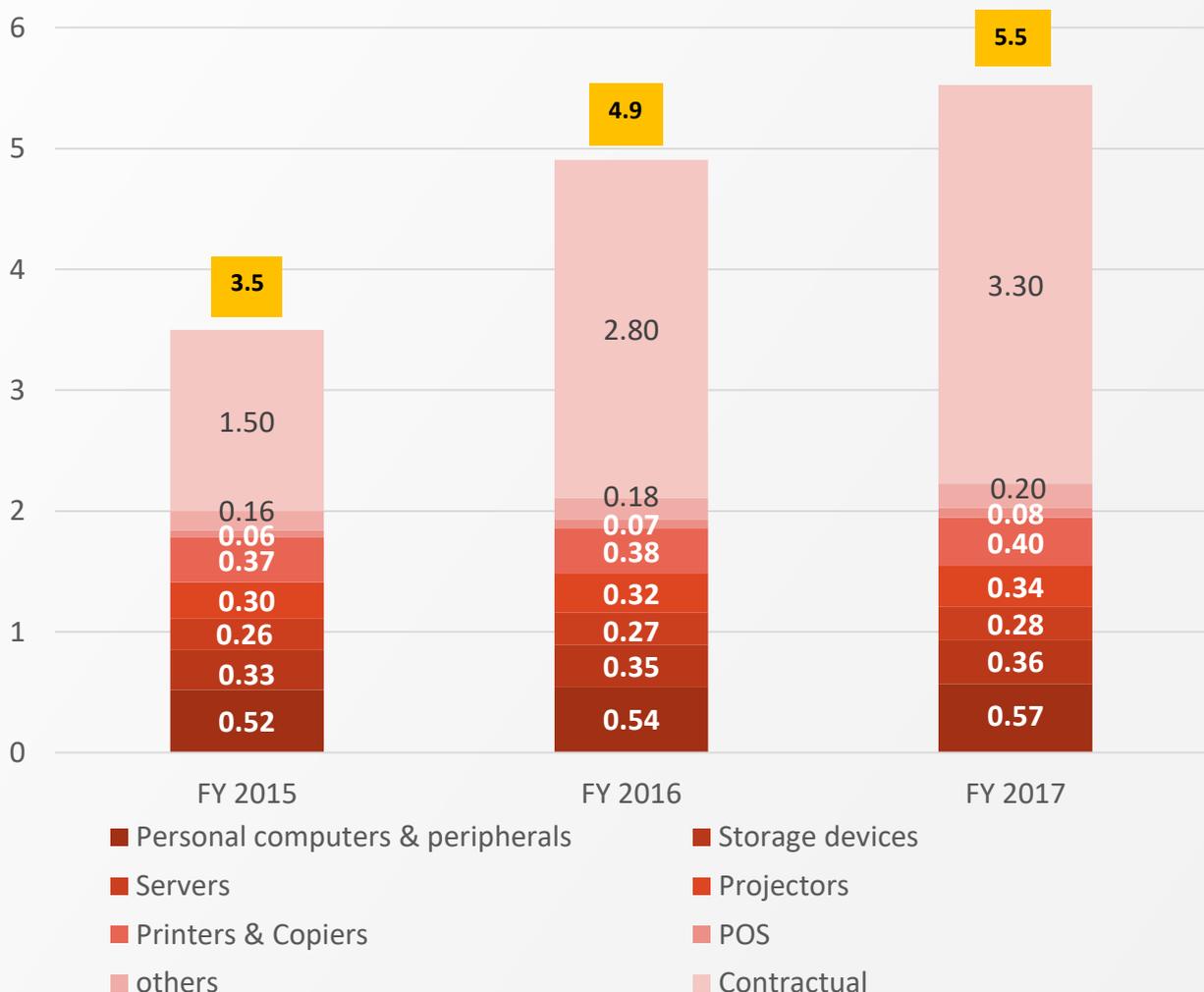
Data for arriving at the Job scenario for this sector was obtained purely from primary research conducted across various POIs.

As per Feedback analysis recruitment of employees on a contractual basis topped the list of hires in FY 2015 to FY 2017. The workforce in this segment almost

doubled during these years.

Hiring in the PC and peripheral segment, as per the study, came a distant second, with all other departments across the board reporting a much smaller, though steady stream of recruitments.

Employee growth (Nos. in Lakhs) in the last 3 years across products in Lakhs



The number of jobs estimated in the IT Hardware Industry, as of FY 2017 stood at 5.5 Lakhs.

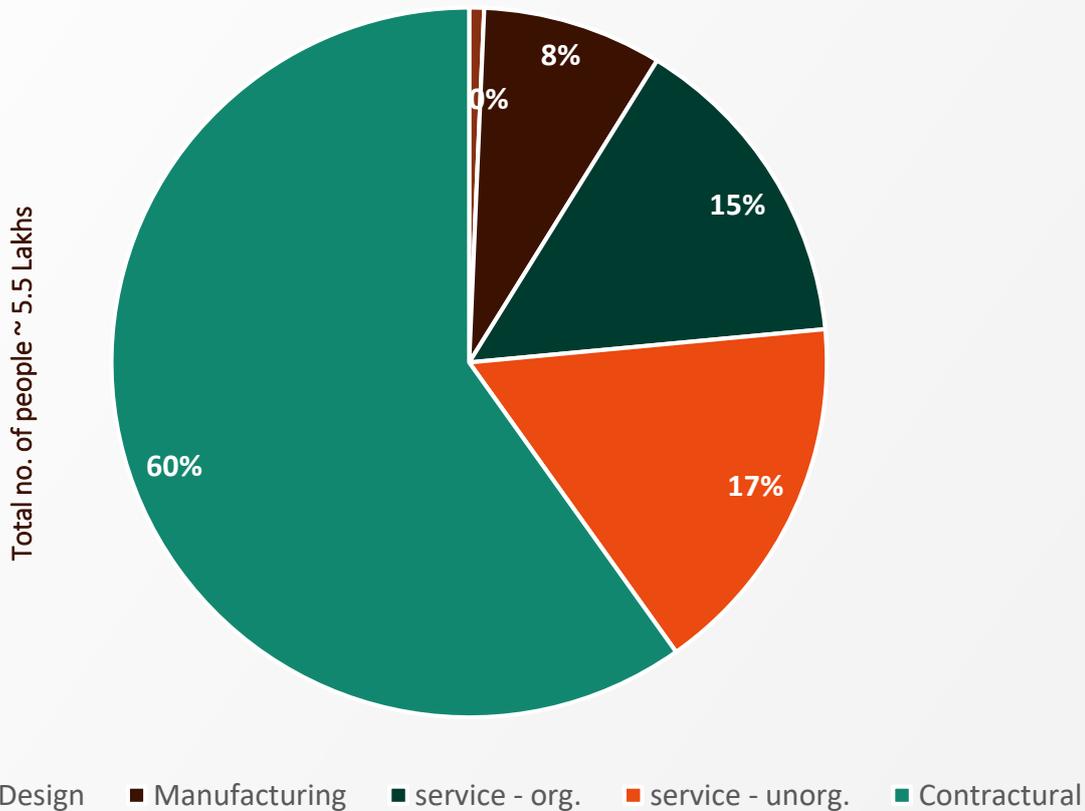
The unorganised sector comprises of several big and small outlet chains and independent repair shops spread across the country. As several of these outlets

also sell non-IT Hardware, care was taken while collating data to ascertain the validity of the information collected.

As per the research about 20% of these outlets fall into this category.

Type of Jobs	Products							Total - IT Hardware
	PC & Peripherals	Storage devices	Servers	Projectors	Printers & Copiers	POS	Others	
Design	1102	642	209	283	481	187	800	3,704
Manufacturing	13063	6249	4173	6,783	9,391	2,216	3,000	44,875
Service (Org.)	22436	19510	8119	11,284	9,928	3,807	6,000	81,084
Service (Unorg.)	20,000	10,000	15,000	15,000	20,000	2,000	10,000	92,000
Contractual	85,500	54,000	42,000	49,500	60,000	12,000	27,000	3,30,000
Total	1,42,101	90,401	69,501	82,850	99,800	20,210	46,800	5,51,663

TODAY, CONTRACTUAL EMPLOYEES ACCOUNT FOR ALMOST 60% OF THE TOTAL WORKFORCE, ACROSS ALL PRODUCT OFFERINGS IN THIS SECTOR.



Job Estimates

Potential job estimations were arrived at primarily by conducting in-depth interviews with industry players and relevant industry bodies like MAIT.

Approach

Interviews were conducted with the HR and department heads, across product segments. This data was then codified.

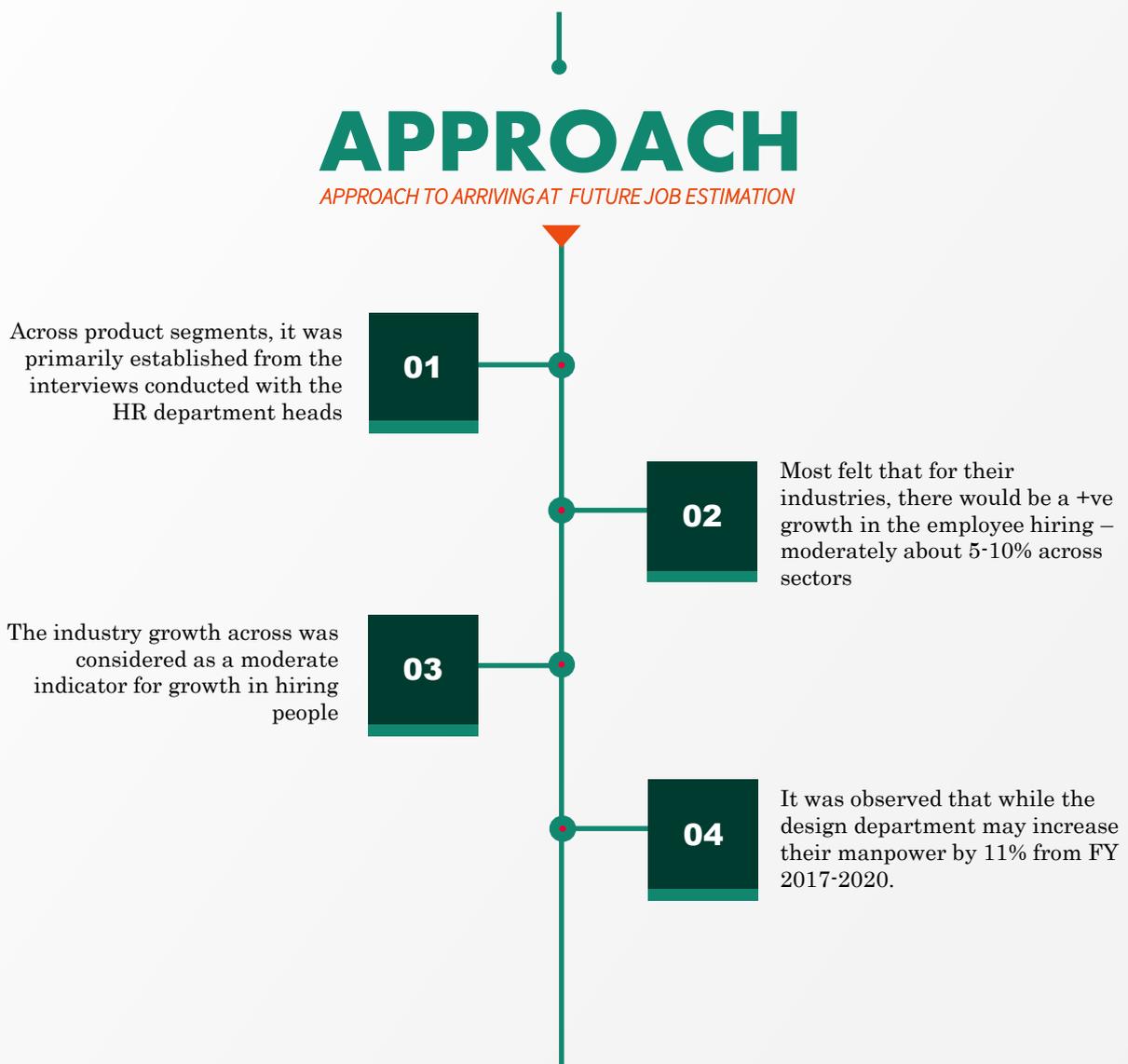
As overall the industry had reported moderate growth across the board, the hiring strategy going forward was cautious.

Most respondents predicted moderate hiring of about 5-10% across sectors in the next few years.

While the design departments were expected to

increase their manpower by 11% from FY 2017-2020; the manufacturing and services segments were expected to expand at a rate of 11% each for the said period.

While the unorganized service sector had recorded healthy hiring in the last couple of years, it is expected to see a year of consolidation going forward. This is expected to benefit the organized sector, in the short term, thereby negating any marginal growth of the former.



The manufacturing and service segments were expected to grow at a rate of 11% respectively

05

It was unanimously acknowledged that while the unorganized service sector was good in terms of people, it may remain same as there was more growth expected in the organized sector, thereby negating any marginal growth in the unorganized sector

06

Job Estimates

Overall the IT Hardware segment is expected to maintain a healthy rate of hiring going forward.

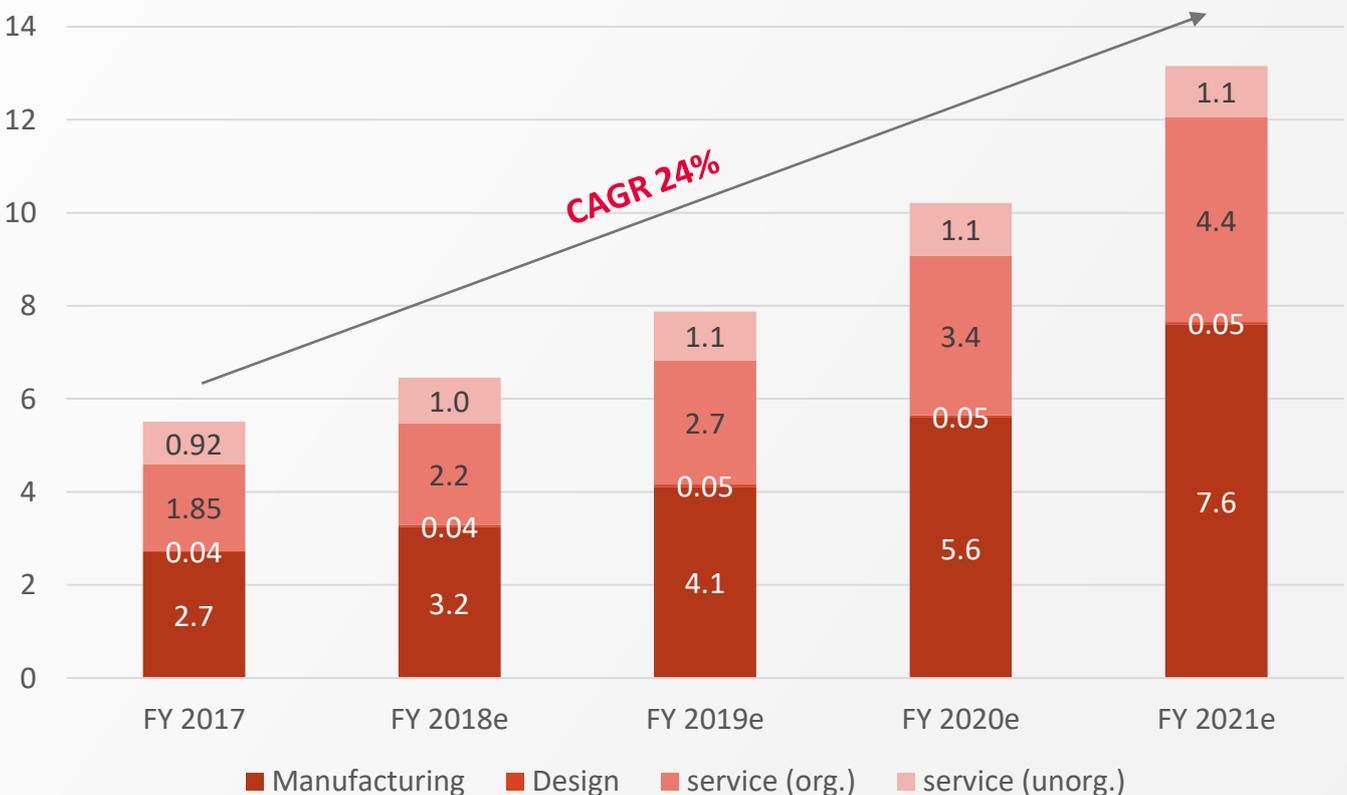
The Design departments within the companies are predicted to grow at a CAGR of 10% in the period 2017-2020; while the Manufacturing departments are

expected record a CAGR of 11% for the same period.

While the Organized Services sector is projected to report a growth of 11% CAGR, the Unorganized Services players are expected to record a lower CAGR of 7% from 2017 to 2020.

Future jobs estimates in the IT Hardware industry

No. of employees expected to be added in next 4 years ~ Lakhs



Expected growth rate	Design	Manufacturing	Services	Unorganised services	Contractual
FY 2018	10%	10%	10%	7%	5%
FY 2019	10%	10%	10%	7%	5%
FY 2020	10%	10%	10%	7%	5%
FY 2021e	10%	10%	10%	7%	5%

- ★ Design department will grow at a CAGR of 10% from FY 2017-2021
- ★ Manufacturing department will grow at a CAGR of 11% from FY 2017-2021
- ★ Service (Organised) department will grow at a CAGR of 11% from FY 2017-2021
- ★ Service (Un-Organised) department will grow at a CAGR of 7% from FY 2017-2021
- ★ For calculation purposes 75 % of workforce is added to manufacturing at 25 % to service sector.
- ★ It is found from the study that the retirement rate is low in private sector. While calculating growth iteration rate of 3 % and retirement rate of 0.5 % was taken into consideration.

PRODUCT TABLE – IT Hardware

Products	Industry Structure	Industry overview	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created
Personal computers & peripherals	There are around 34-35 players in India in the Personal computer & peripheral industry in India. 4 Large firms in India and includes players such as HP, Dell, Lenovo and Acer and they are having their own manufacturing unit. Around 9 Medium Firm with players like I-Life, Iball, Fujitsu, AGB etc. having sourcing, procurement, processing, and manufacturing, to distribution, warehousing, customer service, and sales. The Industry also has 21 Small Firms .	The Indian computer hardware market had total revenues of \$4.8bn in 2014, representing a compound annual growth rate (CAGR) of 16.3% between 2010 and 2014. The performance of the market is forecast to decelerate, with an anticipated CAGR of 3.1% for the five-year period 2014 - 2019, which is expected to drive the market to a value of \$5.6bn by the end of 2019.	Total no. of Permanent and Contractual employees in 2017 was about 142,100 nos. The Overall Permanent employees estimation in 2017 was about 56,600 nos. Organised Sector employees was about 36,600 nos only and the Unorganised Sector Employees were about 20,000 nos. The last 2 year trends for Overall Permanent employees were 52,000 in 2015 and 54,000 in 2016. There were about 85,500 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Storage Devices is likely to be: * 2018E: 39,110 nos * 2019E: 41,930 nos * 2020E: 60,000 nos * 2021E: 75,000 nos
Storage devices	The stakeholders in Storage devices industry in India are Divided into 3 categories * Large Firms: 7 Large firms like Seagate, Sony, Sandisk, WD, Toshiba, Transcend, HP etc. * Medium Firms: 10 Mid sized firms like Kingston, Adata, iosafe, istorage, Lacie, Lenovo,etc. * Small Firms: 10 nos of Small sized firms .	The data storage market in India is projected to register a CAGR of more than 7% during 2016-2021, on account of continuing volumes surge of structured and unstructured data, increasing demand for high performance external drives and declining cost of data storage devices in the country. In addition, government initiatives towards technological innovations such as introduction of 'Digital India' initiative are creating new opportunities for data storage companies across the country.	Total no. of Permanent and Contractual employees in 2017 was about 90,400 nos. The Overall Permanent employees estimation in 2017 was about 36.400 nos. Organised Sector employees was about 26,400 nos only and the Unorganised Sector Employees were about 10,000 nos. The last 2 year trends for Overall Permanent employees were 33,000 in 2015 and 35,000 in 2016. There were about 54,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Storage Devices is likely to be: * 2018E: 28,633 nos * 2019E: 31,195 nos * 2020E: 34,168 nos * 2021E: 37,500 nos
Servers	The stakeholders in Servers industry in India are divided into 2 categories: Large Firms: Around 6 companies like HP, IBM, Dell, ODM, Direct & Cisco. Around 10 Medium Firms like Fujitsu, acer, Supermicro ,Lenovo ,Lenovo,sagers etc.	The Indian server market revenues are projected to grow at a CAGR of around 7.4% during 2014-19.	Total no. of Permanent and Contractual employees in 2017 was about 69,500 nos. The Overall Permanent employees estimation in 2017 was about 27,500 nos. Organised Sector employees were about 12,500 nos only and the Unorganised Sector Employees were about 15,000 nos. The last 2 year trends for Overall Permanent employees was 25,500 in 2015 and 26,500 in 2016. There were about 42,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Servers is likely to be: * 2018E: 15,000 nos * 2019E: 18,000 nos * 2020E: 25,000 nos * 2021E: 30,000 nos
Projectors	Around 30+ players in India. 4 large players and rest are small and medium players. Key players are Sony, LG, Dell and Epson.	India's projector market will be grow with a CAGR of 14% by volume for the next four years. Various emerging segments such as Education and Audio Video are booming with demand for projectors. The metro markets dominate the consumption but new demand is expected from tier II and tier III cities with rapid urbanization of these towns. The DLP projector category in India occupied around 60% of the overall market. DLP has clear edge over LCD by having sealed optics and no requirement to change the filter of projector. Market is shifting its focus from interactive boards to Ultra Short throw and Short throw interactive projectors for its convince of bigger screen	Total no. of Permanent and Contractual employees in 2017 was about 82,500 nos. The Overall Permanent employees estimation in 2017 was about 33,350 nos. Organised Sector employees were about 18,350 nos only and the Unorganised Sector Employees were about 15,000 nos. The last 2 year trends for Overall Permanent employees were 30,000 in 2015 and 32,000 in 2016. There were about 49,500 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Projectors business is likely to be: * 2018E: 20,920 nos * 2019E: 23,850 nos * 2020E: 27,190 nos * 2021E: 31,000 nos

Products	Industry Structure	Industry overview	Recent past and Current Jobs in the Product market	Likely future Jobs that are likely to be created
Printers & copiers	4 key players such as HP, Epson, Samsung and Canon dominate the business. There are about 30+ other players in the Printer + Copier segment in India.	Printer segment is one of the fastest growing segment, contributing to 74% of the printer and copier market in India. Over the last few years, India has been a target market for OEMs to expand their product portfolio In FY 2015 -2017 market is increased from 3.4 to 4.2 Mn Units. The Estimated Market size for the FY2018- FY2020 is 4.7 to 6.3 Mn Units.	Total no. of Permanent and Contractual employees in 2017 was about 99,800 nos. The Overall Permanent employees estimation in 2017 was about 39,800 nos. Organised Sector employees were about 19,800 nos only and the Unorganised Sector Employees were about 20,000 nos. The last 2 year trends for Overall Permanent employees were 37,000 in 2015 and 38,000 in 2016. There were about 60,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in Printer & Copier is likely to be: * 2018E: 21,800 nos * 2019E: 25,300 nos * 2020E: 29,300 nos * 2021E: 34,000 nos
POS	There are 14-15 players present in the POS supply market in India. Key players are: First data, Ingenico, SZZT, Verifone, M Swipe etc. Other players include EZETAP, Paynear, Ftcash, ePaisa, MRL Posnet, MOSAMBEE, PAYMATE INDIA, IKAAS MOBI SWIPE, SQUARE etc	The POS terminal market in India was 0.77 million in 2014 and is expected to reach 2.21 million by 2019, growing at a CAGR of 23.3% during the forecast period. According to RBI Number of point of sale (POS) machines increased to 3.03 million in December 2017, up 71% from 1.77 million in December 2016.	Total no. of Permanent and Contractual employees in 2017 was about 20,210 nos. The Overall Permanent employees estimation in 2017 was about 8,210 nos. Organised Sector employees were about 6,210 nos only and the Unorganised Sector Employees were about 2,000 nos. The last 2 year trends for Overall Permanent employees were 6,000 in 2015 and 7,000 in 2016. There were about 12,000 Contractual Employees	The future jobs estimation in the Organised Sector Permanent employees in POS is likely to be: * 2018E: 7,015 nos * 2019E: 8,068 nos * 2020E: 9,279 nos * 2021E: 10,500 nos

LIKELY FUTURE JOBS AND SKILLS REQUIREMENT

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Services:

Most CE Products are now coming out with new features and more advances features. So essentially, the entire Service networks which has been addressing these products need learning and skill development in new technologies used in the CE products. Also the New Environmental challenges and regulations in the AC sector needs the AC Service men to be skilled with these new techniques and knowledge levels. With LCD Panels now being manufactured in India, the need for Mobile and TV LCD panels service technicians is rising."

SECTOR OVERVIEW



Communication Broadcasting

The products covered under this sector were



Network products (routers, modems and switches)



Set Top Boxes (includes cable technicians as service support)



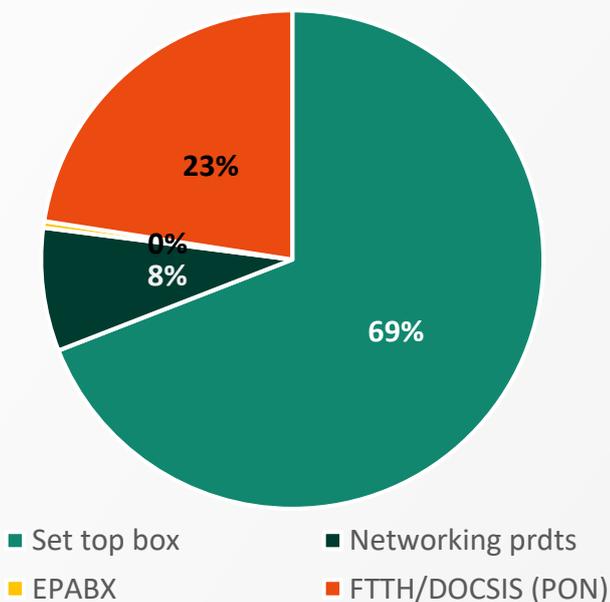
PBX, FTTH/DOCSIS (PON Passive optical network, GPON, EPON)



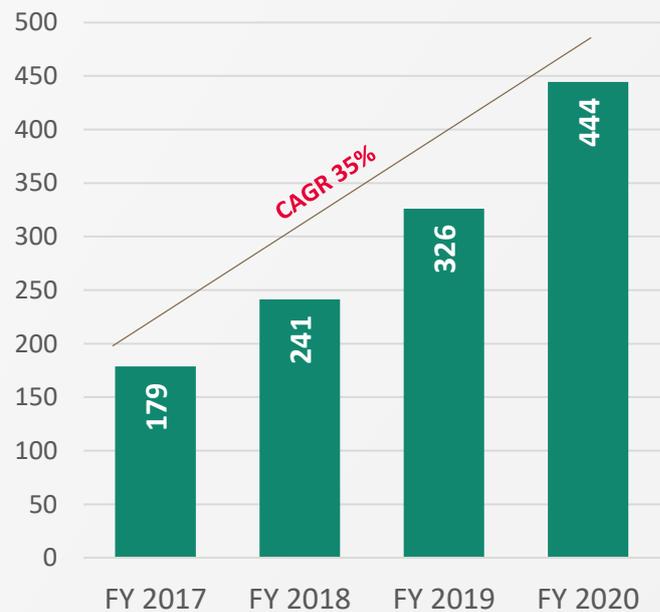
Splitter and Connectors

Communication Electronics - market segmentation by Products & Players – 2017

Communication Electronics Market INR
178.85 INR Bn



Select Communication Electronics - estimated growth in the next 3 years INR Bn



The Communication & Broadcasting industry has witnessed robust growth in the last 4 years, primarily due to increase in per capita expenditure, improving life styles, penchant for greater connectivity and information among the populace and a consequent acceptance of gadgets and appliances in their daily lives.

With the Government of India mandating Set Top Boxes, the CB industry overall reported a staggering growth of 42% Year-on-Year in 2015 and 2016. In the FY 2016-17, it grew further recording 46% growth. All manufacturing and services sectors associated with Set Top Boxes have been responsible for driving this growth.

Jobs estimates in the Communication & Broadcasting industry

The Approach

Primary data was collated from across all the sub-segments in the C&B sector to arrive at the estimates.

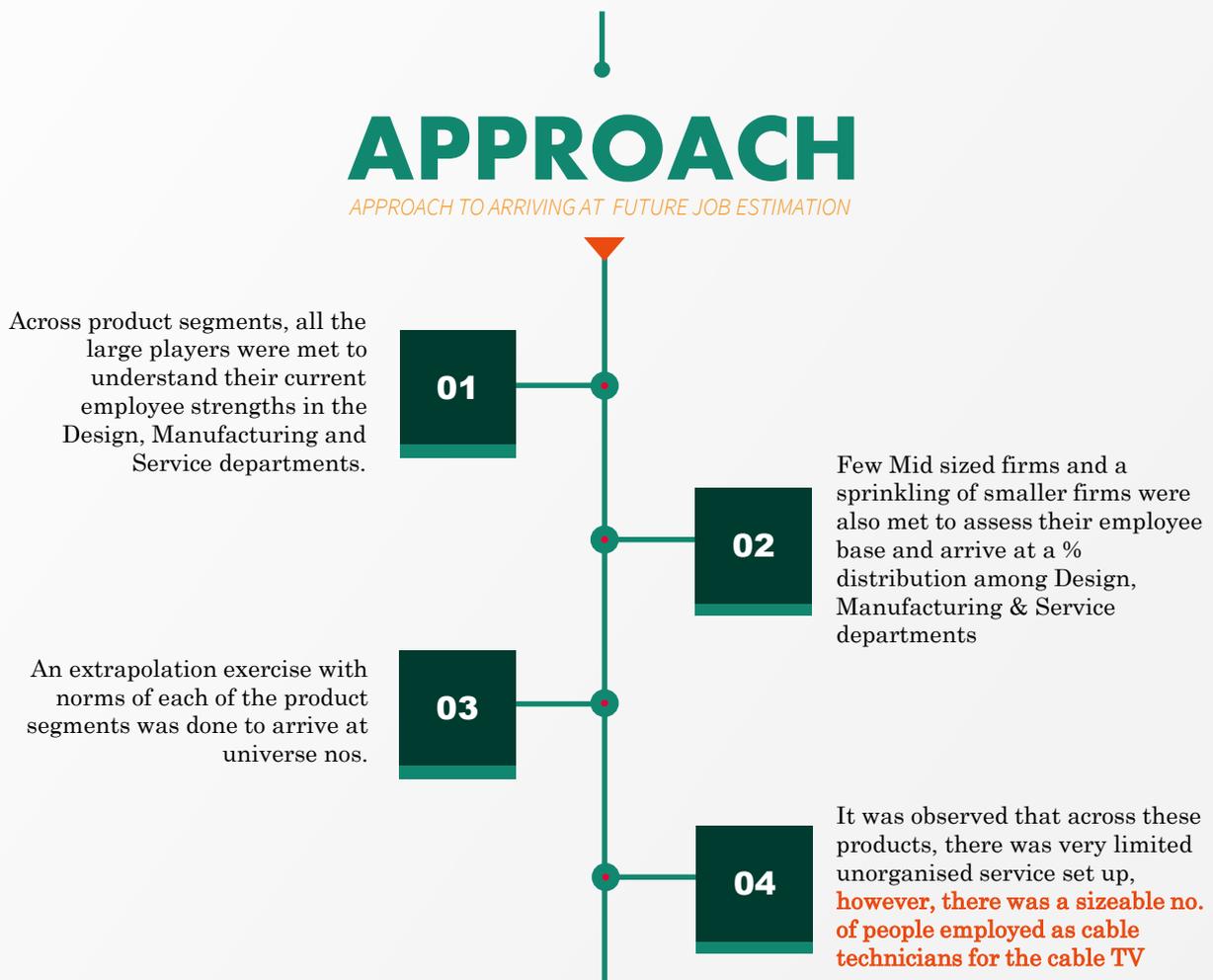
All the large players in this sector were targeted and in-depth interviews were conducted with identified personnel. Data points collated included current employee strength in the different departments, hiring strategies and expansion plans. Data was collected from design manufacturing and service providers as well, in this segment.

Several mid-sized players and a sprinkling of smaller players too were contacted to understand the

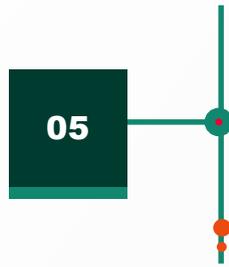
employee-base, structure and future plans of these firms. This was followed by an extrapolation exercise with Norms, for each of the product segments to arrive at Universe Numbers.

Though the unorganised sector in this segment is relatively small, a large number of people are employed as technicians in the Cable TV industry.

Thus, to arrive at the final figures, select data was collated from identified few in the unorganized sector, with the exception of the Cable TV segment, wherein more comprehensive data was included in the study.



Hence, while calculating the current no. of people employed in the servicing of the Communication electronics, only a handful of these independent unorganised service nos. were added for all products **except cable – here a substantial nos. were considered**

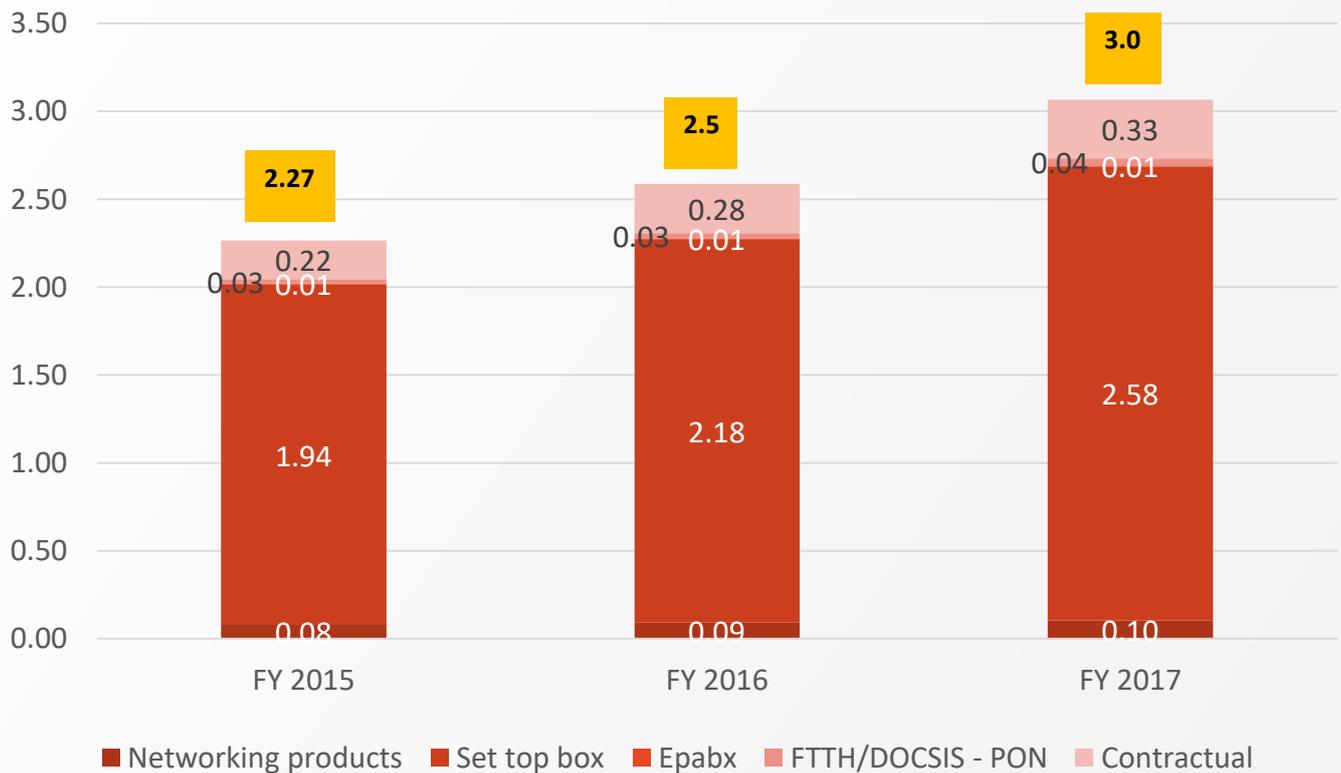


Current Jobs scenario in the Communication and Broadcasting segment

The C&B industry has witnessed robust growth in the last 3-4 years, primarily due to increase in per capita expenditure, improving life styles and greater acceptance of gadgets or appliances in daily lives.

Tremendous development has been recorded in the Manufacturing and Services sub-sectors in the Set Top Box segment due to Government intervention to mandate it.

Growth in employees in the last 3 years in Lakhs



Jobs estimated in the C&B, in FY 2017 was around 3 lakhs.

Of these, local cable technicians comprise 72% of the total work force, predominantly focussed on cable TV products.

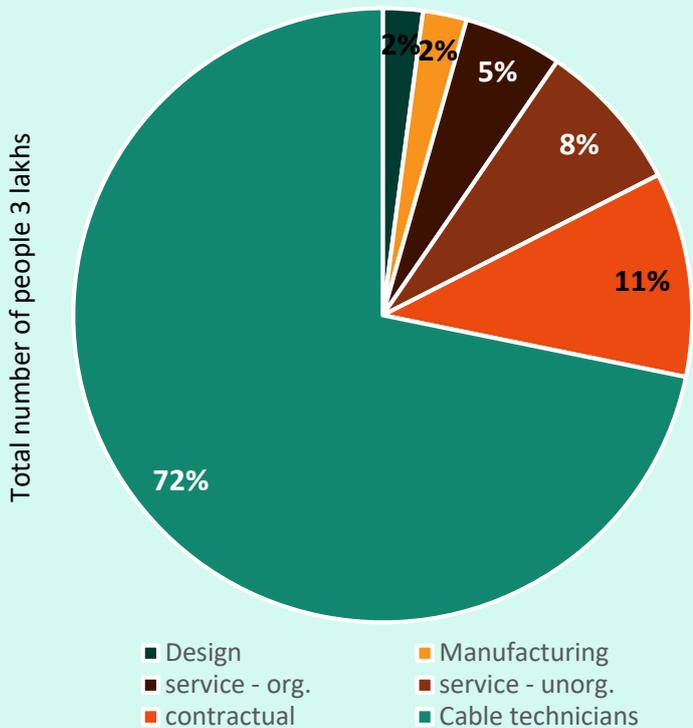
In the Manufacturing segment 70% of the hires are on a Contractual basis, while in the Services sector, Contractual recruitment accounts for 30% of the total

hires.

The Unorganized Sector, which comprises of 45% of the entire C&B industry, is focussed primarily on Network Products and the Set Top Boxes sectors.

With the exception of the Cable Technician, all other C&B electronic industry recruitments are higher on the skill-ladder requiring knowledge of high-end technology products and sophisticated equipment.

Type of jobs	Products				
	PBX	PON	Set Top Box	Network products	Total
Design	33	104	6200	55	6,392
Manufacturing	83	724	6000	202	7,009
Service (org.)	604	3212	5790	6188	15,794
Service (unorg.)			20000	4297	24,297
Additional cable technicians					2,20,000
Contractual	500	3000	22000	7800	33,300
Total	1220	7040	59990	18542	3,06,792



- The local cable technicians comprises of ~70% of the total work force, primarily for the cable TV Products
- The contractual labour is 70% for manufacturing and 30% towards servicing across products
- The unorganised sector, comprising of 45% is primarily from Networking and Set top Box sectors where there are few no. of people employed
- Except cable technicians, the Communication electronic industry being sophisticated, high technology products and hence does not have too many untrained, unskilled unorganised service personnel



Future Job Estimates

Approach to arriving at the Future Job Estimations

Primary data was collated from interviews conducted with HR and Department heads, across all segments.

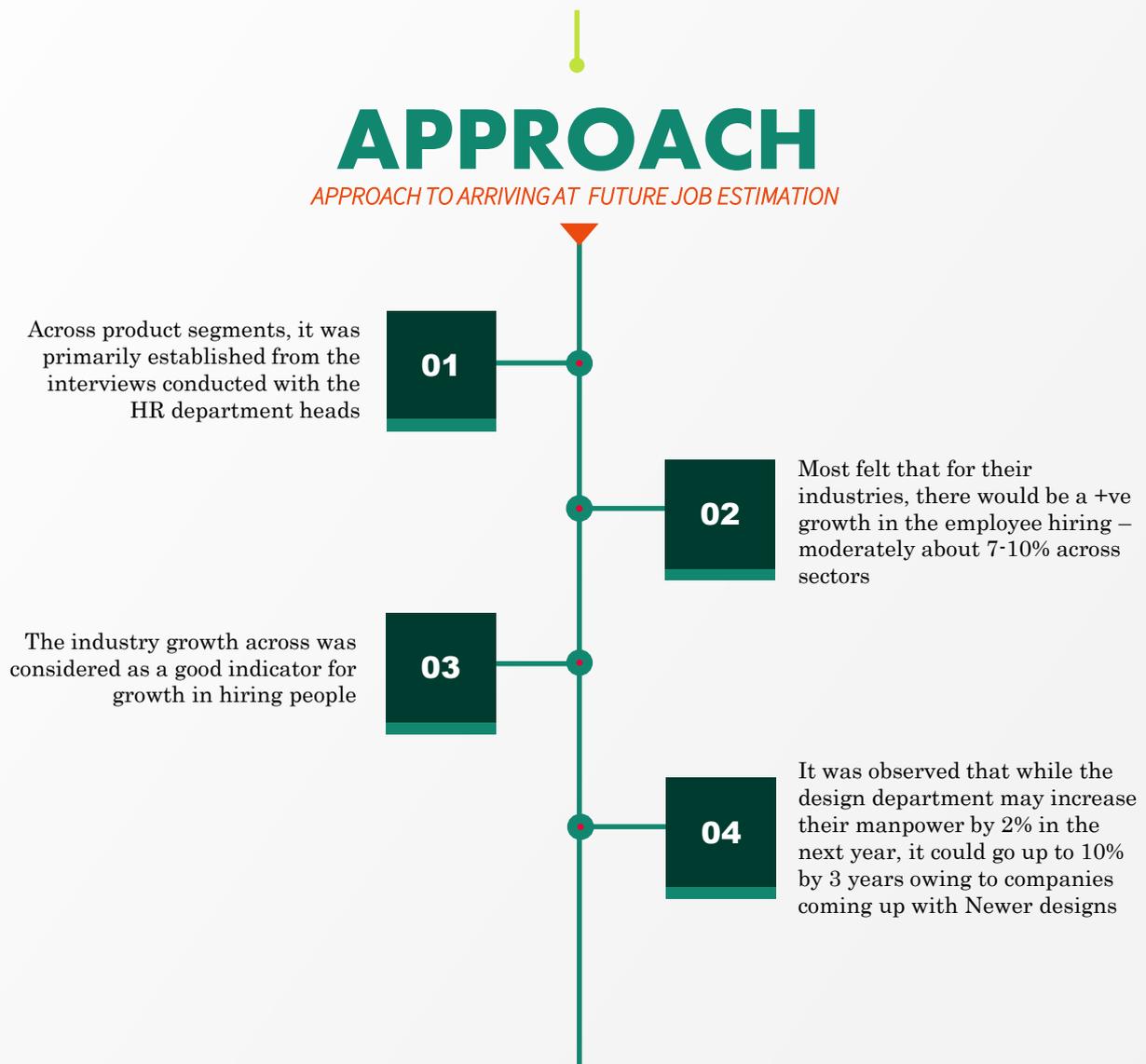
Almost all players projected positive growth resulting in healthy hiring, in the next 3 years. A moderate 7-10% increase in recruitment was the expected number quoted across sectors. This however does not include the Manufacturing and Services segments, which are projected to witness much higher recruitments.

The Services and Manufacturing industry are expected to report phenomenal growth in the next 3-4 years, given the hitherto untapped market.

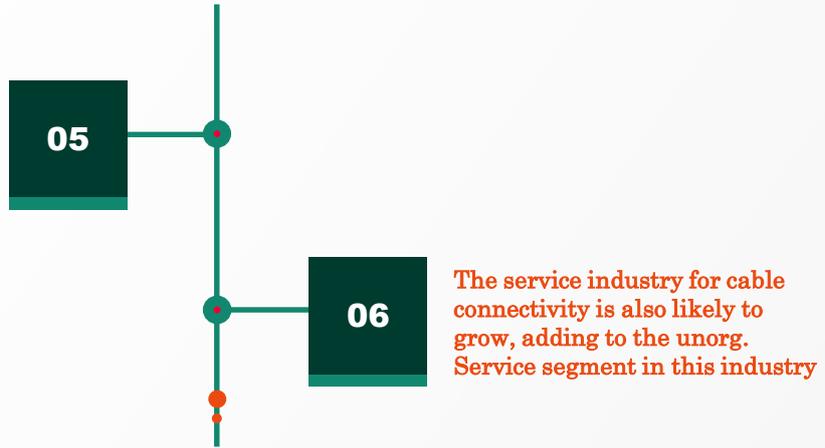
Thus, while hiring in the Manufacturing segment is expected to grow at a rate of about 15-18%, the Service segment is predicted to report an increase in recruitment of 18-25% in the future.

The fast expansion in the Service sector is also expected to increase the presence of the Unorganized segment in the market, going forward.

The design departments are expected to increase their manpower by 2% in the next year, this may go up to 10% in the following 3 years owing to several companies setting up R&D facilities and investing in newer designs.



The manufacturing and service segments were expected to grow at a rate of 15-18% & 18-25% respectively – Service segment more robustly owing to companies relying on servicing to gain more customer base



Future job estimates for Communication and Broadcasting Segment

In the PoI, only Set Top Boxes and Networking products sectors have been identified as fast growing markets.

The Set Top Box segment is currently dependent completely on imports, with very little assembling happening locally, in India. Thus, the Manufacturing sector is not expected to grow as rapidly as the Services sector in this vertical, in next 3 years.

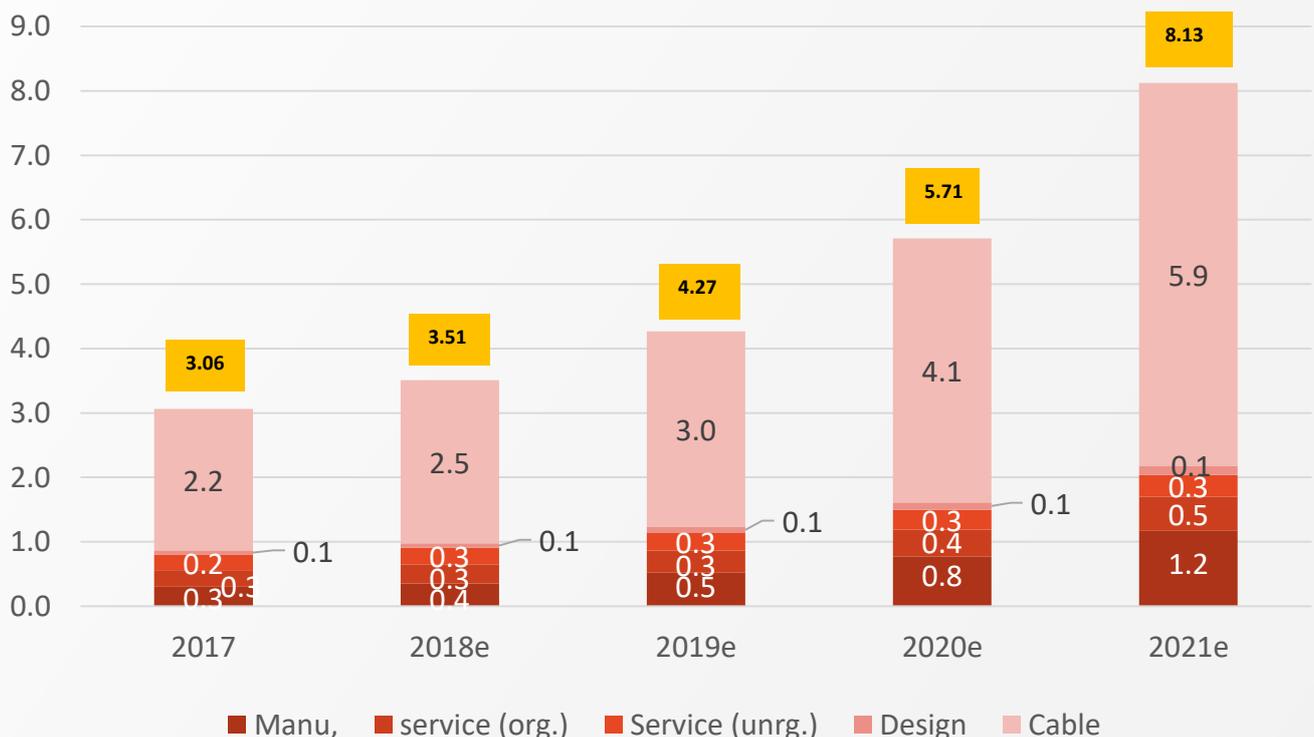
With the advent of Internet-on-TV, however, the demand for Cable Technicians is expected to grow

exponentially in the next few years. However, there has been no validation of the same from any of the primary sources.

For the purpose of calculations, the number of contractual employees have been split with 70% added in the Manufacturing sector and 30% in the Organized Service segments.

Iteration rate of 3% and retirement rate of 0.5% was factored in while calculating the overall growth. Hence at an overall level, the employee growth is expected at a CAGR of 13%.

Growth in no. of people to be employed (in Lakh) in the next 4 years



Expected growth rate	Design	Manufacturing	Services	Unorganised services	Cable technicians	Contractual
FY 2018	15%	25%	10%	7%	15%	20%
FY 2019	20%	45%	10%	7%	20%	30%
FY 2020	30%	55%	15%	10%	35%	35%
FY 2021e	25%	60%	15%	10%	45%	45%

- In the products of interest, only Set Top Box and Networking products are the growing markets. Set Top Box as a segment currently is relying on imports and some level of assembly in India and hence the manufacturing growth is not likely to happen as against service that may go up. The growth however, is expected in the numbers of cable technicians with the advent of TV through the internet this is likely to grow around 10%. However, there is no validation of the same from any of the primary sources.
- For the purpose of calculations, the number of contractual employees has been split and added as 70% towards manufacturing and 30% towards organised service segments.
- Iteration rate of 3% and retirement rate of 0.5% was factored in while calculating the overall growth. Hence at an overall level, the employee growth is expected at 13% CAGR.

PRODUCT TABLE – Communication and Broadcasting

Products	Industry Structure	Industry overview	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created
Networking products	The market has almost 60+ players across India catering to both commercial offices and Households. Some key players are CISCO, D Link, Juniper etc. Other players include Netgear, Nokia, Huawei, HPE	The market is growing due to number of connected devices which form the Internet of Things (IoT). The estimated market growth for the FY 2020 is INR.3000 crores. Rise in the adoption of cloud services and the explosive growth of Software as a Service (SaaS) and Infrastructure as a Service (IaaS). Smart city movements and Wi-Fi hotspots in central universities are big anticipated investments seen in the market.	Total No. of Permanent and Contractual Employees employed in the year 2017: 10,750 nos	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Networking Products) * 2018E: 12,050 nos * 2019E: 13,850 nos * 2020E: 15,925 nos * 2021E: 18,000 nos
Set top box	There are around 40 manufacturers of STB in India and around 30-35 Importers in India. The key players are Videocon, D2H and My Box Technologies. Others include CISCO, Broadcom, Echo Star and Skyworth etc.	The Setup box market in FY'17 is valued at INR 1235 Crs. The DTH subscribers by the FY2017 were 145mn units . The Estimated subscribers by the FY2020 will be 400mn units. Direct-To-Home (DTH) market in India is forecast to reach \$ 4 billion by 2023.	Current year and the trend over last 3 years for Products (Setup Box)– (2015-2017) * No. of people employed in the year 2015: 0.1 Lakhs * No. of people employed in the year 2016: 0.2 Lakhs * No. of people employed in the year 2017: 0.4 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Setup Box) * 2018E: 0.4 Lakhs * 2019E: 0.5 Lakhs * 2020E: 0.6 Lakhs * 2021E : 0.6 Lakhs

Products	Industry Structure	Industry overview	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created
Cable technicians	<p>The cable TV services value chain comprises four main supply side entities i.e. Broadcaster, Multi System Operator (MSO), Local Mile Operator (LMO) and the end consumer. Role of the LMO in the supply chain is to receive a feed (bundled signals) from the MSO and retransmit this to subscribers in his area through cables. MSOs can also distribute signals directly to the consumers. The Industry is Split by MSO & LCO models, where all Large and medium firm work on MSO ,Small firm work on LCO. Key players like Hathway, Den, Digi Cable, Siti Cable, In Cable are doing MSO in India. There are 6000 MSOs present in the Indian market today of which 1471 are registered with Ministry of Broadcasting. There are more than 60,000 LCOs in India currently. This figure had touched 1,00,000 in past.</p>	<p>Currently, Cable TV connection is little ahead than DTH in terms of number of subscribers in India. Market Share of TV services in India as of 2018 is Cable TV: 47%, DTH: 42%, others: 11%. Number of cable TV subscribers in India dipped in the period of FY 2015-2017 from 102 to 78 million. Estimated subscribers for next 3years is 77-83million.</p>	<p>Current year and the trend over last 3 years for Products (Cable Technicians)– (2015-2017) * No. of people employed in the year 2015: 1.8 Lakhs * No. of people employed in the year 2016: 2 Lakhs * No. of people employed in the year 2017: 2.2 Lakhs</p>	<p>No. of people estimated to be employed in the next 4 years(2018-2021) in product market (Cable Technicians) * 2018E: 2.5 Lakhs * 2019E: 3.1 Lakhs * 2020E: 4.5 Lakhs * 2021E: 5.2 Lakhs</p>
EPABX	<p>There are around 25 players in India. 4 key large players are Cisco, Alcatel, Avaya Global Connect, Mitel.</p>	<p>The market is split by Traditional Vs. IP based PBX. In the FY 2017 Traditional PBX:35%, while IP based PBX:65%. In the FY2017 market split by Organized Vs. Unorganized was of a ratio of 79:21. Industry is moving from Traditional PBX to IP Based PBX – the EPABX market is showing sluggish growth at CAGR 7%</p>	<p>No. of people employed in the year 2017: 720 nos</p>	<p>No. of people estimated to be employed in the next 4 years(2018-2021) in product market (EPABX) * 2018E: 807 nos * 2019E: 811 nos * 2020E: 816 nos * 2021E: 825 nos</p>
FTTH / DOCSIS - PON	<p>Passive optical network (PON) is a telecommunication network that enables connection from one point to multiple points. Passive optical network is divided into two types: Gigabit Passive Optical Network (GPON) and Ethernet Passive Optical Network (EPON). There are around 30 players in India. Key players include Alphon, TDOT, Tejas Network, United Telecom Limited, Sterlite Technologies, ITI Limited.</p>	<p>The GPON segment accounted for 48.7% and 36.4% of the overall market in 2017, respectively. The market by value in FY2016-2018 was about US \$ 505 mn to US \$ 770. The Estimated market by value in FY2019-2021 period is likely to be US \$ 951 to 1450 million .</p>	<p>No. of people employed in the year 2017: 4040 nos</p>	<p>No. of people estimated to be employed in the next 4 years(2018-2021) in product market (FTTH/DOCSIS) * 2018E: 4040 nos * 2019E: 4250 nos * 2020E: 4500 nos * 2021E: 4750 nos</p>

LIKELY FUTURE JOBS AND SKILLS REQUIREMENT

"In Communication & Broadcasting, the changing market landscape is impacting the skills requirement in all dimensions of the business - Design, Manufacturing & Services.

Design:

New Technologies such as IOT, 'Smart' Products & AI are becoming a new norm. **Software integration is coming in a big way in most C&B products.** **New Jobs that are being created are, Systems Managers** (*Experience in performing integration and test on complex real time embedded system, Apart from software programming languages, Real Time Operating Systems (RTOS) knowledge, GreenHills, and/ or VxWorks/Wind River+ Experience with communications protocol or with JTRS waveforms (Link-16, TTNT, WNW, SRW, SINAGARS, EPLRS, etc.) + Familiarity with IP/Networking/VLANs.*), **Computer Vision Engineers** (*Build and improve computer vision and machine learning algorithms and analytics to detect, classify, and track objects*) and **Machine Learning Engineers** (*Advanced programmers who develop AI machines and systems that can learn and apply knowledge*)

Manufacturing:

Since the new age IIOT is coming in most manufacturing lines, CE lines are also thinking of adapting new techniques and they need their Staff and Managers to have new skill sets in *Handling Robotics, Data analytics ability, VR, AR, AI and Familiarity with Nanotechnology and robotics.* **New Jobs such as Cyber security Engineer/ Security Analyst** (*Threat-hunting, artificial intelligence-enhanced model building*) are emerging

Services:

New Jobs which are emerging are Electronics Communication Technician (**Repair and servicing of complicated high end communication devices - knowledge of OFC, IT and Networking. Technicians are responsible for laying new OFC lines for changing to IP based TV network.**)

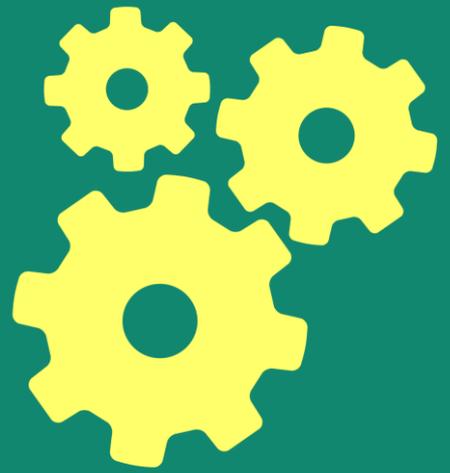
Sales:

New Jobs emerging in sales function are Technical Sales Manager (*Understanding of AI, Robotics and Nanotechnology + Digital embedded systems*)"

CHAPTER 5

SECTOR OVERVIEW

EMS (Electronics Manufacturing Service)



The size of the global EMS Market as of FY 2017 stands at US \$ 450 Bn; of which India accounts for US \$ 21.2 Bn (INR 1379 Bn). A minuscule, 4% of the global market share.

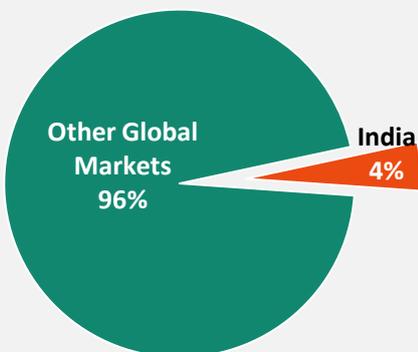
This is scenario expected to change dramatically in the next few years.

Market overview – Domestic EMS Industry in India

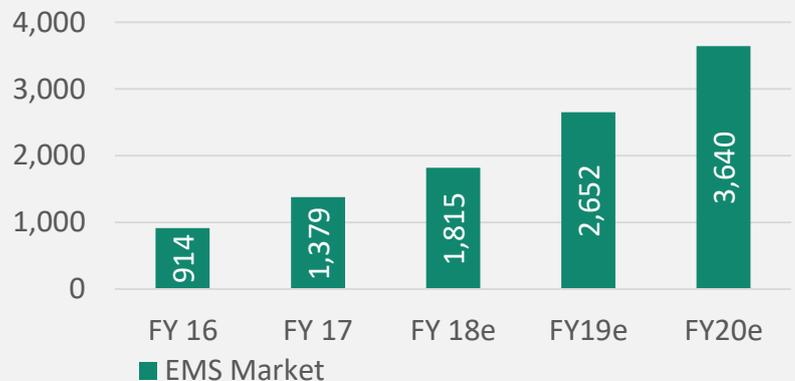
The EMS segment is one of the fastest growing industry in the domestic market, driven primarily by mobile industry.

India is projected to emerge as one of the hotspots for

electronics manufacturing among the South-Asian nations owing to benefits such as low operating costs and low competitive scenario. This provides ample potential for penetration by OEMs and EMS across different sets of verticals.

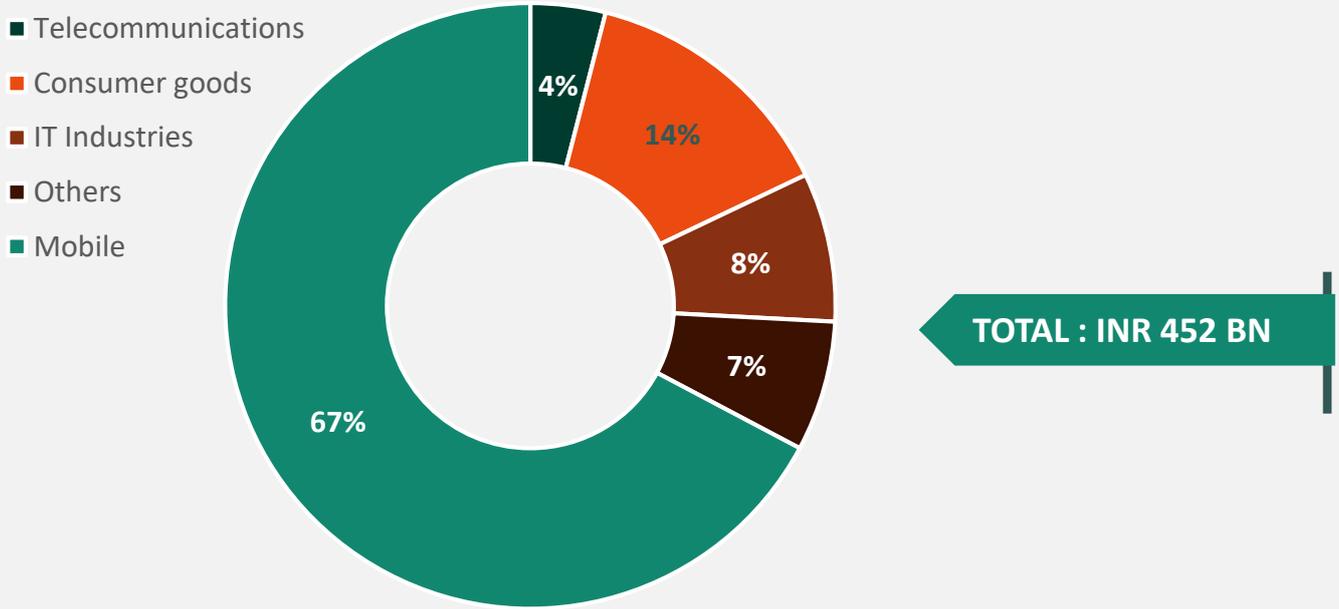


The size of Global EMS Market is \$ 450 billion and contribution from Indian EMS market is around \$21.2 Billion (INR 1379 Bn).



The EMS market for FY 2017 is clocking at INR 1379 Bn

Market share by product segment – FY 17



Others – LED lighting, Medical electronics, strategic electronics etc.

INTRODUCTION TO THE MOBILE INDUSTRY



Improved access to internet and Mobile Services has contributed immensely towards fuelling the Indian GDP.

Increase in Tele-Density in the last few years, clearly indicates the penetration rate of mobiles in an economy that is fast catching the attraction of the manufacturers and component suppliers across the Nation.

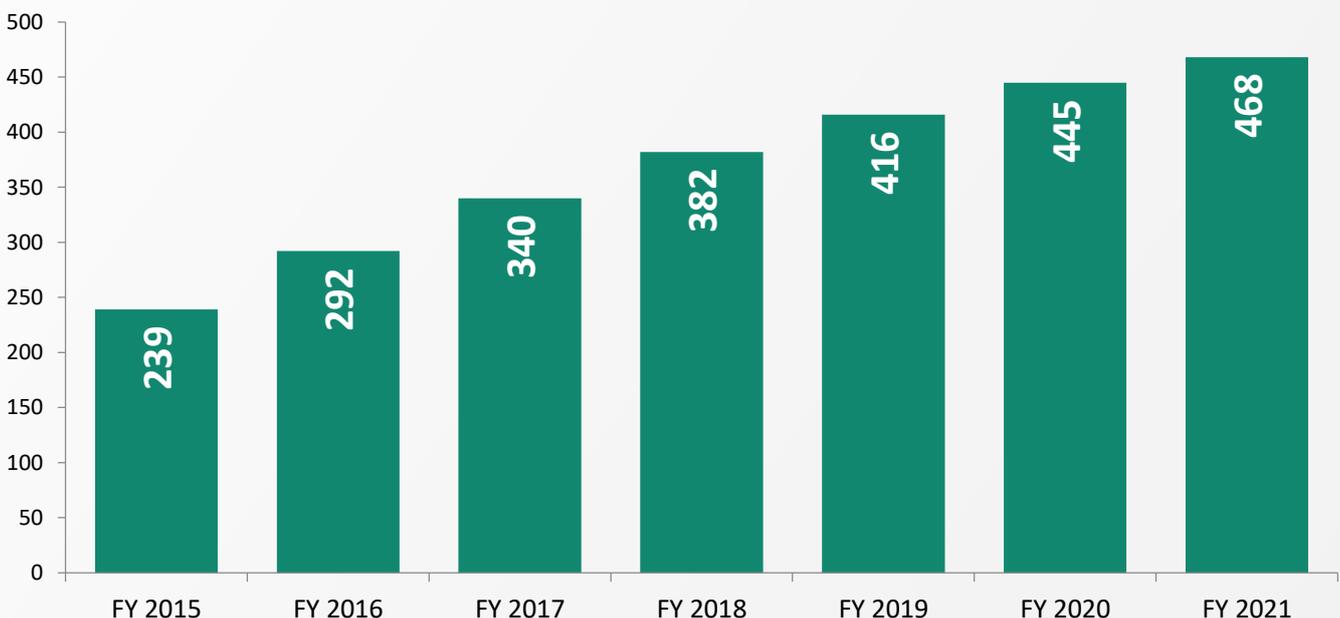
Triggered by suitable measures taken by each subsequent Governments over the last decade, in promoting telecommunications, India today is one of the fastest growing countries in the mobile sector.

This in turn has spurred setting up of manufacturing hubs across the country. Today Indian manufacturing in this sector is one of the largest and fastest growing segments, next only to China, US and Western Europe. With the advent of next generation technologies, and operators rolling out 4G services, the demand for telecom equipment has increased rapidly, and with it the demand for smart phones has also witnessed significant rise.

In an attempt to capitalize on this opportunity, the government and policy makers today are focusing on developing domestic manufacturing ecosystems based on the PPP model.

Item		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Number of telephones (million units)	Overall	898.02	933.02	954.865	1100	1186
	Wireline	30.2	28.49	26.24	25.12	23.41
	Wireless*	867.81	904.52	928.62	1075	1162.81
	Rural	349.21	377.78	407.24	500	500.94
	Urban	548.8	555.23	547.62	600	685.29
Tele-density (telephones per 100 persons)	Overall	73.32	75.23	76.45	85.2	91.64
	Rural	41.05	44.01	47.62	52.1	56.58
	Urban	146.64	145.46	144.32	155	167.50
% Share	Wireless*	96.64	96.95	97.32	98.2	98.03
	Public	14.49	12.87	12.67	12.1	10.74
	Private	85.51	87.13	87.33	88.11	89.26

smartphone subscribers in India - 2015-21 (in million)



PMP

Phased Manufacturing Programme



Phased Manufacturing Programme (PMP) for Mobiles has been a key driver for Mobile Manufacturing in India

Mobile Phones have reported one of the largest spurts in imports, amongst all Electronic gadgets, since 2012.

To address this issue that was having a negative impact on the country's exchequer, Government of India, in FY 2014-15 launched several programs promoting the manufacture of mobile-sets indigenously.

One such program called the "Phased Manufacturing Program" or PMP, was set up primarily for the promotion of mobile and its component manufacturing

ecosystem.

The primary objective of the PMP is to make India one of the best Mobile Manufacturing hubs in the world, in the coming years.

The scheme promotes domestic production of mobile phones by providing tax relief and other incentives on components and accessories used for the devices.

Phased manufacturing programme for localization of smartphones in India

Step 1

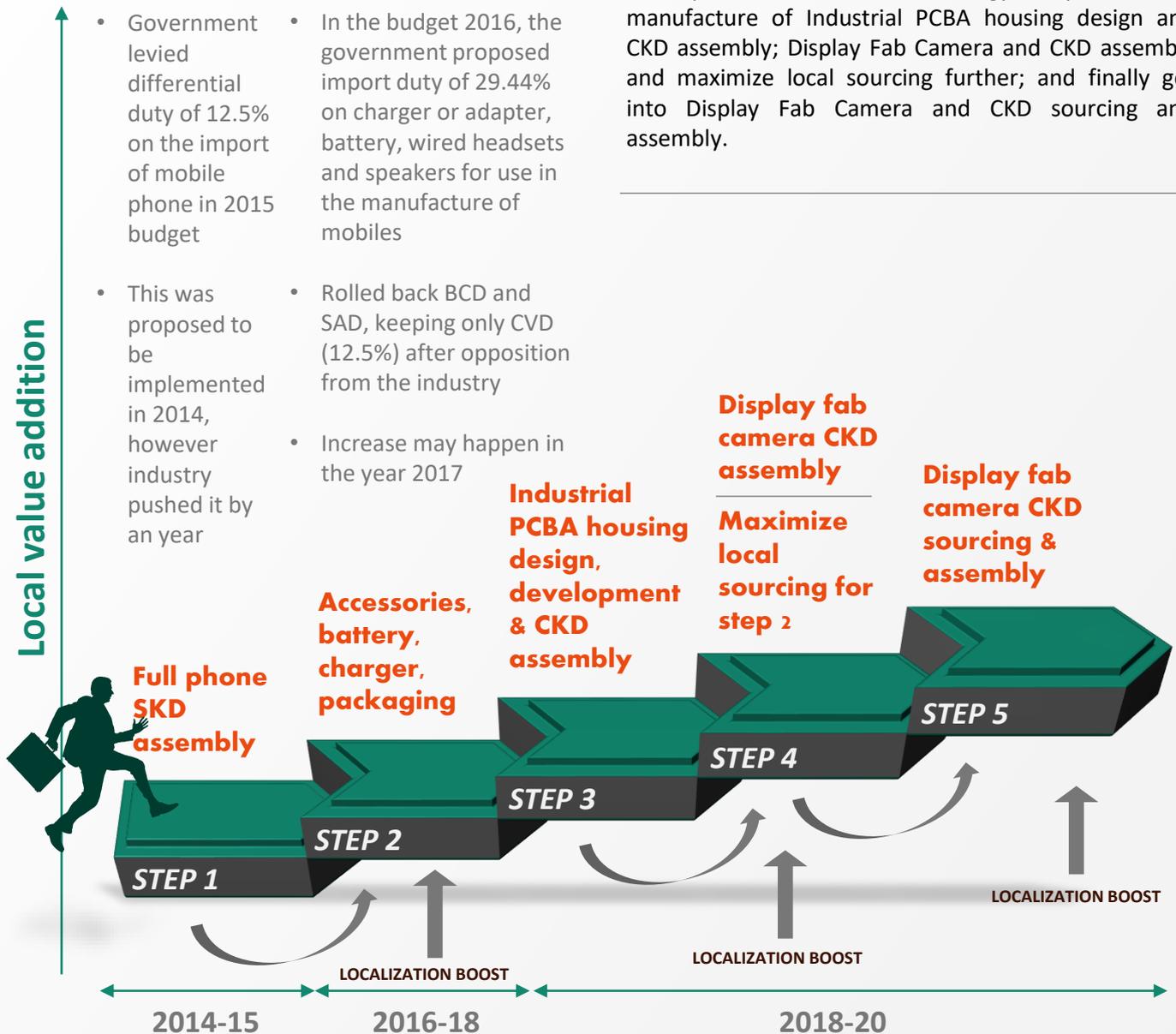
In FY 2014-15, Government of India levied differential duty of 12.5% on the import of mobile phone in the 2015 budget. This was proposed to be implemented in 2014, however several industry players pushed it by a year, to begin in 2016. This promoted full phone SKD assembly in the domestic market.

Step 2

In the 2016 budget, the government proposed import duty of 29.44% on charger or adapter, battery, wired headsets and speakers for use in the manufacture of mobiles. This was Rolled back (BCD and SAD), keeping only the CVD (of 12.5%) after opposition from the industry. It was proposed the increase may happen in the subsequent years. This move resulted in batteries, accessories, chargers and packaging getting manufactured in India.

Steps 3, 4 & 5

In the period 2018-2020, the strategy is to promote the manufacture of Industrial PCBA housing design and CKD assembly; Display Fab Camera and CKD assembly and maximize local sourcing further; and finally get into Display Fab Camera and CKD sourcing and assembly.



Source:

Task Force on Mobile Manufacturing in India heads of all the major mobile brands along with MeitY are the members of the task force which was set up in 2012; Interviews with key brands



Current and Future Job Estimates

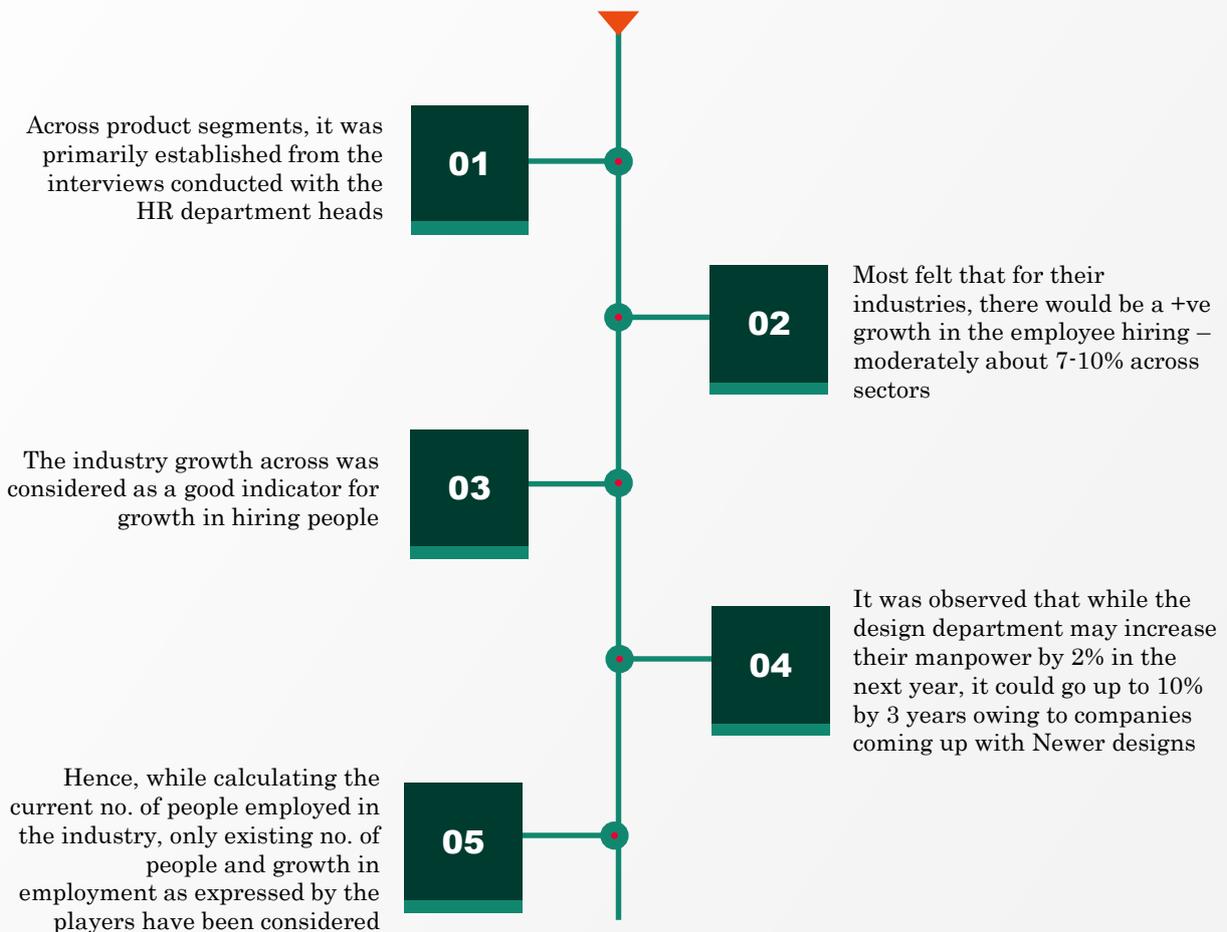
Approach to arriving at the Current and Future Job Estimations

In-depth interviews were conducted with all major players in the industry to understand their current employee strength in manufacturing & design. A few Mid-sized firms were also included in the list to better get a better understanding of the current scenario. An extrapolation exercise with norms of each of the product segments was undertaken to arrive at universe numbers.

The industry is primarily a contract manufacturing sector, with no in-house services department within each company. Hence, while calculating the employee strength in the industry, only the existing number of personnel and increase in hiring was given by each player.

APPROACH

APPROACH TO ARRIVING AT FUTURE JOB ESTIMATION



EMS – Fast growing sector, had miniscule activity prior to FY 2017 – very limited and sketchy data was available with industry players to show historical growth. The future growth in job is expected to grow at ~39% CAGR.

The sector operates on a low-value high-volume model, hence the business focus (as in the product mix) could change rapidly.

Thus, the business is mostly contractual, with minimum overheads, and focussed on maximum output.

Almost 90% of the manpower in Manufacturing are hired on a contractual basis, while the remaining are diverted to design services by large players.

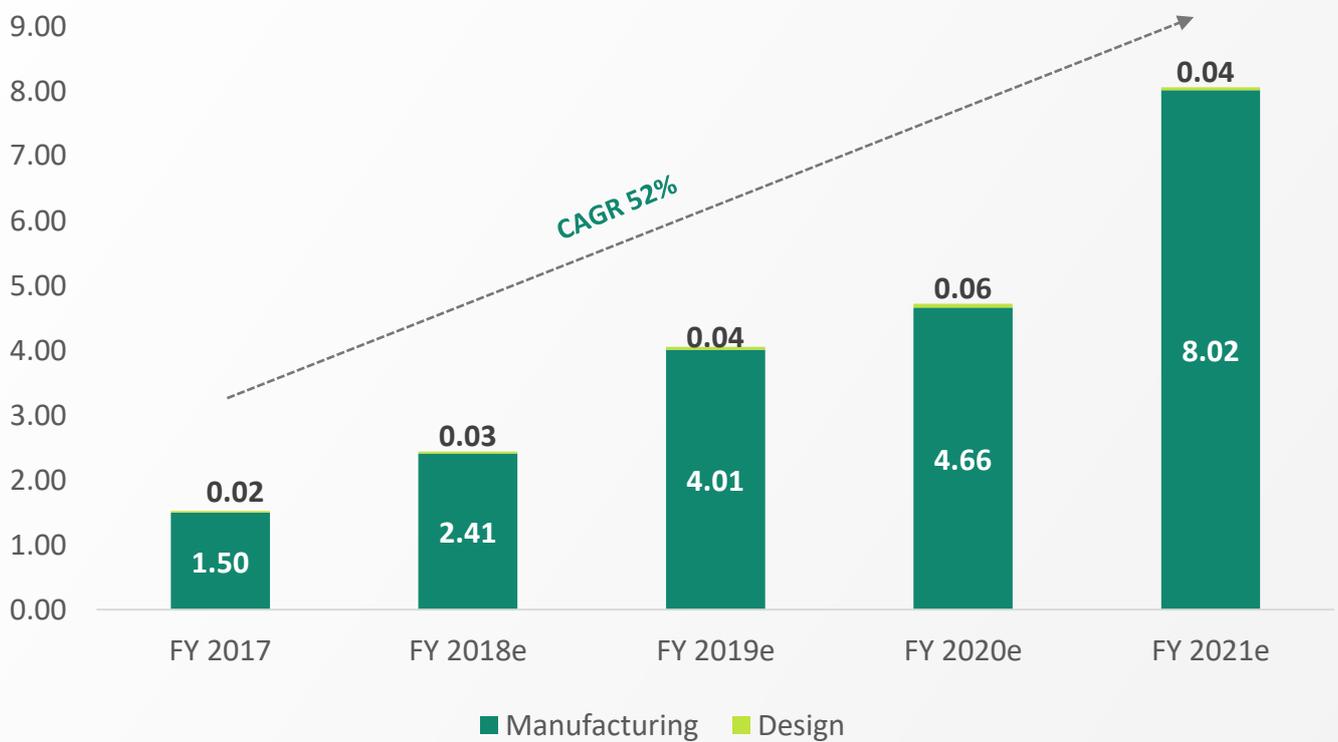
With Mobile manufacturing witnessing rapid growth,

increase in manpower recruitment is expected to be in the region of 55-75% in the future.

As many players plan to expand their product offerings and get into providing turnkey solutions, job opportunities in the design departments are set to increase by 25-45% going forward.

Iteration rate of 5% and retirement rate of 0.5% was factored in while calculating the overall growth. Being an emerging sector, the rate of retirement is low.

Expected no. of employee growth in the 4 next years ~ in Lakhs



SKILL ENHANCEMENT NEED



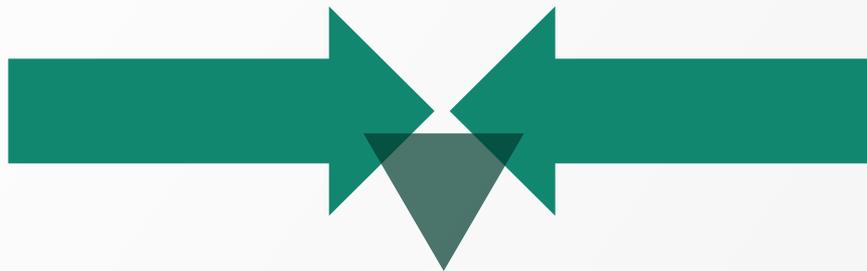
Industry dynamics and its impact on employment opportunities

India is a huge market for smartphones. Players believe they have scratched merely the tip of the iceberg. Given the various choices available in the market, manufacturers are aware that the Indian customer is king and his/her choices will have a significant impact on sales.

Smart phones are essentially volume-based industries. This is the reasons why leading smartphone makers like Apple and Samsung take inputs from the Eastern market when incorporating changes or adding new

features to their devices.

The more diverse the range of mobile devices in the market, the more difficult it is for App and Game developers to produce a product that works on every gadget. This is small MVA by Indian manufacturers due to high dependence on imported components. Given the scenario the mobile sector is expected to create a huge platform for job opportunities for a variety of skilled personnel going forward.



IN THIS SCENARIO MOBILE PHONE INDUSTRY IS GOING TO OFFER A HUGE PLATFORM FOR CREATING MANY JOB OPPORTUNITIES TO THE YOUTH

TECHNICAL SKILLS NEEDED



Expertise in Wide-Area Network (WAN) protocol skills, including MPLS, SIP



The ability to code in Perl or Python is also commonly required Opportunity for upskilling of employees



Knowledge of Border Gateway Protocol (BGP) and Open Shortest Path First (OSPF)

Immediate need to up the skills in order to compete with global competition

With an increasing number of foreign manufacturers, setting up shop in India, domestic players should be willing to invest in innovation and R&D to remain competitive.

Infrastructure to support manufacturing needs to be geared up to enable companies to function smoothly. This includes ancillary and associated industries from chip developers to accessory designers.

Thus, a wide-range of skill requirements will be in

demand going forward viz., from PhDs, to designers, to developers to varied service providers.

India has one of the largest third-party service providers in the world, offering their repair services in urban semi urban and rural areas.

The need to adopt a standardized skill program to train this segment of people is of key importance, at a PAN India level.



SKILL GAP IN THE EMS SECTOR

The Skillsets required for EMS companies are at the higher-end of the spectrum, primarily due to the highly technical nature of the work it involves. This is not to say that hires in the lower-rungs will not happen.

Batch productions are very big, requiring technology and automation support. Thus, personnel with these specialized skills are expected to be in demand in the future.

At the lower end of the spectrum, improving pre-service vocational trainings starting with product

or process knowledge (like soldering, chip handling, VLSI, IT hardware, emended systems etc.) to hands on experience and work hygiene related training will be still in demand as these skills are key to the performance of the company.

The key challenge going forward will also be upskilling existing manpower to different skillsets. In addition to having the necessary technical training, the industry is also spending considerable thought and resources to further train their employees – this needs to be tackled soon so that core competencies can be met.

The required skillsets that mid-level employees need to have include minimum IT knowledge, along with technical skills like designing VLSI, IOT, testing and software related tools like ERP and SAP in production unit. However, in reality employees seldom have the actual working knowledge.

GOVERNMENT INITIATIVES to Address Skill Gap

To meet the skill deficiencies Government initiatives and Public-Private Partnership have been found to be the most effective method. To achieve this there needs to be



Design focus

Strong need felt to set up an Institutes for skilling Design and Innovation in Electronics – since ODM is going to be a key Value addition by the sector.



Joint efforts

Private Sector to be incentivised, motivated to impart more skill training and set up training centres Universities and other Institutions of learning to work along with private sector and to design programmes to ensure availability of adequate skilled manpower to the industry.



Focus areas

Provide support for skill development for emerging areas such as 5G, IoT/ Sensors, Drones, Artificial Intelligence (AI), Machine Learning, Augmented Reality (AR) and Virtual Reality (VR), Gaming and Entertainment, at the faculty and Student levels.

**Public private partnership
is the most effective way
to improve the skill sets.**

SKILL ENHANCEMENT INITIATIVES GOING FORWARD



REVISION OF MSIPS

Under the revised plan, the subsidy timeframe will be reduced to 5 years from the current 10 years, and no incentives will be provided for relocation of manufacturing companies under the scheme. The objective of this revision is to accelerate investments in the sector and simplify the subsidy disbursement process. It is hoped with increased investment, more employment opportunities will be created.



ESTABLISHMENT OF COMMON FACILITY CENTRES

The focus of these centres is to cater primarily to the requirement of Electronics Hardware Manufacturing skill development; R&D to promote Electronic Hardware Manufacturing and development of Innovation Centres for engineering and design. Government of India plans to provide 75% grant for the projects of minimum 7 companies, going forward. In this context, the Southern India Electronic Industries Chamber (SIEIC), together with 15 ESDM companies, is set to establish an Electronic CFC at Vellore.



FOREIGN PRESENCE

The EMS industry is expected to flex its manufacturing muscle giving impetus to more job creations, in the near future. An FDI of about US \$30 billion is expected to flow-in in the next 2-3 years. The growing presence of global players like Huawei, Tristone Flowtech, LeEco, Zopo Mobile, Panasonic, Havells, Dyson, Akai etc. in India, is also expected to create more jobs with their expansion plans.

PRODUCT TABLE – EMS

Products	Industry Structure	Industry overview	Recent past and Current Jobs in the Product market	Future Jobs that are likely to be created
EMS	There are around 80-85 EMS firms in India who dedicatedly do EElectronics Manufcaturing for other Brands. Some large players are Flextronics, Elin Electronics Ltd., Avalon Technologies, JABIL, Dixon, Amar Raja etc.	The EMS industry expected growth for the period 2017-2020 is projected to be ~27-29 % . The sector works on a model of low value, but high volume business – and hence the business focus (product mix) could change rapidly. Higher growth is expected in the design departments as many firms will be offering ODM services too..	Total nos of Permanent and Contrcatual employees in 2017 was 1.5 Lakhs	No. of people estimated to be employed in the next 4 years(2018-2021) in product market (EMS) * 2018E: 2.4 Lakhs * 2019E: 4.0 Lakhs * 2020E: 4.7 Lakhs * 2021E: 8.6 Lakhs

LIKELY FUTURE JOBS AND SKILLS REQUIREMENT

"In EMS segment, the changing market landscape is impacting the skills requirement in all dimensions of the business - Design, Manufacturing & Services.

Design:

New Technologies such as IOT, 'Smart' Products & AI are becoming a new norm. Software integration is coming in a big way in most EMS processes. Most firms are looking for Designers who can understand the changing market dynamics and Customer needs and help them meet these requirements. Design Engineers with a flair for New Product Introduction mindset is the need. New Jobs that are being created are, **Systems Managers** (Experience in performing integration and test on complex real time embedded system, Apart from software programming languages, Real Time Operating Systems (RTOS) knowledge, GreenHills, and/ or VxWorks/Wind River+ Experience with communications protocol or with JTRS waveforms (Link-16, TTNT, WNW, SRW, SINAGARS, EPLRS, etc.) + Familiarity with IP/Networking/VLANs.), **Computer Vision Engineers** (Build and improve computer vision and machine learning algorithms and analytics to detect, classify, and track objects) and **Machine Learning Engineers** (Advanced programmers who develop AI machines and systems that can learn and apply knowledge). The additional Skill includes related certification/courses for e.g. : VLSI for designing, IT hardware networkers, chip design and testing, emended systems, IOT matlab etc. for the mid level jobs.

Manufacturing:

Since the new age IIOT is coming in most manufacturing lines, New EMS lines are also adapting new techniques and they need their Staff and Managers to have new skill sets in Handling Robotics, Data analytics ability, VR, AR, AI and Familiarity with Nanotechnology and robotics.

Testing:

New Jobs which are emerging are **Systems Engineer** (Developing, integrating and testing complex communication systems.)"

IN SUMMARY

ELECTRONIC MANUFACTURING IN INDIA AND CURRENT EMPLOYMENT SCENARIO

INDIA THE NEW MANUFACTURING HUB FOR THE WORLD



India is fast emerging as the manufacturing hub for electronics goods in the last 5 years. Presence of skilled and unskilled manpower at cost-effective salaries (as compared to global standards), greater emphasis on quality (as compared to China), presence of training institutes and colleges and the burgeoning middle-class which forms the bulk of the consumers, have all driven this trend.

The demand for electronic products in India is poised for significant growth in the next couple of years, driven by strong economic outlook. India's GDP is expected to grow at 7.5% in FY 2018, as it is likely to benefit from reduced commodity prices.

India's economy is powered by sustained growth in consumer spending, fostered by moderate inflation, favourable demographics, and strengthening FDI. India

has emerged as the most favoured destination for FDI surpassing China and the US in FY 2015.

Investor confidence in the Indian economy is expected to increase further, going forward. Per capita income is expected to expand at a CAGR of 6.6 during FY 2013–2019 to ~US\$2,200 in FY 2019, thereby driving local electronics demand.

The new wave of manufacturing hubs in countries like India, Vietnam and Indonesia is largely due to one key factor viz., fast paced rising demand for Electronics in the domestic market.

Rise of manufacturing cost and wages in China has also proved to be a contributing factor. However, since most global firms are also looking to de-risk their investments from China, countries like India have gained as the emerging markets.

INDIAN ELECTRONIC INDUSTRY PRODUCTS CLASSIFICATION

Highlighted products / services are the focus for this report

ELECTRONICS

E-Mobility & Batteries

- EV 2W / 3W
- EV - 4W (Cars)
- E Buses
- EV Components - Motors
- EV Components - Electroincs (Power Converters / Energy Management Systems etc)
- EV Chargers
- EV Services Centers - OEM Driven / Independent
- Battery Manufacturing Business - Lithium Ion Batteries
- EV Charging Infrastructure Services / Battery Swapping Services
- Telematics
- Drones
- EV O&M
- After Sales Support - ALL

Industrial Automation

- Solution Providers
- Product Automation Suppliers
- Machine OEM's : CNC / NC / Machine Manufactures
- System Integrators
- HVAC OEM & Service Provider
- IIOT / Industry 4.0 / M2M / SCADA / Super SCADA
- MECHATRONICS / PLC / HMI / ATM / KIOSK / AFD
- ROBOTICS / 3-D Printing / Electric peumatic
- Energy Service Companies - Energy Meter / UPS & Inverter

Solar & LED

- Solar Module + Solar Cell + Solar Wafer - Mfg and Supply(Imports)
- Solar Inverters - Mfg and Supply(Imports): PWM +MPPT+Central / Inverter + On grid + Off Grid
- Solar BOM Systems - Wires & Cables and Mountinh Structures, Array Junction, SPD, LPD, Batteries (VRLA) : Tubler / SMF Gel + NiCd + Li Ion + Li Ph
- Solar EPC firms : Installation & Commitioning , Turn Key Solatuion Provider
- Solar System Integrators (rooftop Solution providers) : On and Off Grid / Earthing
- Solar Operations & Maintenance Services, Monitoring Services
- LED Light source firms (Bulbs and Tubes)- Mfg & Supply (Imports)
- LED Luminaires (Streetlights and other Professional Luminaires - Mfg & Supply (imports)
- LED Services firms + Lighting Servicing firm
- SMART Lighting
- LED System Integrators - Streetlight solutions providers, O&M

PCB Design and Manufacturing

- PCB raw materials suppliers (Mfg and importers) : Glass / Fiber , Cu Supplier
- PCB Design firms
- PCB Design & Manufacturing & testing

Semi-Conductor & Components

- Up-stream Companies : Material Supplier , Fab Equipment Manufacturer , Semi-conductor design , Semi-conductor fab , Assembly , Testing , Packaging, Sub-system manufacturing
- Downstream companies : System Manufacturers , OEM , ODM (Embedded , Defence , Automotive , Consumer Electronics , IT , Banking)
- Electronics Gadgets (like : Fit Bit , smart watches , bluetooth devices)
- Component Manufacturing (Res / capacitor / ferrite)

Security and Surveillance

- Home + Office Access automation products
- Access Control System Integrators (H/w + S/w)
- Fire Alarms
- Video & Surveillance (Open & Close)
- Perimeter / Intrusion Alarm & Burglar Alarm
- Surveillance services firms (e.g. Securens)
- Building Automation / Management Systems (BMS)

Consumer & IT Hardware

Consumer Electronics:

- Television Sets and Remote Controls
- Air-conditioners
- Refrigerators
- Mixer/ Grinders/ Juicers
- Other Small Home Appliances (Cooking + Motorized + Referegation) + Mobile + Car stereo system + Smart Energy Meter
- Washing Machines
- Water Purifiers + Personal Medical Devices

IT Hardware:

- Personal Computers (Desktop)
- Laptops & tablets (PDA)
- Servers
- Peripherals
- Projectors
- Copiers
- Storage
- POS Machine
- Network products: Modems, Routers, Switches
- Switches

Communication Electronics

- Set top boxes + Broadcasting + Digital Radio (Tx)
- Audio + Video System + EPABX +FTTX / DOCSIS

Electronics Manufacturing Service (EMS)

- Surface Mount Technology Line .
- Box Assembly

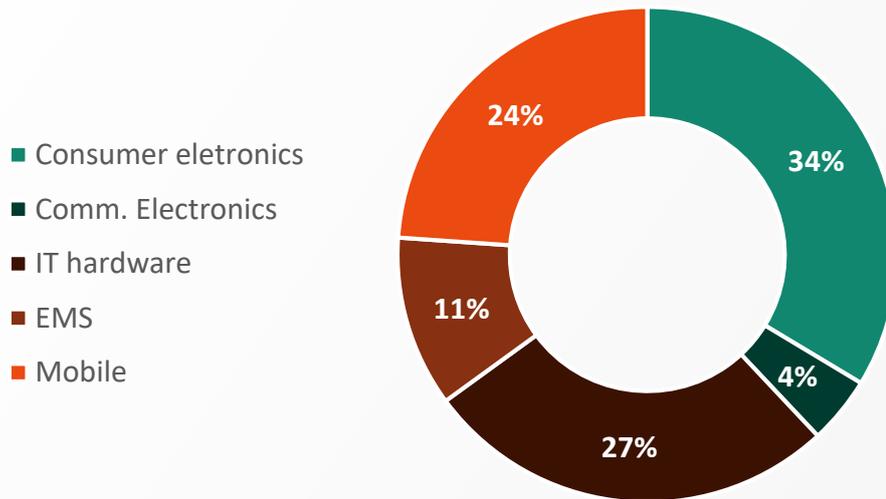
SIZE OF THE ELECTRONIC INDUSTRY BY PRODUCTS OF INTEREST

In FY 2017 the Consumer Electronics sector topped the list of fast-growing Industries, by holding the lion's share of 34% of the market share. In the last 2 years however, things have changed. In the beginning of 2019 India has witnessed tremendous growth in the Mobile sector, which is slowly gaining increased market share, driven primarily due to favourable Government initiatives.

In contrast, IT hardware has reported an organic growth, parallel to global trends. The EMS sector,

which was close to US\$ 1 Bn to begin with, has recorded remarkable development. This trend is attributed to increased local manufacturing and assembling in the Consumer Electronics and Mobile sectors in the last couple of years.

In terms of the Job market, significant increase has been reported in the hiring of contractual employees. With E-Commerce getting into the sale of electronic goods, installation and after sales services have been offered to attract consumers. This trend is expected to impact the services sector positively going forward.



Size of market with all Product of Interest - 62 Bn USD (4050 INR Bn) FY 2017

USD Bn	2015	2016	2017	2018e	2019e	2020e	CAGR
Consumer electronics	14	16	21	24	28	32	18%
Mobile	7	8	15	20	32	46	46%
Comm. broadcasting	1	3	3	4	5	7	46%
IT hardware	12	13	17	20	24	29	19%
EMS	1	6	7	8	9	10	58%
TOTAL	35	46	62	76	98	124	29%

The last 2 years have reported significant growth in Mobile sector, primarily due to favourable Government initiatives

The IT hardware sector has seen an organic growth, in keeping with global trends

The EMS sector, which was worth about US \$ 1 Bn in 2017, has seen tremendous growth due to Manufacturing picking up in the Consumer Electronics and Mobile Sectors in last 2 years.

Increase in Contractual Employee hires, has also been noted in the EMS and other sectors like E-Commerce providing installation and after sales services, going forward

Employee data thus collated includes employees from the E-Commerce segment for Consumer Electronics products, involved in installation and after sales services and Cable Technicians for the Communication Electronics segment.

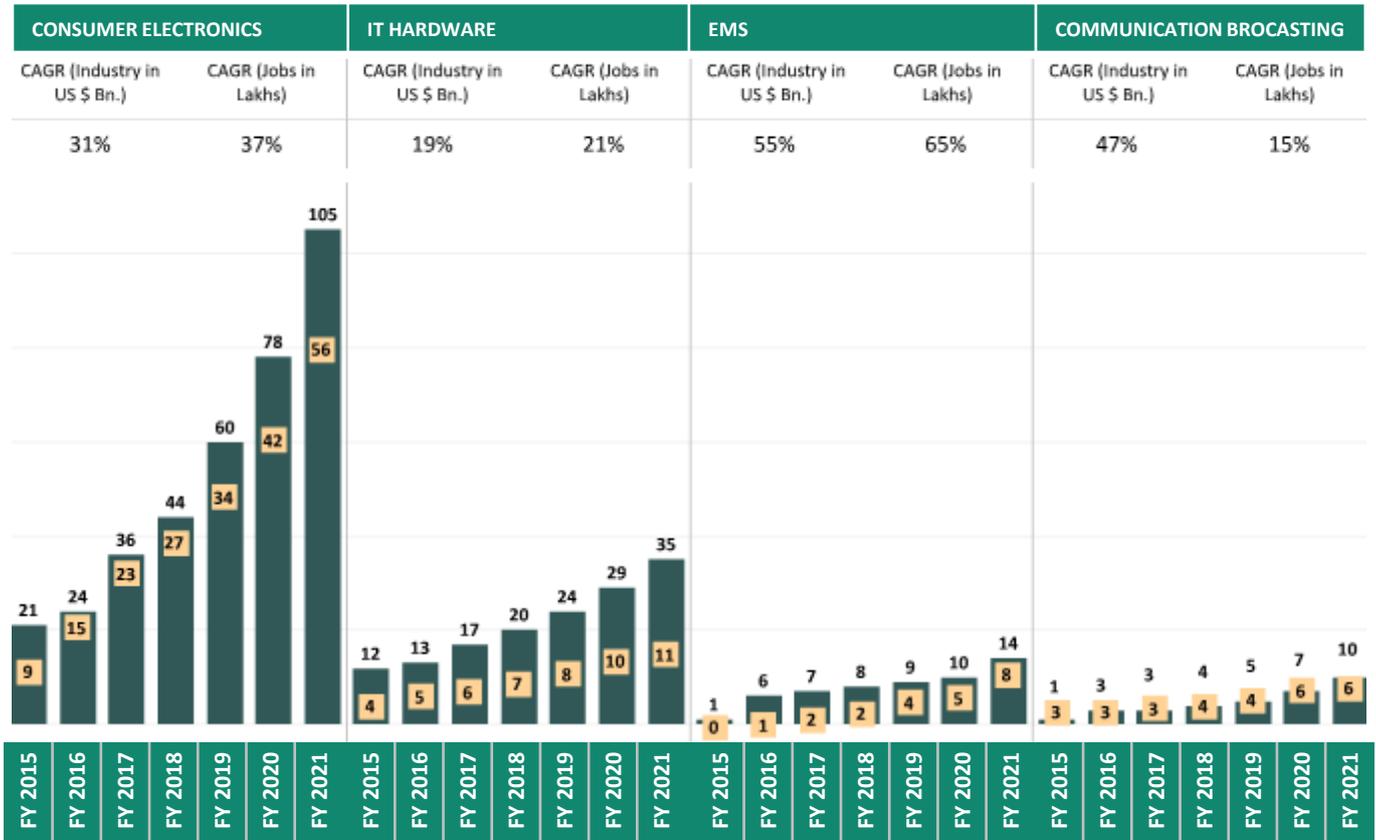
Data on contractual employees for all the sectors was added individually to each sector to arrive at the total number of people employed on a contract-basis.

The Mobile segment forms a very large part of the Electronics Industry. Hence, it was split into two Sub-verticals viz., Manufacturing and Services. While Mobile Manufacturing was classified under EMS, the Services vertical (including the Organized as well as Unorganized sector) was accounted for in Consumer Electronics section.

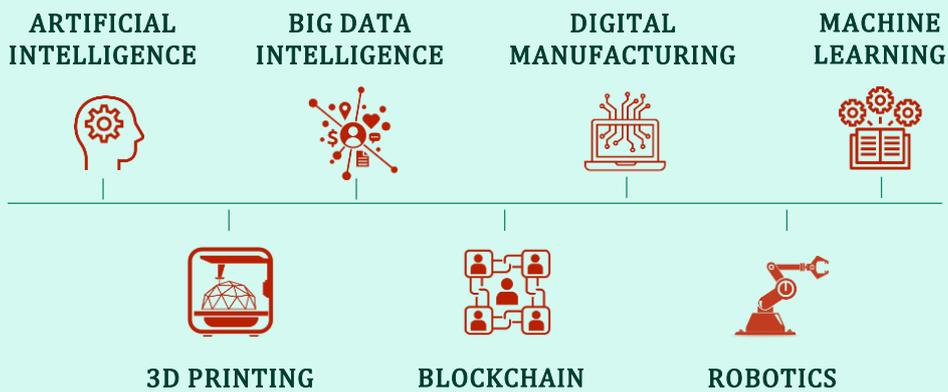
With the rise in adoption of exponential technologies and focus on rapid Skill Enhancements and new work arrangements, approximately 47 lakhs more jobs are expected to be created in the next 4 years alone.

Key growth driver is expected to be the E-commerce sector, which is predicted to significantly increase its market share in the consumer electronics segment. This predictably will increase the need for trained personnel for installations and after sales service. The other key driver is the Mobile Service segment owing to growth of internet TV. These two sectors alone are predicted to impact hiring in both the organized and unorganized sectors, pegged at a CAGR of about 23%, going forward.

■ Industry in US \$ Bn.
■ Jobs in Lakhs



Growth Drivers for Employment



As per Feedback research 55% of the companies plan to increase their headcount as of FY 2018. In addition, 22% are expected to enhance or upskill their staff strength going forward.

Over 76% of the players in this industry have earmarked a significant increase in their hiring budget in FY 2018.

Several factors have influenced players in adopting

this strategy. These include:

Increase in adoption of emerging technologies like Artificial Intelligence (AI), Quantum Communication and BigData Intelligence, Robotics, Digital Manufacturing,Blockchain,3D Printing, and machine learning and Internet of Things (IoT), as well as the ‘Digital India’ Initiative.

As per industry experts and data collated from industry players, the electronics industry is expected

to witness creation of new jobs requiring new and often a combination of skills. As per estimates 9% of India’s 600 million workforce will be deployed in these new emerging jobs.

With the revival of Start-ups and Small & Medium Sized Enterprises (SME), in this segment,

infrastructure and manufacturing industries are expected to expand their portfolio and client-base resulting in increased job creation.

Given these influencing factors the Economic growth rate of this industry is expected to increase by 7.3% in FY 2018-2019.

SKILL GAP in 4 sub sectors

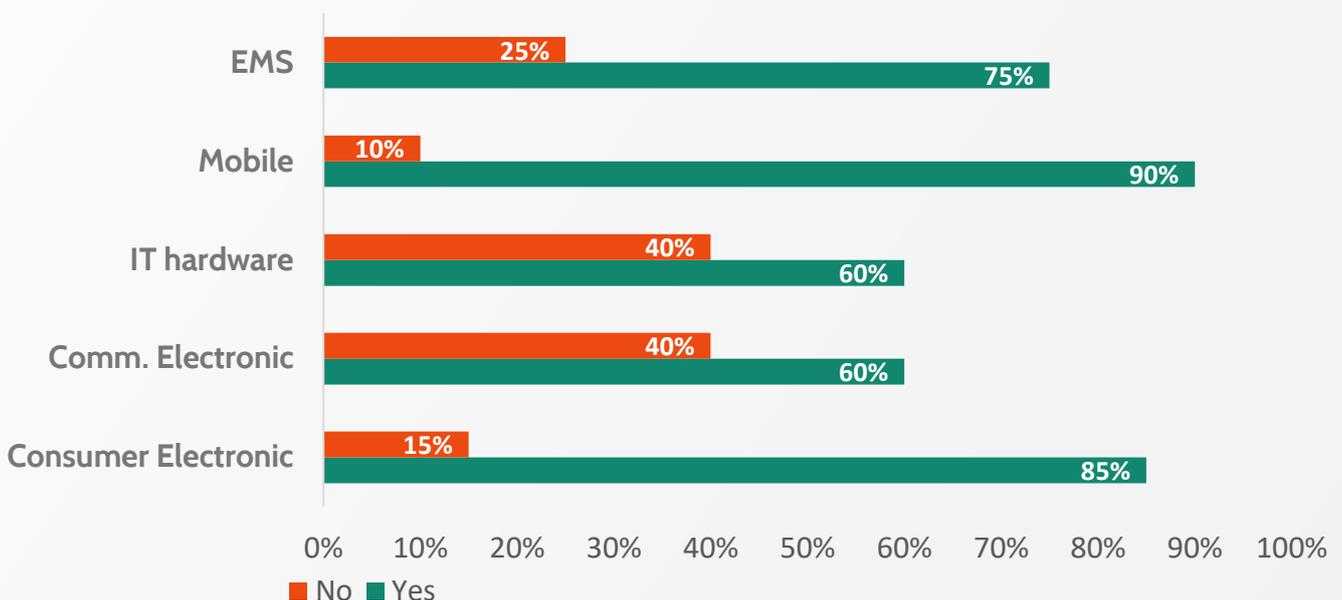
Extensive qualitative data was collated from target respondents with regards to the skill gap issues faced by them. Information on associated factors, like the need for additional training and skill-enhancement programs and the quality of existing programs was evaluated and the resulting feedback was collected and codified.

As per data analysis, nearly 90% of the respondents in the Mobile sector, 85% in Consumer Electronics and 75% in the EMS segment replied in the affirmative regarding wanting assistance in meeting their skill gap requirements.

In contrast, players in the IT hardware and Communication Electronics sectors, elicited a much lower need for such upskilling from external agencies. This was primarily due to their continued focus on in-house training, that they have adopted for over a decade now.

These two industries are also less dependent on the unorganised service sector to service their products, unlike the Mobile and Consumer Electronics industries that are highly dependent on the unorganised sector for servicing, over and above their own on-roll service personnel. Thus, lowering the dependency of the IT Hardware and Communications Electronics sectors on external training and hand holding.

1. Does your industry face skill gaps?

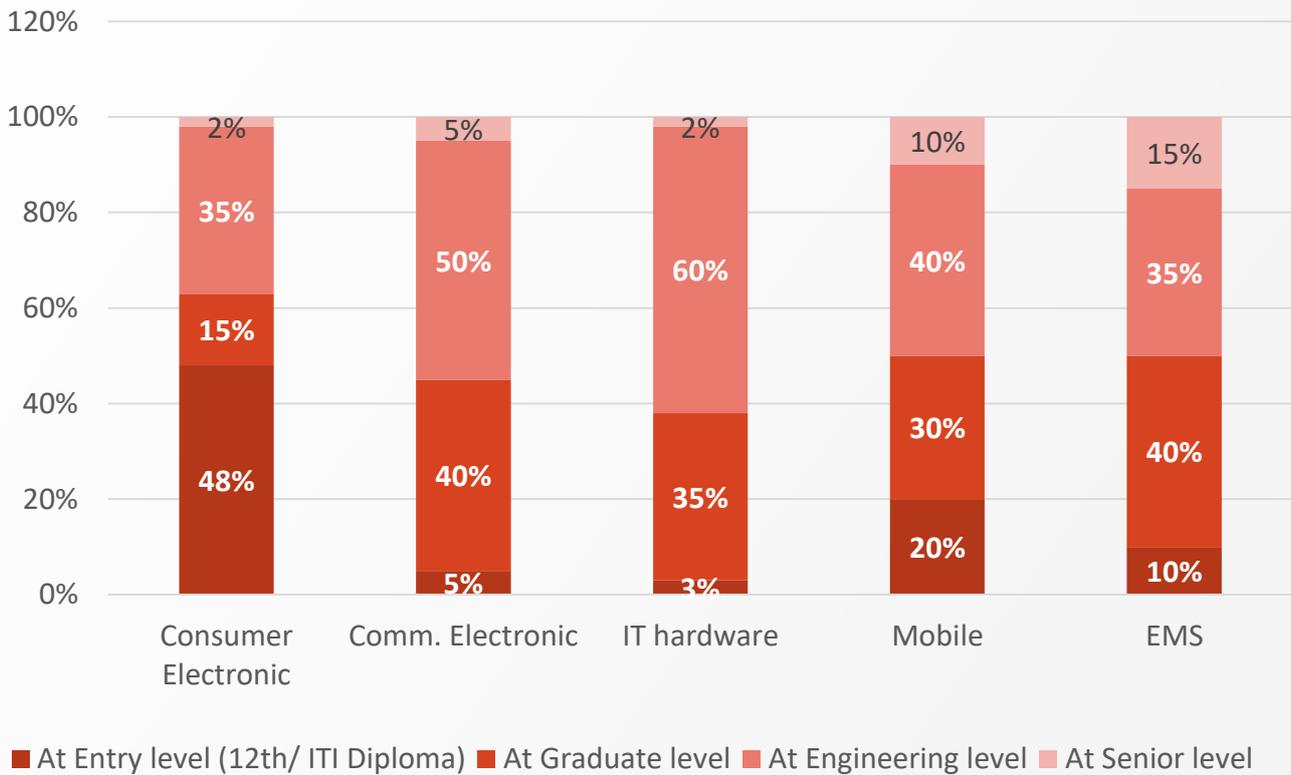


Data was also sought regarding the specific-levels at which skill enhancement was required, across the sectors.

The only exception to the rule was the EMS segment, which being an emerging sector was looking for suitably skilled manpower across the board, beginning from the PhDs to the data entry personnel, in their R&D efforts.

Interestingly enough, as per the survey, almost all the players reported the presence of suitable skilled manpower at the senior levels and sought skill enhancement only at the lower, entry or servicing cadres.

2. At what level of employee, does your industry seek skill enhancement?



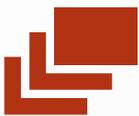
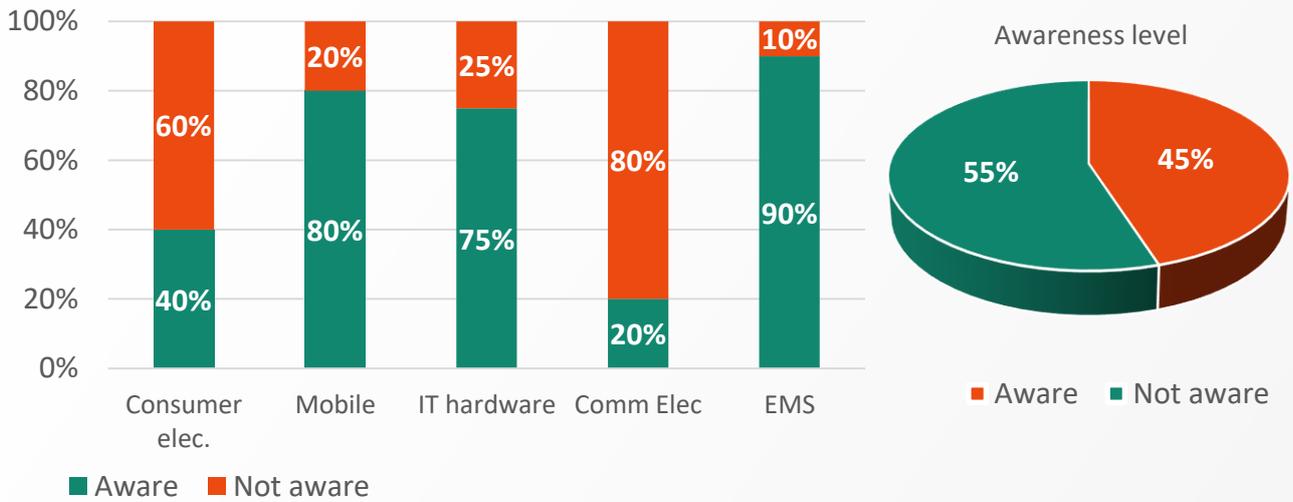
Awareness of Government SKILL INITIATIVES

Most respondents were not aware of any of the systematic programs for skill development provided for their sector, as a part of the Government initiatives.

Interestingly, the awareness of Direct Financial Schemes announced by the Government of India, was relatively high, especially among the players in the IT Hardware and EMS sectors and in a few sub-sectors in the Mobile and TV manufacturers segments.

Though there was a general awareness of the Government's National Skill Development plans, not many industry players were aware of the specific details.

3. Are you aware of Government initiative for your industry?



Key challenges faced by the industry at the skills front

Two key factors impacting this mega industry is the lack of multitalented skilled professionals across the mid- and lower-levels and low employability of new entrants into the workforce. The companies today are thus forced to invest in capital and time, to retrain the employees to make them job-ready and productive.

Another key challenge is lack of technical competency. Many new manufacturing plants are feeling the need for niche operating skills combined with computer knowledge. And this combination of skills is not readily found with the existing employee-base.

Inability of manpower to quickly adopt new technologies and master them, is another

drawback frequently faced by the players. This is mainly found in the lower-cadres; thereby having a direct impact on productivity.

Lack of soft skills is another weak spot impacting the hiring process. Poor verbal and written communication skills are a drawback, in all segments across the board, as there are several consumer-employee touch-points in the value-chain.

Employees are also faced with financial constraints when it comes to self-learning, especially in the services segment. Migrant workers come from tier-3 cities or rural areas all of whom lack the financial muscle to self-train and upgrade their existing skills.



1 Lack of multi talented skilled employee

Due to this, there is low employability of new entrants into the workforce – the firms employing them have to then invest capital and time to train the employees



2 Lack of Technical competency

Many new manufacturing plants are feeling the need for niche operating skills together with the computer knowledge – often not available together in the same employee

3

Quick adoption of newer technology

Most not familiar with new technology like IoT, AI, cloud computing etc.

4

Lack of generic, soft skills in the service segments

Lack basic inter personnel skills, poor command over English language poor verbal and written communication skills

5

Financial constraints for self learning

Most employees, especially in the service segment are migrant workers having come from Rural areas – they lack financials to self train and upgrade their existing skills

Industry initiatives to address the skill challenges

One key challenge faced by almost all the players in this industry is the lack of adequate number of educational institutions focusing on quality training for installation, service and repairs.

Other pointers raised include, inadequate government support for this initiative and out-of-

sync academic courses that are impacting the skillset availability in the services segment.

To counter this, OEMs have taken up the onus of providing training and certifications for their own service teams as well as technicians at the franchisee-levels.

The industry has so far implemented a few basic training and upskilling initiatives. These include:

Conventional Training - Induction

Under this program trainers travel to different locations where Group or Team Leaders are asked to come together, and training is imparted at the zonal location.

Specialised training - Mid level

This form of training is targeted mainly at Mid-level employees, wherein Engineers and Senior Technicians are given training at the company training centres.

Ad hoc training - Senior Management

This is mainly for the Senior Management and consists primarily of online courses and on-site global visits on a need-basis.

The typical educational qualifications that companies look for in existing job profiles are as follows:

6. What is the typical employee qualifications that companies like for in existing job profiles are as follows

SEGMENT	Traditional Profile of jobs						Total
	Ph.D	Engineers	Diploma or equivalent	ITI or equivalent	Other graduates	10/12 th Pass	
CONSUMER ELECTRONICS	3%	35%	15%	15%	10%	22%	100%
COMM. ELECTRONICS	4%	40%	25%	10%	19%	2%	100%
IT HARDWARE	5%	25%	25%	20%	15%	10%	100%
EMS	15%	25%	18%	5%	5%	32%	100%
MOBILE	0%	25%	15%	15%	10%	35%	100%

N = 200

FOCUS FOR ESSCI AND THE ELECTRONICS INDUSTRY



NEED FOR HYBRID SKILLS

With newer technologies emerging every day, conventional recruitment processes and needs are expected to change going forward. The emerging requirement is the need for candidates with “Hybrid Skills”. Tech Savvy candidates with social skills and/or multifaceted-combination requirements would be the need of the hour going forward.

Thus, candidates need to be skilled in Multidisciplinary requirements acquired from varied conventional and non-conventional courses and Certification Programs. These may include Big Data, Cloud Computing, Analytics, Communication

Skills and Leadership training and problem solving and client servicing to name a few.

In fact, the need of the hour for the entire sector, as per Feedback analysis, is for ‘**System Thinkers**’. As in those who not only have domain knowledge but also are skilled in the ability to take a creative and synergetic approach to problem solving.

The demand going forward thus will be for HR Technologists, IT Communication Specialists, Creative Technologists, IoT Marketing Technology Strategists, User Experience Designers, Digital Storytellers and the likes.

Going forward, the conventional recruitment process and needs are going to change with new emerging technologies

Hybrid skills will be needed

- Tech savvy candidates
- Social skills to position one as multifaceted personality

Multi-skilled by signing up for different courses and certification programmes in big data, cloud computing, analytics, communication skills, leadership, etc.

Need to develop system thinkers who not only acquire the domain knowledge but also grasp the ability to take a creative and synergetic approach to problem-solving



NEW SCHOOL OF TALENT THOUGHT

There will be a higher demand for HR Technologists, IT Communication Specialists, Creative Technologists, IoT Marketing Technology Strategists, User Experience Designers, Digital Storytellers, and the likes in future

02

CONTENT DEVELOPMENT FOR DIGITAL LEARNING

India's digital learning market is growing at a fast pace. Use of Information and Communication Technologies (ICT) in education has led to the growth of Digital Platforms including Smart classes, e-learning courses, blended learning and app-based learning.

Industry players as per the study are open to this mode of training provided it adheres to global quality standards.

One way to promote this would be to, subject to

AICTE Regulations, invite Foreign institutions or Universities into India to provide training and award Degrees, Diplomas and Post Graduate Diplomas in Technical Education by partnering with Indian institutions or be allowed to set up shop on their own.

Alternately companies in the segment could be encouraged to partner with targeted colleges and institutes to offer vocational training and internships in order to have job-ready candidates.

03

INCREASING INDUSTRY FOCUS ON CHANGING ROLE OF HR

The role of the HR personnel today has evolved from being a mere 'recruiter' to a 'creator'. Decision-makers need to be made aware of this transition and facilitate the Role of HR to improve and expand the skills enabling creation of right jobs and matching it with the requisite skillsets as per sector requirements.

The other recommendation is to enable change in company-thought processes, by focusing on aligning talent acquisition with business strategy. This can be achieved through seminars and business meets and workshops. Targeted at the senior-mid and top management, these initiatives would encourage in developing a blended methodology of recruitment and retention along with the right skill sets.

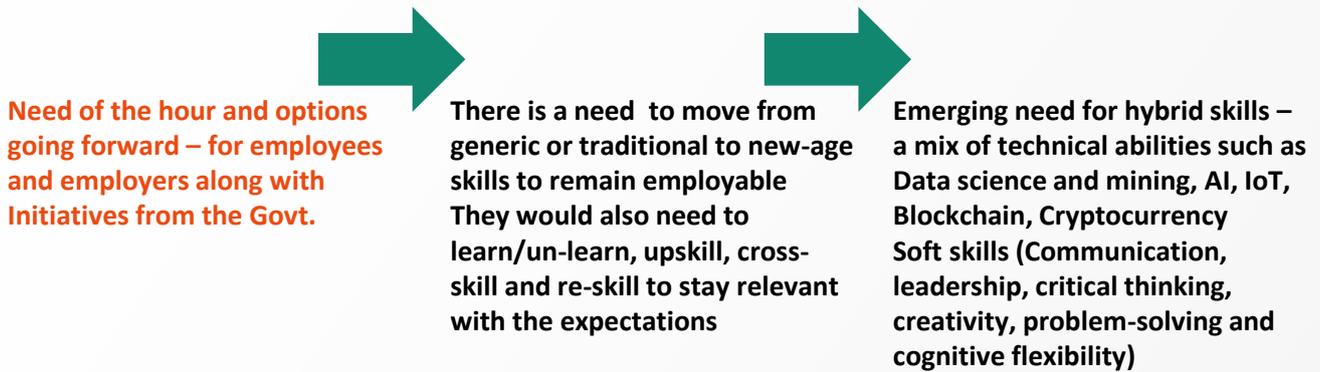
Role of HR evolves from being a recruiter to a creator - Align talent acquisition with business strategy – Blended Methodology of recruiting and retaining the right skill sets



Future and scope in Indian Job Markets in 2022 would be determined by the country's response to megatrends

**Level of exports of India based companies
Rapid adoption of exponential technologies in the advanced markets and its impact on offshoring
Increasing/shrinking overseas job market for Indian workforce**

**Level of FDI flows
Business innovation
Creation of highly optimized supply chains
Launch of smart connected products/services
New work arrangements**



Role of HR to improve and increase in creating the right job and matching it with the requisite skills as per the sector need. HR can tie-up with colleges and universities to offer vocational training and internships to develop job-ready candidates



INITIATIVES TO SKILL PERSONNEL FROM UNORGANISED SECTORS

An integrated approach needs to be adopted when it comes to skilling this key segment of personnel, who form a vital chain in the performance of any company in this sector. Thus, all stakeholders from OEMs, Franchisees, Training Institutes and organizations like the ESSCI need to make a consolidated effort in developing suitably trained manpower.

Setting up of institutes on the lines of the ITI but offering industry-specific skills in rural areas would be a key step in the right direction. In fact, a comprehensive cohesive initiative, focusing mainly in rural areas will help bridge the skill needs and demand-supply gap effectively. The OEMs as well as the Government need to work towards bringing the Unorganized Service Personnel into the organized mainstream in the long run.

This move would also help in re-aligning the course curriculum of the existing institutes like the ITIs and other training institutes, currently imparting training for this segment. **The Government must be a key stakeholder in this partnership by providing financial assistance in setting up new institutes and reorganizing or expanding the offerings of existing ones.**

New and advanced technologies like connected devices, IoT, etc. need to be introduced in courseware, with an eye to future requirements by corporates, at academic institutions.

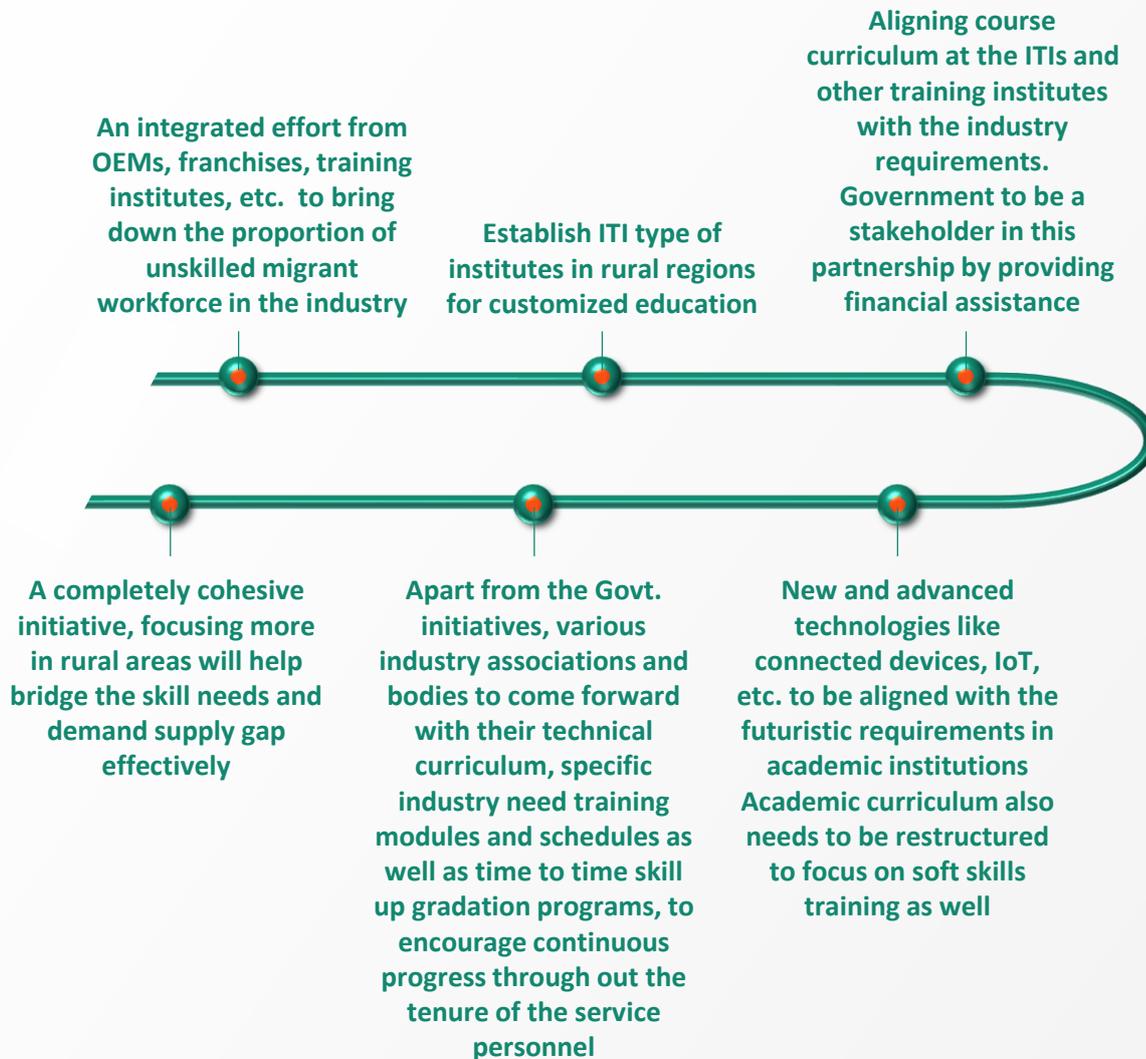
Existing academic curriculum needs to be restructured with a greater focus on soft-skills training as well.

In addition to Government initiatives, various industry associations and bodies, that come under the ESSCI purview, also need to be actively involved in developing technical curriculum; industry-specific need-based training modules and schedules. Focus areas recommended include skill upgradation programs and ongoing composite skill programs, to encourage continuous progress throughout the tenure of the service personnel.

A complete cohesive initiative, focusing more in rural areas will help bridge the skill needs and balance the demand-supply gap effectively.

FOCUS FOR ESSCI AND THE ELECTRONICS INDUSTRY

The OEMs as well as the Government need to work towards bringing the Unorganized Service Personnel into the organized mainstream in the long run.



3 POINT STEPS

To be followed to increase skill enhancement activities in India at an overall level



Increase awareness amongst corporates

As per the survey, most corporates were only aware of the financial schemes that the Government has announced for development of their sector. Greater awareness needs to be built regarding skill enhancement programs and the incentives provided to implement them. This will encourage companies in taking a more proactive interest in these initiatives and thereby benefiting by them.



Increase Partnership Programs with Corporates

Offer incentives to set up, at-site training centres, in partnership with training institutes, have been successfully implemented in several countries, globally. They give the much-needed fillip to the corporate sector as they are able to do so at their manufacturing units. This method could be adopted in India as well.

These could also be recognized by way of awards and rewards, to help India achieve higher skills to meet the global demands.



Expand your reach for more no. of vocational training centres

Focus on setting up of more vocational training centres, especially in pockets with higher migration rates for jobs, like Tier II & III cities, small towns or even villages, would enable better job-ready personnel. Such programs could be targeted at the youth, just passing out with a minimum 12th standard certificate. As it offers better job opportunities, it would also motivate the parents to educate their children till the 12th std. before encouraging him/her to get admission in these centres.

Thus, the Buzzword is More effort, joint effort, Wider effort –

Cohesive ventures with tangible benefits should immensely boost the Government’s vision of training 400 million people by FY 2020.

STRENGTH AND OPPORTUNITY for Indian human resources



Strengths

The HR in this industry is primarily specialized in low cost skill development capabilities. With a little bit of change in approach and greater awareness, the HR can be equipped to contribute strategically in company expansion and development as well.

For instance, greater focus on English proficiency in the Indian skill development sector can attract global students.

The National Skill Development Corporation offers free, as well as paid skill development Courses to Indian students, on completion of which the students are equipped with certificates. Intermediary skill development programs like the ones provided by ITIs, and Diploma programs under the PPP mode can also have a huge impact in skill acquisition.



Opportunities

The HR needs to focus on imparting skills using the online and offsite-onsite model. Also, existing business models like National Skill Development need to be exploited more to provide affordable skill development courses to have trained personnel of global standards. Revenue sharing franchisee model is also a sustainable option that needs to be adopted rapidly.

DEMAND DRIVERS FOR UPPING THE SKILLS QUOTIENT

A growing demand for upping the skills across has been observed across the industry.

India has one of the youngest workforces in the world. By FY 2020 the average age of the work-force in India will be just 29 years, as compare to 37 in China and 45 in the US. While developed economies like the US, Japan, and Australia and several of the EU Nations are facing skill shortages, due to an aging population, it creates a unique advantage for India.

The situation creates a gap in demand and supply that India can take advantage of, as Indian youth make up 25 % of the global working-age population. This is unique also because strangely enough they also share

a total unemployment rate of about 40 % across developing nations.

There are several Government and non-government initiatives that can be leveraged to improve the skill-level of the youth.

Government programs like Digital India and other digital-trend-oriented offerings have also brought in newer job opportunities, resulting in newer technologies and products, in the recent past. Which is an encouraging trend.

As of today, vocational training has been introduced in 10 states covering over 2400 schools and two educational boards benefiting over 250,000 students.

KEY INDUSTRY VERTICALS THAT COULD BENEFIT FROM IMMEDIATE MEASURES



MOBILE

Mobile Phones: this is one of the most dominant sub-sectors today. The sector has witnessed a quantum jump of 60% in terms of volume in the FY 2016-17. Manufacturing of mobile units have touched INR 17.5 crore in the said period.

India is home to over 105 mobile and ancillary manufacturing units, providing direct employment to about 4 lakh personnel.

Technical training combined with repair and soft skills are some of the competencies that would be required going forward, in this segment.



AIR CONDITIONER

With increase in disposable income in the hands of the consumer and increased global warming, ACs have become a necessity. As the reach and quality of electricity have improved in tier-II and tier-III cities the penetration of home appliances including Air Conditioners has picked up.

Skilled manpower in the manufacturing, service and installation in this sector is expected to grow in the future.



WASHING MACHINES

This industry is significantly under-penetrated as of today. However, with increased urbanization, rising disposable income, improved rural electrification and development of tier-II and tier-III cities, and a shift towards the nuclear family model, this industry graph is predicted to go up, resulting in demand for skilled professionals in this sector.



SET TOP BOX

The Direct-To-Home (DTH) market in India is forecast to reach \$ 4 billion by 2023. The Set Top Boxes market currently valued at USD 10 Billion is rapidly witnessing growth not just in terms of products but also in terms of increasing number of service personnel for the Cable through internet segment. And it is in this area that skilled manpower will be most needed going forward.

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