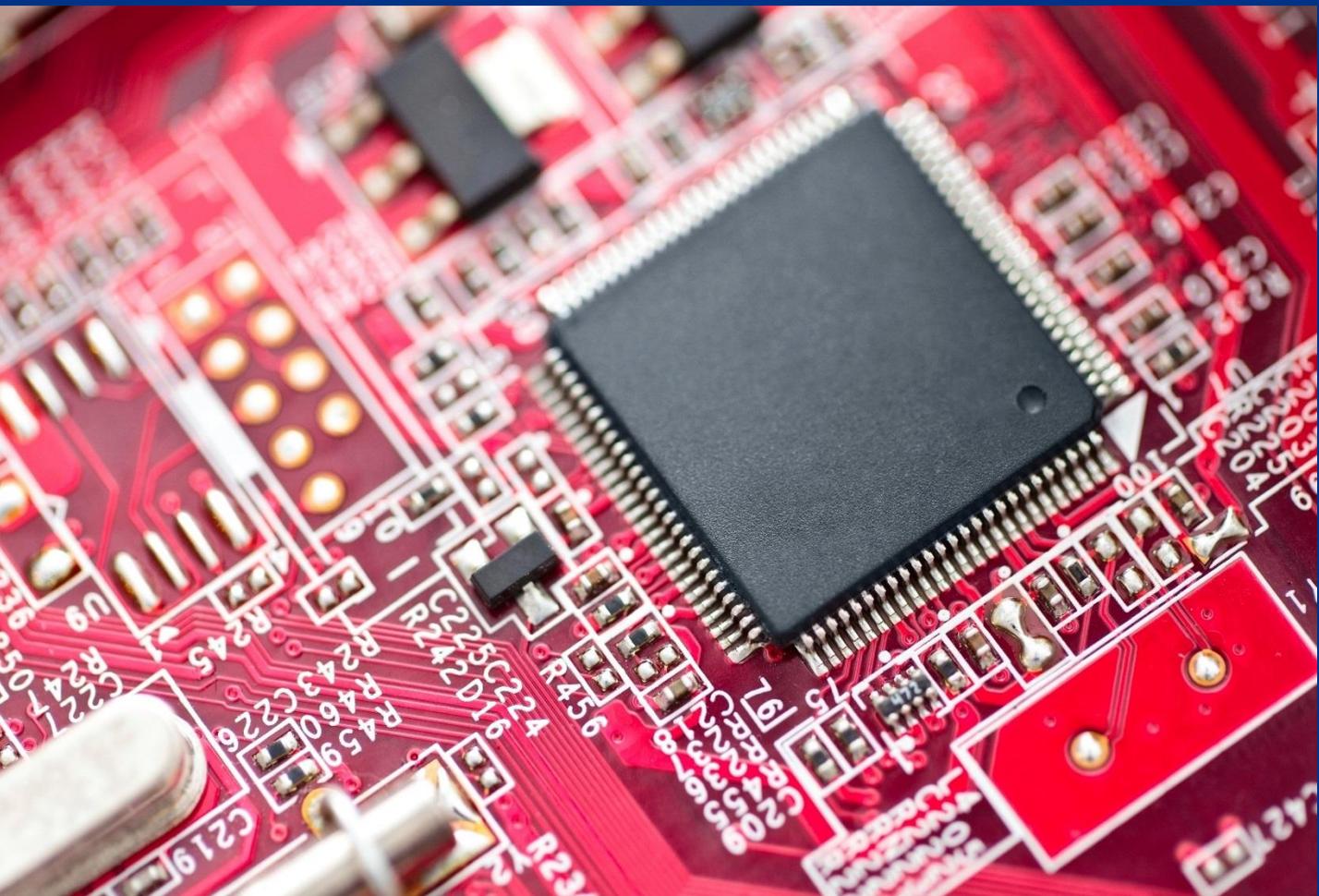


Human Resource and Skill Requirements in the **Electronics and IT Hardware** **Sector** Executive Summary



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Industry Overview

Electronics & IT Hardware industry is poised to witness strong growth over the next decade driven by domestic consumption

Key Growth Drivers

Growing demand

- Increasing consumer and business demand for electronic and IT hardware products is expected to touch the INR 24 lakh crore mark by 2020.
- With imports of electronic products expected to touch the INR 18 lakh crore mark by 2020, the government is making concerted efforts to encourage domestic manufacturing in the sector.

Government initiatives driving demand

- Central and state governments are among the largest demand drivers for the electronics industry. Their spending touched INR 2,620 crore in FY13.
- Key programmes include the 'Aakash' tablet, the UIDAI project, the National Knowledge Network (NKN) and the National Optic Fiber Network (NOFN).

Electronics sector on the upswing

Lack of domestic manufacturing

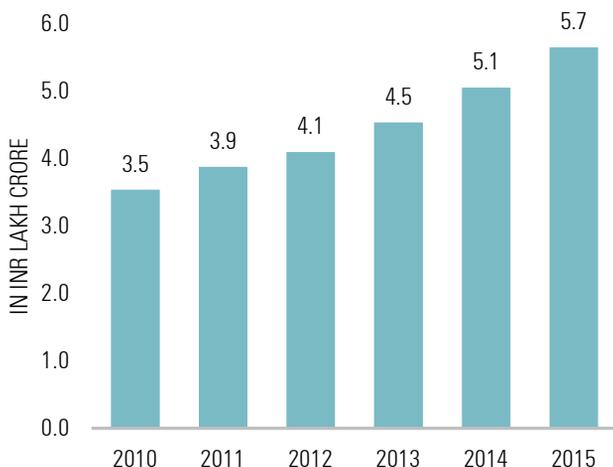
- Several subsectors in the electronics industry have virtually no manufacturing facilities in the country — from tablets to servers to semiconductors to strategic electronics.
- Poor infrastructure, a long-drawn-out approval process and an inverted duty structure act as impediments for domestic manufacturing facilities.

Policy support

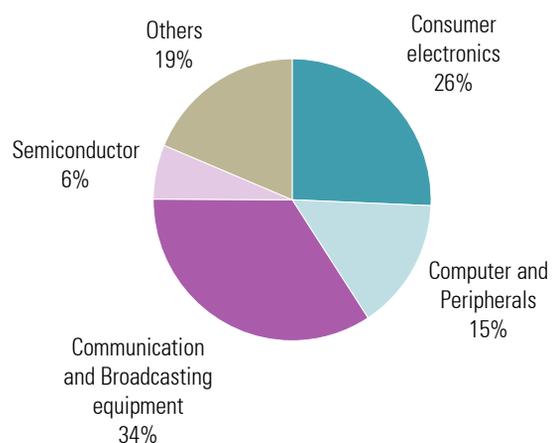
- Schemes like the Electronic Manufacturing Cluster Scheme, Modified Special Initiatives Package Scheme and Preferential Market Access Scheme have been launched to promote domestic manufacturing in the sector.
- Several state governments have also established ESDM policies to encourage the sector.

Market Size

Market size of the electronics and IT hardware sector



Break-up of the Indian electronics and IT hardware sector



- Rapid growth in the demand for electronics, clubbed with a sluggish domestic production, has widened the demand-supply gap in the industry. While demand for electronics stood at INR 6 lakh crore in FY13, goods worth INR 216,000 crore were produced in India.
- The top five players are responsible for about 15 percent of the sector's revenue, reflecting the largely fragmented nature of the sector in the country.

Sources: KPMG in India analysis

Demographic characteristics of workforce

Emerging technologies and product categories mandate adequate focus on up-skilling the existing workforce

Demand for Specialist Roles & Niche Segments

- Manpower requirement for specialist roles like system integrator is on the raise
- Niche areas like automotive and medical electronics would add to increasing specialist roles
- Smart phones, tablets and DTH segments are also expected to witness significant growth in human resource requirement

Migration

- Migration is a major challenge. High cost of living in Electronics hubs like Bengaluru, NCR, Kolkata discourage employment led migration from rural and semi urban regions

Modes of recruitment

- Recruitment is predominantly through industry personnel visiting colleges and ITIs
- Government schemes like Apprenticeship play a crucial role in supplying technical manpower for manufacturing segment

Skill Premium

- No premium is attached to people who get trained in this sector
- Skill premium seems to be absent since the trained manpower is barely recognized, as the sector is not keen on investing in training

Changing skill Requirements

- New technologies emerging, such as cloud computing and mobile applications leading to shift in the manpower needs of electronics and networking sector as new roles are being created
- The demand for software roles earlier has now shifted toward mobile applications.
- The demand for hardware technicians has been replaced with the demand for networking engineers

Recruitment Preferences

- Organizations focus on basic knowledge of technical operations for recruitment in manufacturing
- Soft skills and product knowledge are the key criteria considered for recruitment in sales & marketing
- Prior experience (mostly in unorganized) is seen as an important consideration in repair and maintenance segment

Attrition

- Attrition is generally low in the manufacturing segment
- High attrition levels exist across sales& marketing, especially for front-end workers. The attrition amongst the entry and mid level is more than 30% annually.

Incremental human resource requirement (2013-17, 2017-22) and skill gaps

Current workforce of over 4.3 million in 2013 is expected to reach 8.9 million by 2022

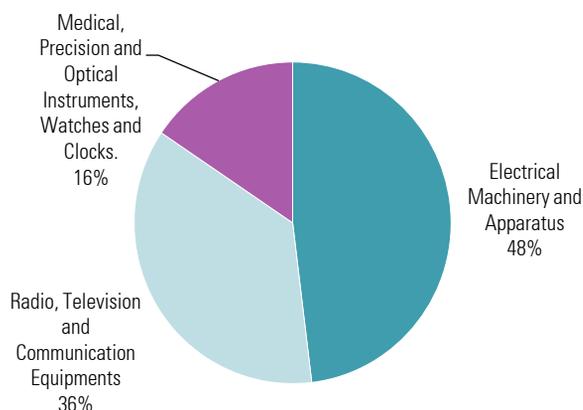
Electronics & It Hardware is one of the emerging sectors for employment growth in India. Industry currently employs over 4.3 million people across manufacturing, Sales and marketing (including Retail) and Repair & Maintenance segments.

Policy initiatives on promoting manufacturing along with increasing disposable income would drive the growth for the sector. Industry is expected to witness an addition of 4.61 million during 2013-22. Repair and Maintenance segment would contribute to maximum growth of employment.

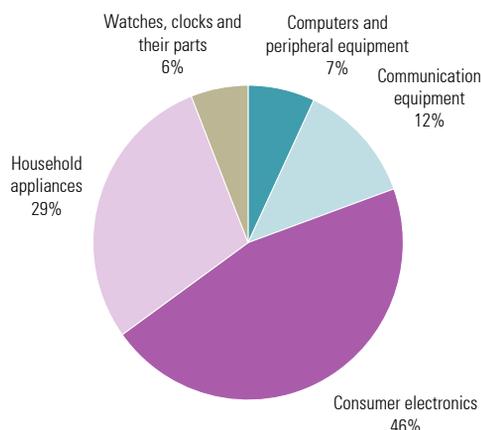
Segment	Employment (in Million)			Employment Growth 2013-17	Employment Growth 2017-22	Employment Growth 2013-22
	2013	2017	2022	(In millions)	(In millions)	(In millions)
Design & Manufacturing	1.45	1.75	2.06	0.30	0.31	0.61
Sales & Marketing	1.58	2.33	3.34	0.75	1.01	1.76
Repair, installation and Maintenance	1.30	2.16	3.54	0.86	1.38	2.24
Total	4.33	6.24	8.94	1.91	2.70	4.61

An analysis of the breakup of workforce by product categories indicates that consumer electronics and household appliances would account for major share of employment currently. Skill requirements have significant variations across product categories especially in Manufacturing and Repair & Maintenance segments

Product Category Wise Distribution- Design & Manufacturing



Product Category Wise Distribution- Repair and Maintenance



Source: Primary Interactions, KPMG Analysis

Technical incompetency

- Industry participants highlighted the concern of low employability of new entrants into the workforce due to technical incompetency. The situation becomes more burdensome for small- to medium-sized players, which have to invest capital and time to train the employees
- The ITIs from which the sector players source professionals for this category lack the curricula and content that is relevant to the current or future requirements of the sector. While this is being addressed partly by the scheme for the adoption of it is by companies, all companies cannot afford the resources and bandwidth to follow this approach. Hence, the ITIs that are not responsive to employers' requirements drive the type 1 skill gap

Demand for multi-skilled employees

- The electronics manufacturing and design sectors are still being opened up and in lots of manufacturing plants the need for niche operating skills together with the computer knowledge has been the primary requirement
- To match up with such a rapid pace growth and requirements of manufacturing sector, Indian machine makers will be required to not only invest capital but also build a strong innovation and design manpower pool

Increase in demand for sales, repair and after-sales

- There is significant increase in the demand for consumer electronic products, smart phones, tablets and set-top boxes, which are creating jobs not only for installation but also for sales, after-sales and repair services
- Some generic skills, such as basic communication and soft skills, are also required

Quick adoption to new products in the sector

- New technology products, such as solar and LED, are gaining attention. It is imperative to expedite their adoption to promote the upcoming subsectors and technologies

Adoption of new technologies driving demand

- New technologies such as cloud computing and mobility are transforming the IT hardware sector. Companies require professionals skilled in cloud management, remote infrastructure management and mobile computing devices
- The trend towards wearable computing devices is likely to increase in the next decade, which would lead to significant demand for skilled employees

Recommendations

Select recommendations & implications

Recommendation	Implications
Provide large talent pool by providing more training in the electronics sector	<ul style="list-style-type: none"> ▪ Acknowledge and offer incentives to workers based on improvised skills. The professionals who possess such niche skills can be employed as trainers in training centres, which would serve as additional income source for them ▪ More training institutes that can impart niche skills, which demand a premium in the sector, must be included in course curriculum, which would create a large talent base
Introduction of research-based courses in more institutions across India	<ul style="list-style-type: none"> ▪ There is a need to spread awareness among school students to motivate them to pursue a career in research ▪ The government must encourage research-based engineering programmes in popular institutions, besides other engineering options, to encourage more people to pursue such courses
Online portal assisting job search in the electronics sector	<ul style="list-style-type: none"> ▪ There should be a common central database for updates on vacancies across electronic firms, including all job roles firms in each cluster
Specialised training for high technology machine operations	<ul style="list-style-type: none"> ▪ ITIs located in major hubs must be upgraded with latest technology and converted into centres of excellence offering courses in operating high-end machinery and equipment and machine operations. This is possible only with sector collaborations
Establishing of centres of excellence for research and design	<ul style="list-style-type: none"> ▪ Strategic electronic, industrial electronics and medical electronics require knowledge on semiconductor research and design. Hence, new courses should be introduced by establishing CoEs in all these areas ▪ System integration, a key emerging skill, and niche skills would be required across the semiconductor design, VLSI and chip design processes
Private sector participation for infrastructure provision to industrial training institutes	<ul style="list-style-type: none"> ▪ A large number of public-private partnership programmes should be initiated wherein funds are provided to private players interested in establishing institutes ▪ This could be further extended to another model wherein training institutes with poor financial capacity, which cannot procure latest technology, can purchase second-hand machines from private players or lease them
<ul style="list-style-type: none"> ▪ Matching international standards and quality control 	<ul style="list-style-type: none"> ▪ With many global firms establishing manufacturing plants in India, there is an increasing need for quality testing and product certification processes ▪ For exports, international quality control standards should be adhered to, so that the manufacturing quality of India is in line with international standards.
<ul style="list-style-type: none"> ▪ Designing course content in line with global trends 	<ul style="list-style-type: none"> ▪ Major MNCs in electronics research and design in the manufacturing segment follow international standards for export markets; hence, tapping into this opportunity would provide large skilled workmanship
<ul style="list-style-type: none"> ▪ Introduction of management principles in curriculum 	<ul style="list-style-type: none"> ▪ The severe lack of understanding on management principles at the middle-management level should be addressed



cutting through complexity

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