Everest Group
RESEARCH

India Takes the Pole Position in Talent Availability for Automotive Engineering Services

Engineering Services (ES)
Market Report – July 2017

Our research offerings for global services

▶ **Market Vista™**
Global services tracking across functions, sourcing models, locations, and service providers – industry tracking reports also available

▶ **Application Services**	▶ **Human Resources**
▶ **BPS	Banking Financial Services**	▶ **ITS	BFSI***
▶ **BPS	Healthcare & Life Sciences**	▶ **ITS	Healthcare & Life Sciences**
▶ **BPS	Insurance**	▶ **IT Services Forecaster™**
▶ **Catalyst™**	▶ **Locations Insider™**
▶ **Cloud & Infrastructure**	▶ **PricePoint™**
▶ **Contact Center**	▶ **Procurement**
▶ **Digital Services**	▶ **Recruitment & Talent Acquisition**
▶ **Engineering Services**	▶ **Service Optimization Technologies**
▶ **Finance & Accounting**	▶ **Transaction Intelligence**

Custom research capabilities

- Benchmarking | Pricing, delivery model, skill portfolio
- Peer analysis | Scope, sourcing models, locations
- Locations | Cost, skills, sustainability, portfolio – plus a tracking tool
- Tracking services | Service providers, locations, risk
- Other | Market intelligence, service provider capabilities, technologies, contract assessment

Subscription information

- This document provides an overview of the following subscription(s)
  - **Engineering Services**
- In addition to published research, a subscription may include analyst inquiry, data cuts, and other services
- **If you want to learn whether your organization has a subscription agreement or request information on pricing and subscription options, please contact us**

Corporate Headquarters
Office: +1-214-451-3000
info@everestgrp.com

European Headquarters
Office: +44-207-129-1318
unitedkingdom@everestgrp.com

Delhi Office
Office: +91-124-284-1000
india@everestgrp.com

* Banking, financial services, and insurance

Everest Group
RESEARCH

Table of contents

Everest Group
RESEARCH

Contents

- **Background and scope**

- Executive summary

- Assessment of automotive engineering services delivery from GICs in India

- Assessment of entry-level talent pool for automotive engineering GICs in India

- Talent mobility and attrition trends

- Appendix

Everest Group
RESEARCH

Background and scope of the research

Background of the research

The Engineering Services (ES) industry covers all activities that are involved in the creation of new products (hardware or software). Specifically, they refer to activities ranging from product strategy, conceptualization, design, and development to testing, manufacturing, and maintenance.

India is one of the world's largest offshore engineering services delivery locations, both for service providers and Global In-house Centers (GICs). Currently, GICs based in India employ 220,000-240,000 FTEs, engaged in a variety of engineering services. Automotive engineering services comprises ~20% of this market and is witnessing strong growth at 15% per annum. As GICs continue to expand the scale and scope of services being delivered from India, it is important to understand the talent market and its sustainability for delivering high quality engineering services. In this report, we will take a closer look at the talent landscape for automotive engineering services GICs in India.

Scope of the research

- This report focuses on the global delivery of automotive engineering services from GICs in India. Specifically, it describes the availability of relevant talent, both entry-level and experienced, and the practices of GICs in hiring talent in this space
- The following is included in the report:
  - Assessment of automotive engineering services delivery from GICs in India
    - GIC automotive engineering services market size in leading locations in India
    - Availability of key/core skills across India
  - Assessment of the talent pool for automotive engineering GICs in India
    - Entry-level / graduate talent pool landscape in India
    - Demand-supply dynamics for graduate talent pool
    - Educational profile and key engineering institutions
  - Talent mobility and attrition trends for automotive engineering GICs in India
    - GIC talent mobility across three dimensions: within leading locations in India, across different organizations, and across different verticals
    - Attrition trends across leading locations in India

Everest Group
RESEARCH

Definitions of skills covered in the report

Skill	Definition
Systems engineering	• Gather and translate product requirement into functional components and subsystems • Capture design constraints, quality attributes, localizations, and create product engineering work plan • Liaise with cross-functional teams to assign responsibilities and use of specific software and/or hardware and tools and technologies
Electronic/electrical engineering	• Includes activities related to designing circuit schematics of automotive electrical and electronic systems • Also includes aspects of control engineering, which focuses on modeling and design of controls in automobiles (e.g., cruise/automatic control in automobiles) • Relevant for embedded software and hardware engineering processes
Engine design	• One of the core skills specifically involving concept design and development of engines / power train, engine cooling systems, and engine periphery components
Design analysis	• Includes activities relating to 2D/3D/virtual modeling of the product/prototype and converting the concept to CAD (computer-aided design), conducting finite element analysis, etc. • Can include a broad range of activities requiring knowledge of thermal dynamics, aerodynamics, flow and thermal instabilities, heating, ventilation and air conditioning, and software programming, among others
Testing and quality assurance	• Includes activities such as hardware stress testing, software de-bugging, and equipment testing; may also have synergies with design analysis
Software development	• Includes software design and development of embedded systems in automobiles, the latter being electronic or computer systems designed to control and access data in electronic-based systems (e.g., airbag systems, GPS, anti-locking brake system, fuel injection controller devices, etc.)

The skills mentioned above represent a majority of the automotive engineering value chain. Assessment of manufacturing- related skills (e.g., manufacturing support, materials engineer, and component engineering) are excluded from the scope of this report.

Everest Group RESEARCH

Contents

- Background and scope

- **Executive summary**

- Assessment of automotive engineering services delivery from GICs in India

- Assessment of entry-level talent pool for automotive engineering GICs in India

- Talent mobility and attrition trends

- Appendix

Everest Group
RESEARCH

Assessment of automotive engineering services delivery from GICs in India

- The global delivery market for engineering services in India is 490,000-510,000 FTEs, out of which ~46% is comprised of GIC FTEs
- Within GICs, 45,000-50,000 FTEs are part of the automotive engineering services market. Apart from GICs, there are multiple Indian automotive service providers and traditional IT/BP service providers that also deliver automotive engineering services
- The top locations for delivery of automotive engineering in India are Pune, Chennai, Bangalore, and Delhi/NCR. Pune and Chennai are the largest automotive hubs in India, comprising ~50% of the GIC market
- Key skills in the GIC automotive engineering market include: testing & quality assurance, software development for embedded systems, systems engineering, electronic/electrical engineering, engine design, and design analysis, in order of market size
  - These skills represent more than 70% of the GIC automotive engineering market
  - Testing & quality assurance and software development skills are more amenable to offshoring, given rule-based nature of work, and are also readily available in India, and hence, comprise a greater proportion of the GIC market. These skills are also expected to witness growth in the future
  - Systems engineering is one of the core skills for automobile development as it focuses on overarching activities such as gathering and translating product requirement, capturing design constraints, and creating product engineering work plans
  - Other skills requiring greater technical know-how include engine design and design analysis. The latter is expected to witness growth, partially due to the "Design in India" campaign set up by the central government
- Amongst key locations, Pune and Chennai have the highest availability of skills, followed by Bangalore and Delhi/NCR

Distribution of FTEs in GICs by automotive engineering vertical
2017; Number of FTEs in '000s

100% = 220-240

- Automotive engineering vertical: 20%
- Other engineering verticals: 80%

Distribution of GIC FTEs in automotive engineering services by key locations
2017; Number of FTEs in '000s

100% = 45-50

- Pune: 24%
- Chennai: 24%
- Bangalore: 22%
- Delhi/NCR: 9%
- Others: 21%

Everest Group
RESEARCH
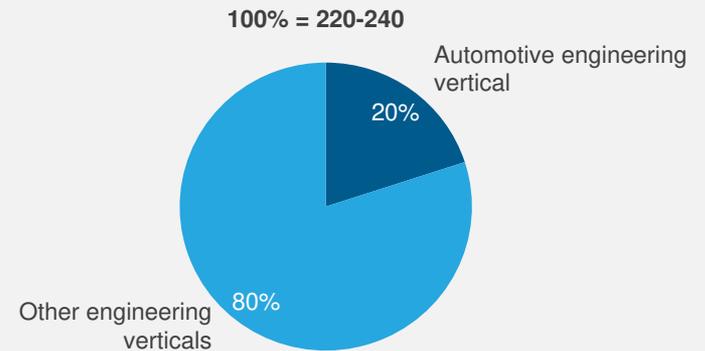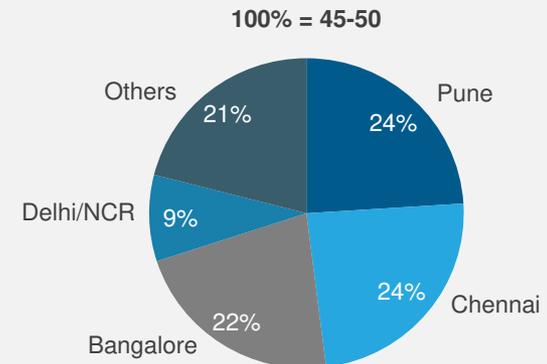
Assessment of entry-level talent pool for automotive engineering GICs in India

- Annual supply of engineering graduates[1] at entry level in India increased from 651,000 in 2013 to 771,000 in 2016, growing at 6% YOY. The share of mechanical engineering graduates is ~17% of the total – the number of these graduates is also increasing commensurately
- However, the share of mechanical engineering graduates that can be hired by automotive engineering GICs is ~10% of its total supply – this percentage figure is derived on the basis of their net employability. In 2017, the number of employable graduates is 11,000-13,000
- The annual demand for graduates for entry-level positions in the GIC automotive engineering services export sector was <2,000 graduates per annum during 2013-2016. As this sector grows at ~20% per annum from 2017 onwards, the demand for entry-level graduates is expected to increase to ~6,000 by 2020
- The supply of employable mechanical engineering talent far surpasses the demand of automotive GICs; this trend is expected to continue for the next few years
- A large portion of the employed talent pool in the GIC automotive engineering sector has graduated from tier-2/3[2] colleges in India. This trend is also similar for the entry-level talent pool
- Additionally, most of the leading engineering colleges are located in the major cities of India, i.e., Delhi/NCR, Bangalore, Chennai, Mumbai, Pune, and Hyderabad

Automotive exports industry demand & supply for entry-level talent pool in India
2012-2020E; Number of graduates/FTEs
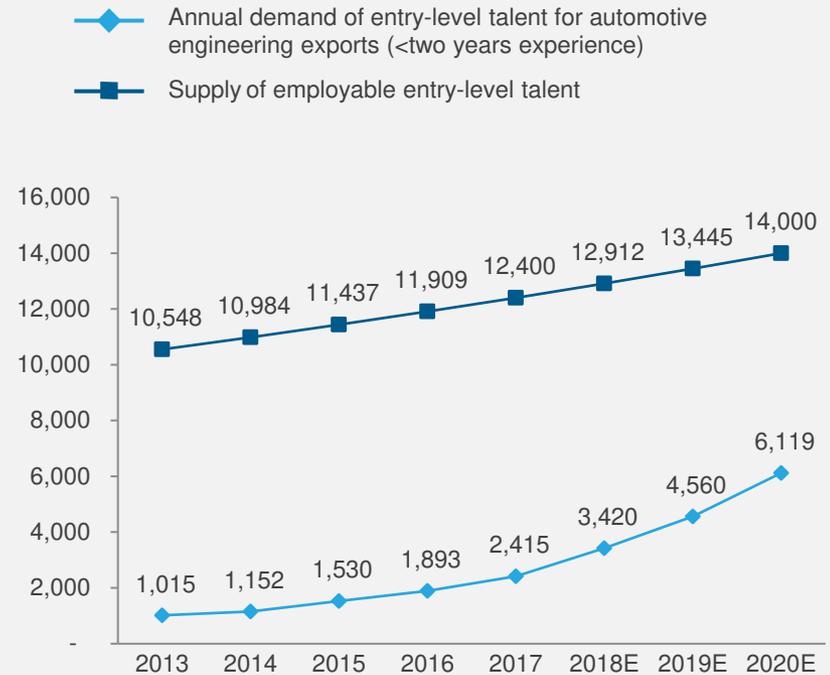
◆ Annual demand of entry-level talent for automotive engineering exports (<two years experience)

■ Supply of employable entry-level talent

Supply of employable entry-level talent: 10,548 (2013), 10,984 (2014), 11,437 (2015), 11,909 (2016), 12,400 (2017), 12,912 (2018E), 13,445 (2019E), 14,000 (2020E)

Annual demand of entry-level talent: 1,015 (2013), 1,152 (2014), 1,530 (2015), 1,893 (2016), 2,415 (2017), 3,420 (2018E), 4,560 (2019E), 6,119 (2020E)

---

1 Refers to graduates with Bachelor's degree in engineering (four-year degree course)
2 Please refer to page 25 for definitions on tier-1/2/3 colleges

Everest Group RESEARCH

Executive summary

Talent mobility and attrition trends in automotive engineering GICs in India

- Within the GIC automotive engineering space, migration of talent takes place in three ways: across locations, within different organizations, and across verticals
- Talent migration takes place on a large scale across locations, specially tier-1 cities in India. Delhi/NCR has the largest percentage of migrated talent (50-60%) in the GIC automotive engineering space, followed by Bangalore and Chennai. Pune has the smallest share of migrated talent
- Apart from movement of talent within automotive engineering GICs, there is migration of talent from global IT/BP service providers, domestic automotive service providers, and automotive subcontractors (e.g., component manufacturers). The highest degree of migration takes place from global IT/BP service providers (42%) and domestic automotive service providers (35%)
- There is also movement across verticals into the automotive engineering space. Due to similarity in core skills, there is migration from aerospace/marine/defense verticals into automotive engineering. Additionally, there is also some migration from industrial, power, and telecom verticals, although to a lower extent
- Automotive engineering GICs witness comparatively lower attrition as compared to other players in the market, due to greater degree of technical / high-end work being done, better compensation levels, and favorable work environments
    - Skills with the lowest attrition include systems engineering, engine design, and design analysis; typically, GICs hire tenured/experienced people for systems engineering roles, leading to lower attrition

Source of talent for automotive engineering GICs
2017; Percentage of FTEs
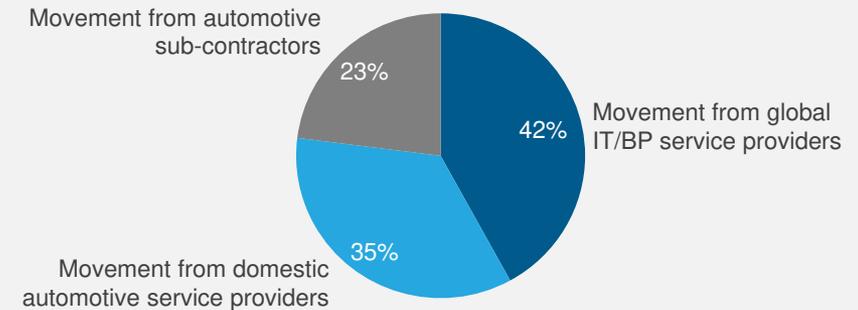
Movement from automotive sub-contractors — 23%

Movement from global IT/BP service providers — 42%

Movement from domestic automotive service providers — 35%

Talent movement from other verticals into automotive engineering GICs
2017; Percentage of FTEs

Movement from other engineering verticals — 12%

Movement from aerospace/marine/defense vertical — 21%

Movement from within automotive engineering vertical — 67%

Everest Group
RESEARCH

Contents

- Background and scope

- Executive summary

- **Assessment of automotive engineering services delivery from GICs in India**

- Assessment of entry-level talent pool for automotive engineering GICs in India

- Talent mobility and attrition trends

- Appendix

Everest Group
RESEARCH
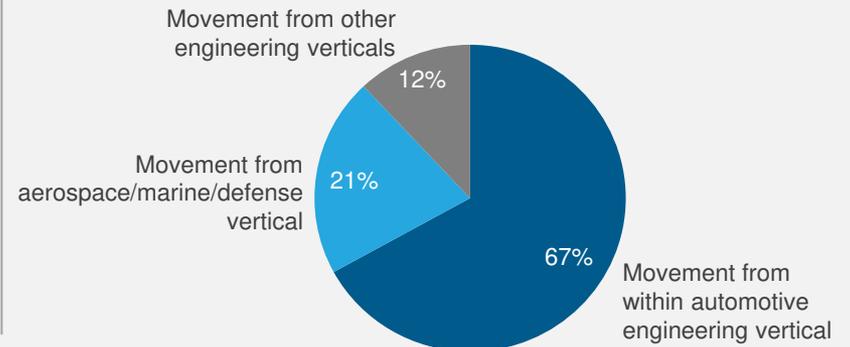
Assessment of automotive engineering services delivery from GICs in India
Summary of key messages

- The automotive engineering services market in India is composed of a variety of companies from the GIC, global IT/BP companies, and the Indian automotive service provider space

- The GIC Indian automotive engineering market size is 45,000-50,000 FTEs. The top locations contributing to this market size are Pune, Chennai, Bangalore, and Delhi/NCR. Pune and Chennai comprise ~50% of the GIC automotive engineering space in India

- The key/core skills in this market include testing & quality assurance and software development for embedded systems – these skills compose more than 30% of the GIC market. Other core skills in decreasing order of market size are systems engineering, electronic/electrical engineering, engine design, and design analysis
  - Systems engineering is one of the core skills for automotive development comprising gathering and translating product requirement into functional components and subsystems, creating product engineering work plans, and liaising with cross-functional teams
  - Typically, engine design and design analysis have the lowest availability of talent, given the requirement of highly specific skill sets
  - Going forward, automotive software development is expected to witness significant growth due to increasing importance of embedded systems (e.g., infotainment) in automobiles. Additionally, testing & quality assurance and design analysis are also expected to witness growth in the near future

- Amongst locations in India, Pune and Chennai have the highest availability of skills, followed by Bangalore and Delhi/NCR

Everest Group
RESEARCH

India offers a large pool of companies that support engineering services work for the automotive sector

Automotive GICs	Cummins · FIAT · GM · JCB · Mercedes-Benz · BOSCH · LAND ROVER · VW
Service providers	Infosys · Cognizant · TATA CONSULTANCY SERVICES · Tech Mahindra
Indian automotive companies	TATA MOTORS · Mahindra · PREMIER · FORCE · MARUTI SUZUKI

Everest Group
R E S E A R C H

Amongst GICs, the automotive engineering vertical comprises 20% of the overall engineering services employed talent pool

Distribution of FTEs in engineering services by GIC/service provider
2017; Number of FTEs in '000s
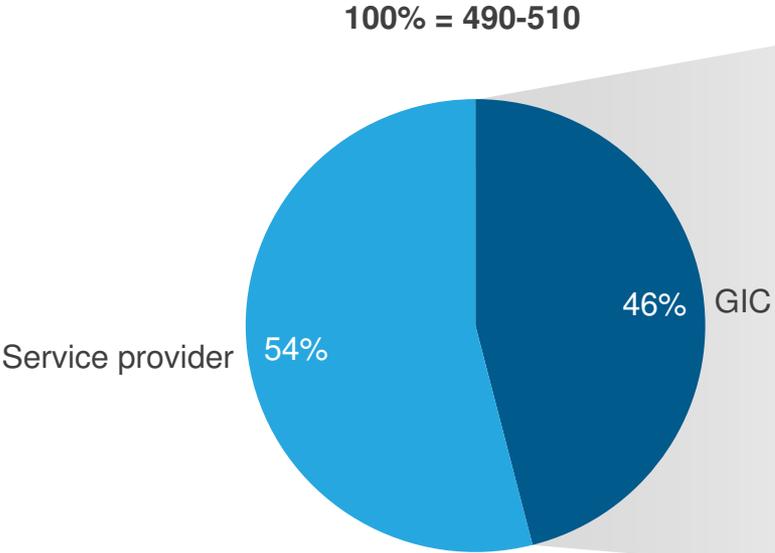
Distribution of FTEs in GICs by automotive engineering vertical
2017; Number of FTEs in '000s

100% = 490-510

100% = 220-240

Service provider — 54%

46% GIC

Automotive engineering vertical — 20%

Other engineering verticals — 80%
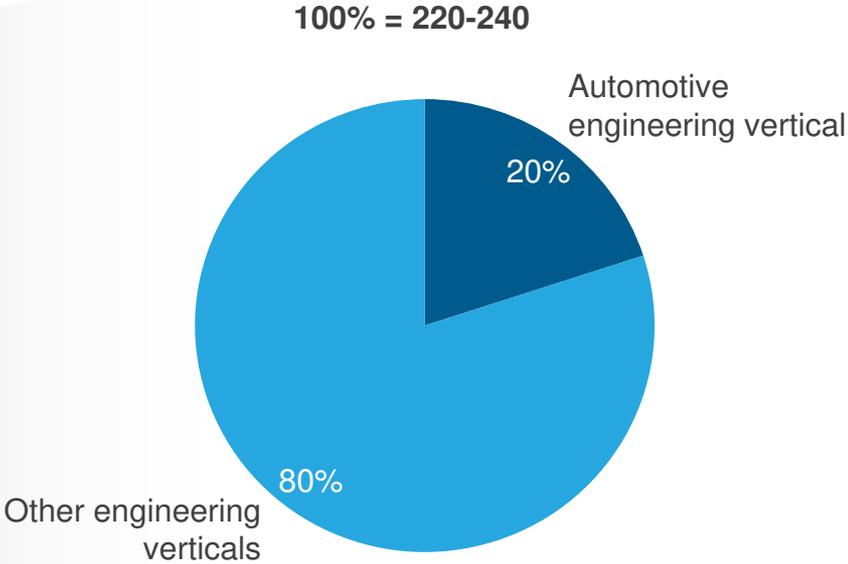
GICs comprise almost half of the engineering services market, out of which automotive engineering vertical has a significant share of ~20%. Along with software products and hi-tech engineering verticals, automotive engineering is one of the leading segments which is amenable to offshoring – the nature of work is rule-based across certain skills and there is sufficient relevant talent in offshore locations such as India that can be leveraged for delivery

Source: Everest Group (2017)

Everest Group
R E S E A R C H

Pune, Chennai, and Bangalore are the key locations for automotive engineering

Distribution of GIC FTEs in automotive engineering services by key locations
2017; Number of FTEs in '000s

100% = 45-50

Pie chart segments:
- Pune 24%
- Chennai 24%
- Bangalore 22%
- Delhi/NCR 9%
- Others[1] 21%
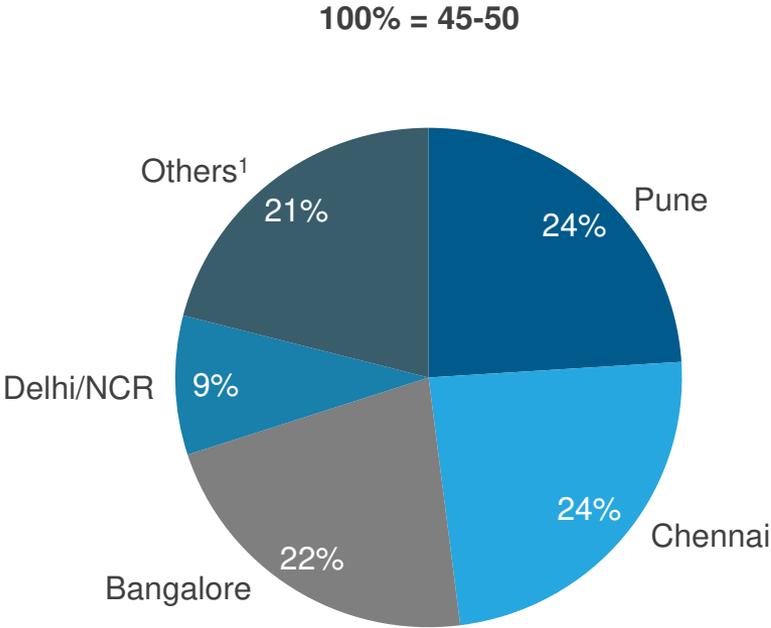
- While Bangalore is typically the leading location for engineering services as a whole, Pune and Chennai are the largest automotive engineering locations in India with >11,000 FTEs each, in the GIC automotive market

- Pune is characterized by a large number of automotive companies, component manufacturers, and presence of multiple engineering research institutes. The Mumbai-Pune corridor is being developed as a focused engineering and industrial corridor. Chennai also accounts for a significant portion (~60%) of the country's automotive exports

- Delhi/NCR has a smaller share of headcount; its market is dominated more by service providers rather than GICs in the automotive domain

1   Includes Hyderabad, Mumbai, Jaipur, Mysore, and Coimbatore
Source: Everest Group (2017)

Everest Group
R E S E A R C H

In terms of headcount, software development, testing & quality assurance, and systems engineering have the largest share of GIC FTEs

Distribution of GIC FTEs by key skills in automotive engineering services
2017; Number of FTEs in '000s

Skill	FTEs
Testing & quality assurance	6-8
Software development	6-8
Systems engineering	4-6
Electronic/electrical engineering	3-5
Engine design	2.5-4.5
Design analysis	2-4
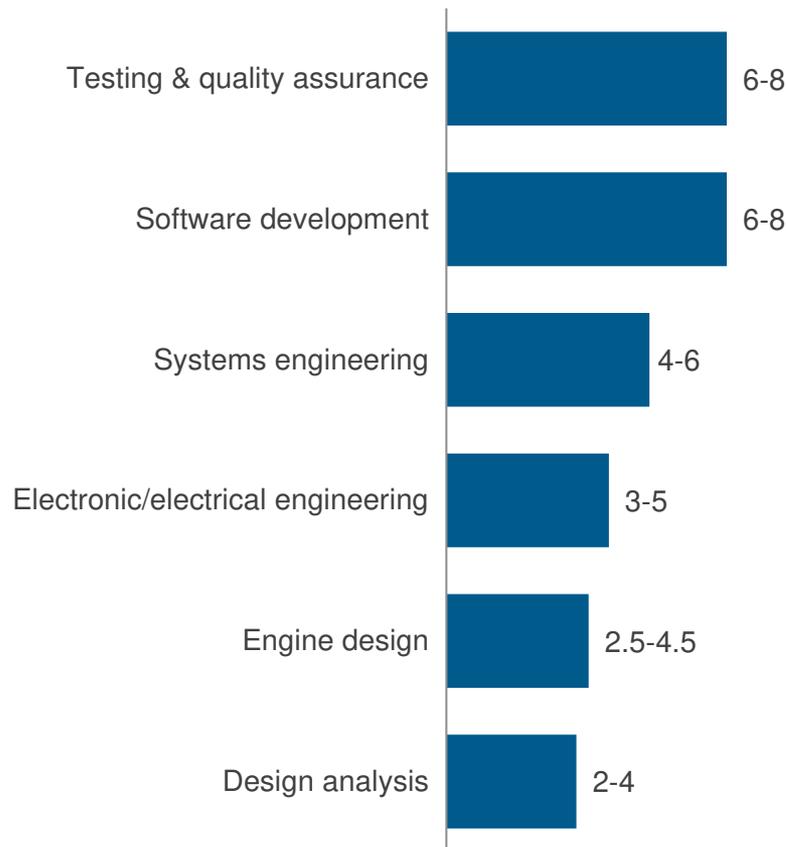
- These skills are core to automotive engineering and comprise ~70% of the overall GIC automotive engineering market

- Systems engineering requires significant technical expertise and is the most important amongst all the skills, as it reflects an amalgamation of mechanics, electronics, and software

- Testing & quality assurance includes skills around product localization, adherence to global designs, and product certification

- Design analysis requires greater technical knowledge than other skills, and hence has the lowest number of FTEs

- Significant growth has been witnessed in software development, primarily due to growth of embedded systems in automobiles (infotainment, hybrid vehicles, etc.)
  - Data analytics, artificial intelligence, and Internet of Things (IOT) is allowing automotive makers to tap into connected ecosystems. Connected devices allow capture of data and monitoring of vehicles to design safer & efficient vehicles and provide value-add services. Some examples include:
    - Internet connectivity in vehicles allows automotive companies to release software updates in real-time, which becomes important during a vehicle recall
    - Application integration has also become commonplace in vehicles (e.g., replacement of GPS by Google Maps and apps to show drivers where they can purchase fuel in a given area)

Source: Everest Group (2017)

Everest Group
RESEARCH

Availability of key skills across locations in India

| | High availability (>1,400 FTEs) | Medium availability (800-1,100 FTEs) | Low availability (<500 FTEs) |

Skills	Bangalore	Pune	Chennai	Delhi NCR
Systems engineering	High	High	High	Medium
Electronic/electrical engineering	Medium	High	High	Low
Engine design	Medium	Medium	Medium	Low
Design analysis	Medium	Medium	Medium	Low
Testing & quality assurance	High	High	High	Medium
Software development	High	High	High	Medium

- Given that they have the largest automotive clusters in India, Pune and Chennai have the highest availability of skills across locations, whereas Delhi/NCR has the lowest
- Additionally, availability of skills in each location follows a similar pattern as availability at the country-level: software development and testing & quality assurance are the most readily available skills, followed by systems engineering
  - Increasingly, software development is becoming more important as a core skill within automotive engineering; the main focus is on planning, designing, and implementing infotainment software. Given that this does not require extensive knowledge of the technical aspects of building an automobile, GICs have been able to leverage the well-established IT sector for talent
  - Some of the key activities within systems engineering involve gathering and translating product requirement into functional components and subsystems, creating product engineering work plans, and liaising with cross-functional teams
- Design analysis and engine design have comparatively lower availability of talent, given the requirement of highly specific skill sets; employees with the latter skill set not only design and develop engines and periphery components, but also conduct certain types of requirement analysis (e.g., finite element analysis and natural frequency analysis)

Source: Everest Group (2017)

Everest Group
RESEARCH

Expected growth trends across automotive engineering skills in India

Skill	Expected growth trend	Key observations					
			⬆ Increase		⬇ Decrease		⬌ No change
Testing & Quality Assurance	⬆	Increase in growth driven by greater leverage of Indian locations for delivery, particularly for localization and product certification					
Software Development	⬆	Increase in growth due to both demand-side factors, such as push toward adoption of next-generation technologies in automobiles (IOT, connected cars, unified communications, etc.), and supply-side factors, such as high IT talent pool availability in India					
Systems Engineering	⬌	Limited change from current skill levels, as this skill type is complex in nature and also specific to source markets – hence, availability is lower as compared to software development or testing kind of work					
Electronic/Electrical Engineering	⬌	Limited change from current skill levels					
Engine Design	⬌	Expected to witness limited change from current levels. Typically, this skill has lower offshoreability, given its proprietary and complex nature					
Design Analysis	⬆	Expected to witness increase in growth due to availability of high-quality talent in India and central government initiatives such as "Design in India"					

Source: Everest Group (2017)

Everest Group
RESEARCH

Contents

- Background and scope

- Executive summary

- Assessment of automotive engineering services delivery from GICs in India

- **Assessment of entry-level talent pool for automotive engineering GICs in India**

- Talent mobility and attrition trends

- Appendix

Everest Group
R E S E A R C H

Assessment of entry-level talent pool for automotive engineering GICs in India
Summary of key messages

- Annual supply of engineering graduates[1] at entry level in India increased from 651,000 in 2013 to 771,000 in 2016, growing at 6% YOY
  - The supply of mechanical engineering graduates has also increased commensurately, comprising ~17% of the total engineering graduates

- While the overall supply of mechanical engineering graduates is high, their net employability in the GIC automotive engineering sector is ~10%. In the year 2017, 11,000-13,000 mechanical engineering graduates possess the necessary technical and functional skills, as well as the willingness to work in this sector

- The annual demand for graduates for entry-level positions in the GIC automotive engineering services export sector was <2,000 graduates per annum during 2013-2016. As this sector grows at ~20% per annum from 2017 onward, the demand for entry-level graduates is expected to increase to ~6,000 by 2020

- India will continue to offer sufficient talent to meet the increasing demand for export of automotive engineering services for the next few years. Additionally, GICs are not expected to witness any challenges in hiring from this pool, given that they have a better value proposition than the other players in the market

- More than 75% of key engineering colleges are located in major cities, such as Delhi/NCR, Chennai, Bangalore, Mumbai, Pune, and Hyderabad. Additionally, a sizable supply of the employed talent pool has graduated from tier-2/3[2] engineering colleges. Very few GICs hire from tier-1 colleges

1   Refers to graduates with Bachelor's degree in engineering (four-year degree course)
2   Please see detailed section for definitions on tier-1/2/3 engineering colleges

Everest Group
RESEARCH

India's undergraduate engineering talent pool has grown to ~780,000 graduates in 2017

Annual entry-level talent pool[1] in India
2013-2020E; Number of graduates in '000s
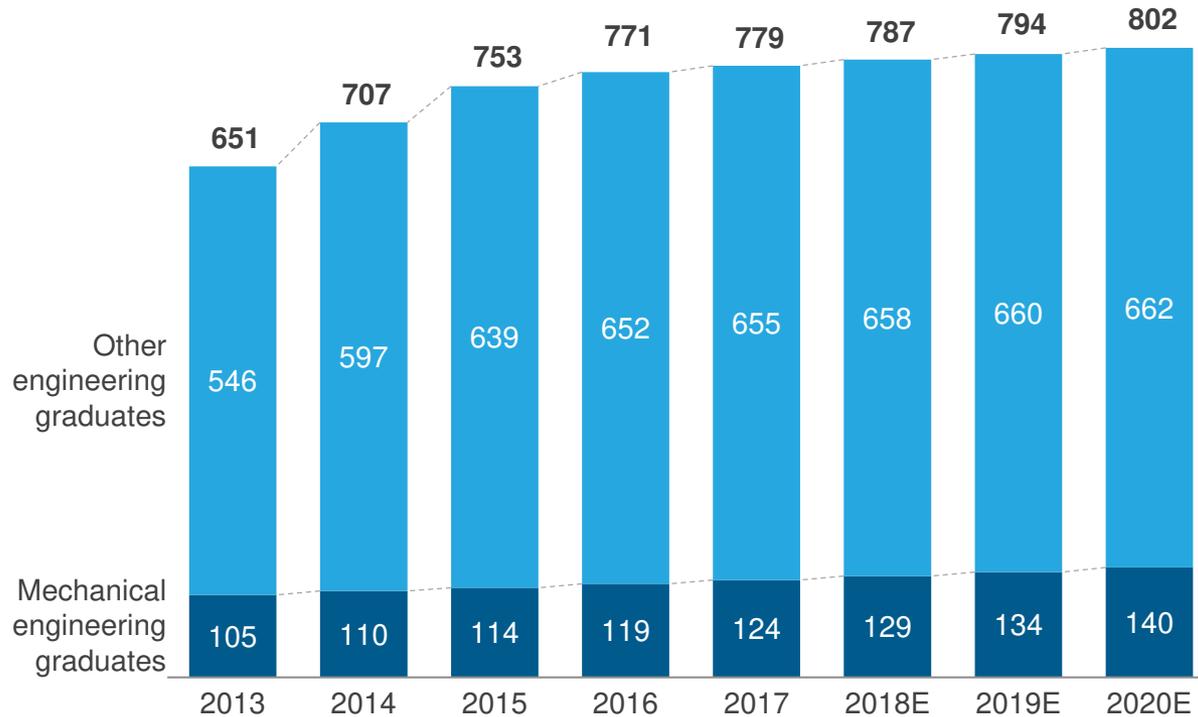
- Overall number of graduates with Bachelor's degree in engineering grew at ~6% from 2013 to 2016. Thereafter, the growth plateaued at ~1%

- Currently, there are 3,291 engineering colleges in India, which offer Bachelor's degrees in mechanical and other engineering streams (such as electrical and technical degrees)

- Mechanical engineering graduates comprise ~17% of the total number. Amongst other engineering graduates, electronic and communication engineering degree holders constitute a high percentage (~25%)

- Tier-1 and 1.5 locations in India, such as Delhi/NCR, Bangalore, Chennai, Pune, and Hyderabad, house more than 75% of leading engineering colleges in India

1   Refers to graduates with Bachelors degree in engineering (four-year degree course)
Source: Everest Group (2017), Ministry of Human Resource Development, All India Council for Technical Education

Everest Group
R E S E A R C H

However, the employability of graduates is relatively low at ~10%

Annual employable mechanical graduate talent pool available in India
2017; Number in '000s

123-125

110-112

Pool with required technical and functional skills and willingness to work in the automotive engineering sector

11-13

Relevant graduate pool

Not employable

Employable engineering services graduate pool

Pool which is not employable on account of:
- Pursuing higher education
- Migrating out of the country for work/studies
- Unwillingness to work in the sector
- Lack of the required technical, functional, and English language skills

- While India produces a large number of mechanical graduates annually, the number of employable graduates available to the GIC automotive engineering industry is significantly lower

- On average, only 10% of the graduates posess the required technical and functional skills and are willing to work in the offshore automotive engineering sector

- The employability varies across city and college tiers and may go up to 15% fot tier-1 college graduates

Source: Everest Group (2017), Inputs from market participants

Everest Group
RESEARCH

Distribution of headcount across the employee pyramid for automotive engineering services

Role	Typical employee pyramid used by GICs
Level 4	10%
Level 3	20%
Level 2	35%
Level 1	35%

Manager

Supervisor / Team lead

Intermediate level

Entry level
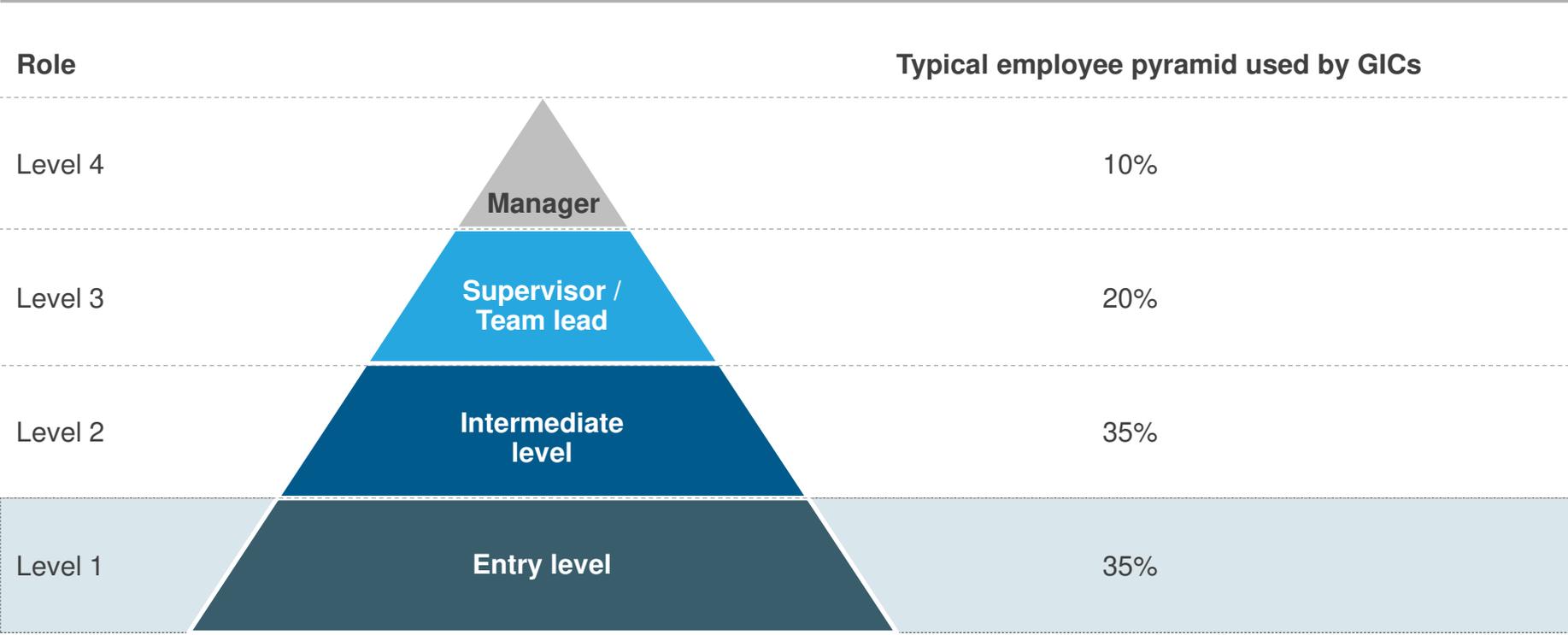
- The talent pool in automotive engineering is distributed in a middle-heavy pyramid; the employees at the intermediate level are primarily individual contributors (this role is particularly relevant for automotive engineering), and thus account for a large share of the pyramid
- The share of the entry-level talent in the employee pyramid helps determine the demand of GICs for entry-level graduates (see next page)

Everest Group
RESEARCH

India currently employs 45,000-50,000 employees in the GIC automotive engineering sector, which is likely to grow at a CAGR of 20% by 2020

Employed pool in GIC automotive engineering market in India
2013-2020E; Number of FTEs in '000s

XX% CAGR

YY Annual demand of entry-level talent for automotive engineering

Year	2013	2014	2015	2016	2017	2018 E	2019 E	2020 E
Employed pool	25-30	27-32	32-36	37-41	45-50	51-55	63-67	77-81
Annual demand	~1	1.15	1.5	1.9	2.4	~3	~4.5	~6

15% (CAGR 2013-2017)

20% (CAGR 2017-2020)
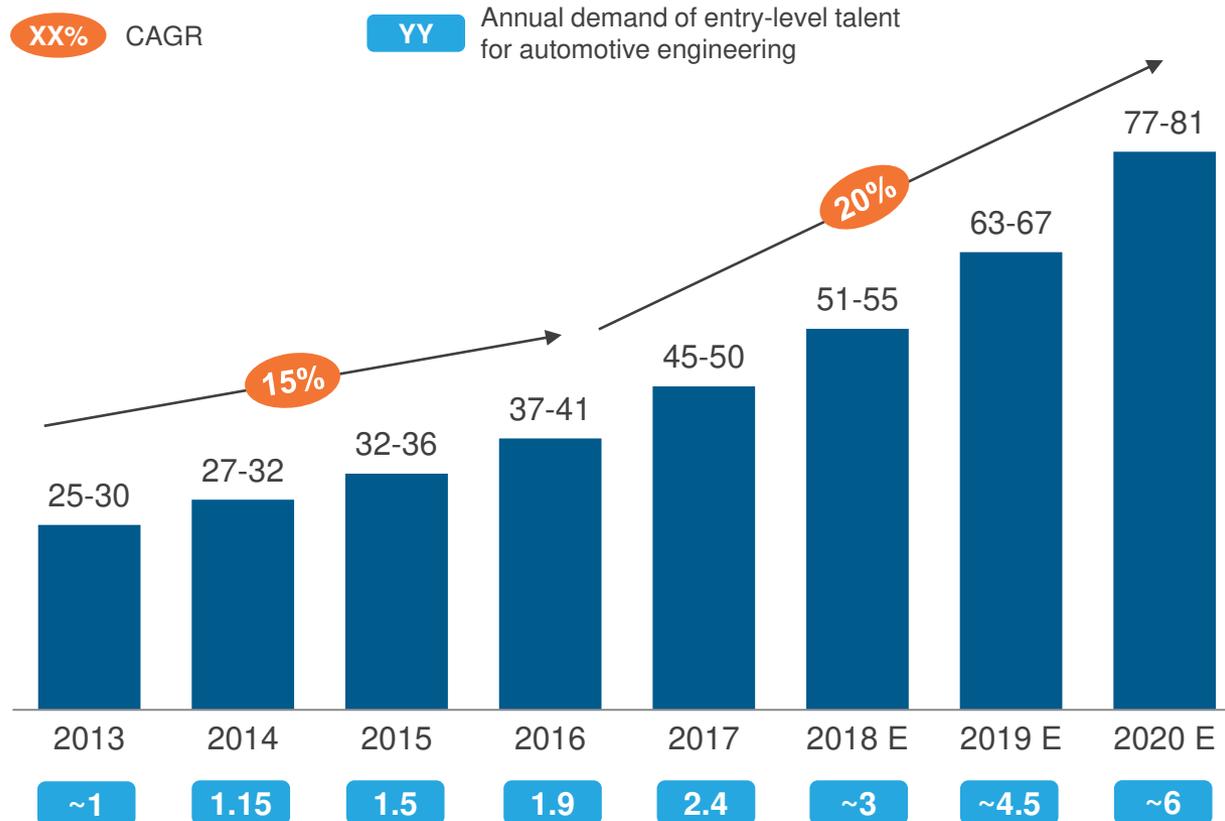
- The GIC automotive engineering sector in India has grown at a rate of 15% from 2013 to 2017

- Going forward, the experienced talent pool is expected to grow at a higher rate, which will be driven by:
  - Addition of more FTEs to the existing centers
  - Establishment of new delivery centers

- GICs typically have lower demand for entry-level employees as compared to other players in the market, as they prefer to hire tenured employees

Everest Group
RESEARCH

Given the large number of mechanical engineering graduates, the supply of talent far exceeds the demand for automotive engineering

Automotive exports industry demand & supply for entry-level talent pool in India
2013-2020E; Number of graduates/FTEs

◆ Annual demand of entry-level talent for automotive engineering exports (<2 years experience)

■ Supply of employable entry-level talent
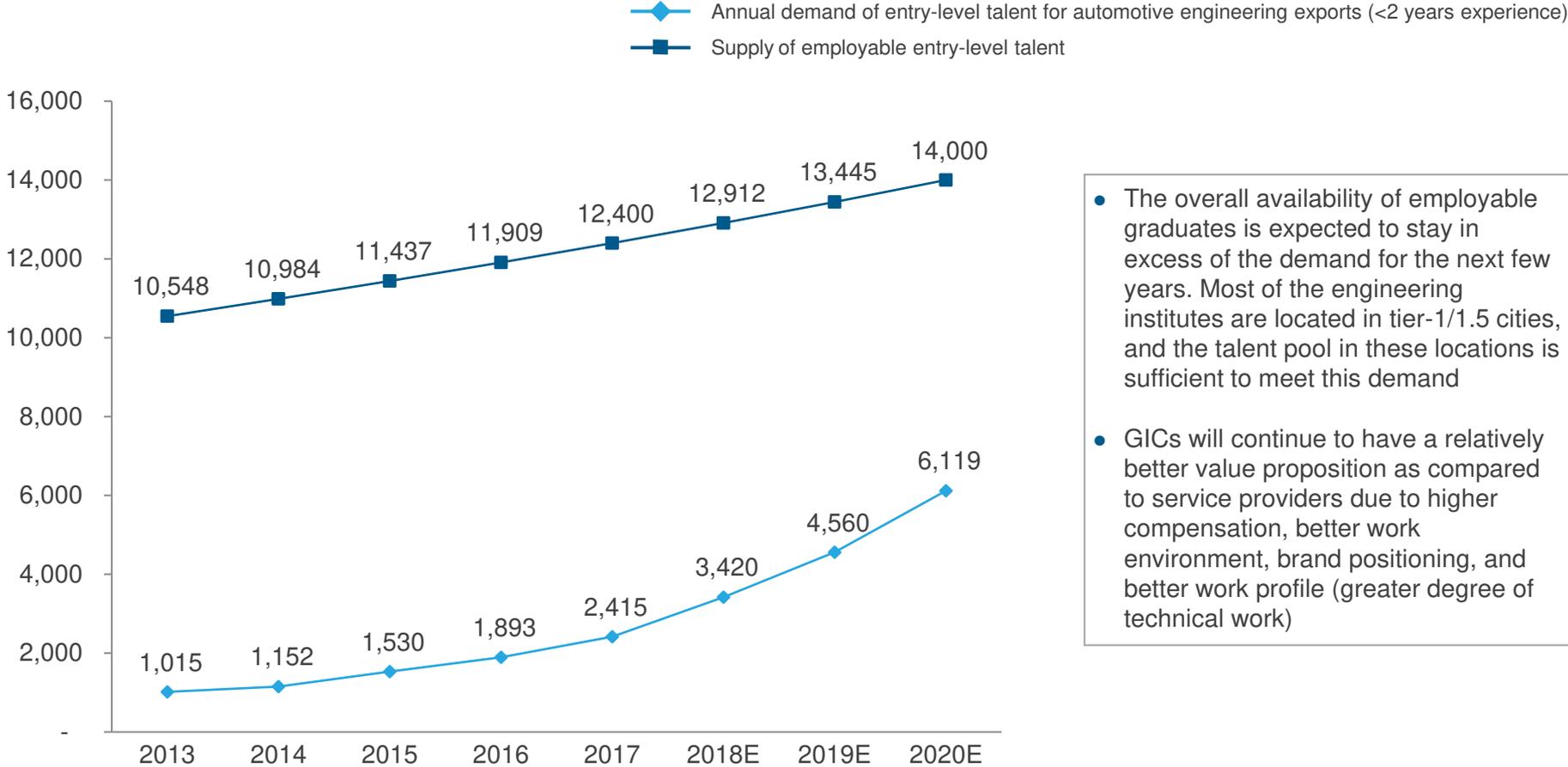
- The overall availability of employable graduates is expected to stay in excess of the demand for the next few years. Most of the engineering institutes are located in tier-1/1.5 cities, and the talent pool in these locations is sufficient to meet this demand

- GICs will continue to have a relatively better value proposition as compared to service providers due to higher compensation, better work environment, brand positioning, and better work profile (greater degree of technical work)

Source: Everest Group (2017)

To analyze the type of educational institutions generating automotive engineering talent in GICs, we have classified these institutes into three categories

Tier-1

Premium national institutes that have an established reputation among employers, offer high quality, education student care, infrastructure, and job prospects

Examples:
- IIT Mumbai
- IIT Delhi
- NIT Tiruchirappalli
- NIT Allahabad
- BITS Pilani
- NSIT Delhi
- Delhi Technological University
- Other leading engineering and management colleges/universities

Tier-2

Large regional/national colleges/universities with strong brand reputation among employers, mid-high ranking for quality of education, student care, infrastructure, and job prospects

Examples:
- Anna University
- Delhi University
- Panjab University
- Thapar Institute of Engineering and Technology
- University of Madras
- University of Mumbai
- Veermata Jijabai Technical Institute
- Visvesvaraya Technological University

Tier-3

This category comprises all remaining regional or local colleges/universities spread across the country

Examples:
- Guru Gobind Singh Indraprastha University
- Jamia Millia Islamia
- Jaypee Institute of Information Technology
- Bhagwan Mahavir Institute Of Engineering & Technology
- Kumaraguru College of Technology, Coimbatore
- M.S. Ramaiah Institute of Technology
- Sharda University

1   The classification of institutions has been done based on combinations of measures of academic quality, placement records, graduation rates, infrastructure quality, research excellence and/or influence, student satisfaction, alumni success, and other criteria

Source: Inputs from market players; recruitment firms; Everest Group (2017)

Tier-2/3 institutions based in India account for more than three-fourths of the automotive engineering talent employed by GICs

Distribution of leading engineering colleges by locations
2017; Number of colleges

3%	5%	15%	14%	14%	25%	24%	100% = 1,511[1]

Delhi/NCR   Chennai   Pune   Mumbai   Hyderabad   Others[2]
Bangalore
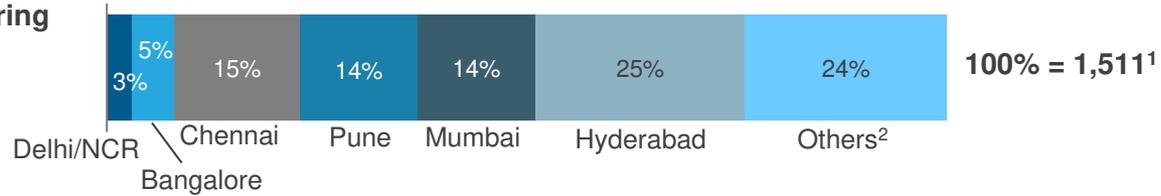
Distribution of FTEs by type of institution attended – India[3,4]
2017; Number of FTEs in '000s

7-12%	35-40%	50-55%	100% = 35-40

Tier-1   **Tier-2**   **Tier-3**

Top institutes by number of employees

Tier-1
- IIT Delhi, Mumbai, and Kharagpur
- Indian Institute of Science, Bangalore
- Netaji Subhas Institute of Technology
- Delhi Technological University
- National Institute of Technology

Tier-2
- Visvesvaraya Technological University
- University of Mumbai
- University of Pune
- Anna University
- Delhi University
- Jawaharlal Nehru Technological University

Tier-3
- Walchand Institute of Technology, Solapur
- Guru Gobind Singh Indraprastha University
- Kumaraguru College of Technology, Coimbatore
- M.S. Ramaiah Institute of Technology
- Rajeev Gandhi Technical University

- Leading tier-1 and tier-1.5 cities in India house more than 75% of key engineering colleges in India – these are also educational hubs of the country. Amongst them, Chennai, Pune, Mumbai, and Hyderabad have the largest shares of engineering colleges
- The automotive workforce across GICs is dominated by employees graduating from tier-2/3 institutions. Limited number of GICs hire from tier-1 institutes. This trend has been similar across entry-level and experienced talent pool

1   Reflective of engineering colleges in eleven educational hubs in India. This number represents >50% of the total number of engineering colleges in the country
2   Includes Jaipur, Nagpur, Chandigarh, Ahmedabad, and Coimbatore
3   Analysis is based on achievement of Bachelor's degree mostly in mechanical engineering, followed by electronic/electrical engineering, and electronic and telecommunication engineering
4   Based on a sample of employees from more than 30+ leading automotive engineering GICs

Source: Respective ministries of education; government statistical offices; inputs from market players; recruitment firms; investment agencies; Everest Group (2017)

Everest Group
RESEARCH

Contents

- Background and scope

- Executive summary

- Assessment of automotive engineering services delivery from GICs in India

- Assessment of entry-level talent pool for automotive engineering GICs in India

- **Talent mobility and attrition trends**

- Appendix

Everest Group
RESEARCH

Assessment of talent mobility and attrition trends for automotive engineering GICs in India
## Summary of key messages

- In this section, we analyze GIC talent migration trends from three perspectives: migration across locations, migration by type of organization, and migration across verticals

- A large proportion of the automotive engineering talent pool in India is open to migrating across locations
  - Our analysis indicates that the majority of location-specific migration happens post completion of education
  - Delhi/NCR witnesses the highest inward migration (50-60% of the talent in GICs has migrated from other parts of the country) among leading GIC destinations

- Apart from movement of talent within automotive engineering GICs, a major portion of their tenured workforce is taken from leading Indian automotive service providers, global IT/BP firms, and subcontractors (e.g., component manufacturers)
  - Better exposure to technical work, compensation policy, and work-life balance are the key drivers for employees switching from service providers to GICs

- GIC employees in the automotive engineering space typically migrate within the same vertical. However, due to similarity in core skills (such as engine design, design analysis, and embedded systems), talent migration in automotive engineering takes place from other verticals as well, such as aerospace, defense, and marine

- GICs have managed to control attrition between 8-12% owing to their brand positioning, work environment, and compensation policy

Everest Group
RESEARCH

In this section, we look at talent migration from three different perspectives

Dimension	Description	Assessment includes
A **Locations**	• Assess talent migration between locations	• Degree of inward talent migration across leading cities in India
B **Type of organizations**	• Assess talent migration between organizations	• Type of organizations that serve as breeding grounds for automotive engineering talent for GICs in India: – Global IT/BP service providers – Domestic automotive service providers – Subcontractors
C **Verticals**	• Assess talent migration between verticals	• Degree of migration between top verticals

Everest Group
RESEARCH

Delhi/NCR leads in terms of inward migration for automotive engineering talent in GICs

Share of migrated talent by city[1]
2017; Percentage of FTEs

City	Share
Delhi/NCR	50-60%
Bangalore	45-55%
Chennai	40-50%
Pune	30-40%
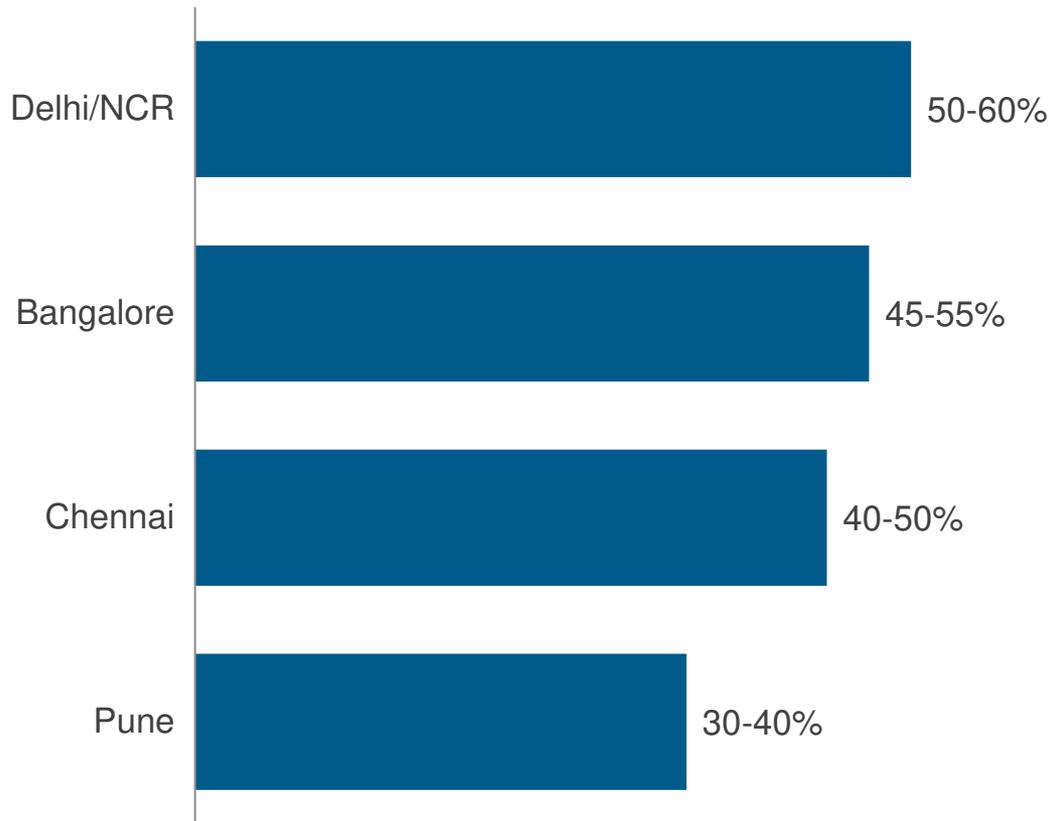
- Delhi/NCR has witnessed the highest degree of migration from other parts of the country, followed closely by Bangalore
  - Both these cities are characterized by fewer engineering colleges compared to Chennai and Pune, and hence, lesser city-specific talent pool

- Within tier-1 cities, there is considerable inter-city migration

- Pune is the largest automotive hub in India, and while it attracts talent from both tier-1 and other tier-2/3 cities in India, most of its talent is home-grown

1   Analysis based on migration and mobility trends of the current employed talent pool in automotive engineering services with GICs in each of the cities under assessment
Source: Everest Group (2017)

Everest Group R E S E A R C H

GICs hire a large portion of experienced talent from global IT/BP service providers and domestic automotive service providers

Source of talent for automotive engineering GICs
2017; Percentage of FTEs

Movement from automotive subcontractors — 23%

Movement from global IT/BP service providers — 42%

Movement from domestic automotive service providers — 35%
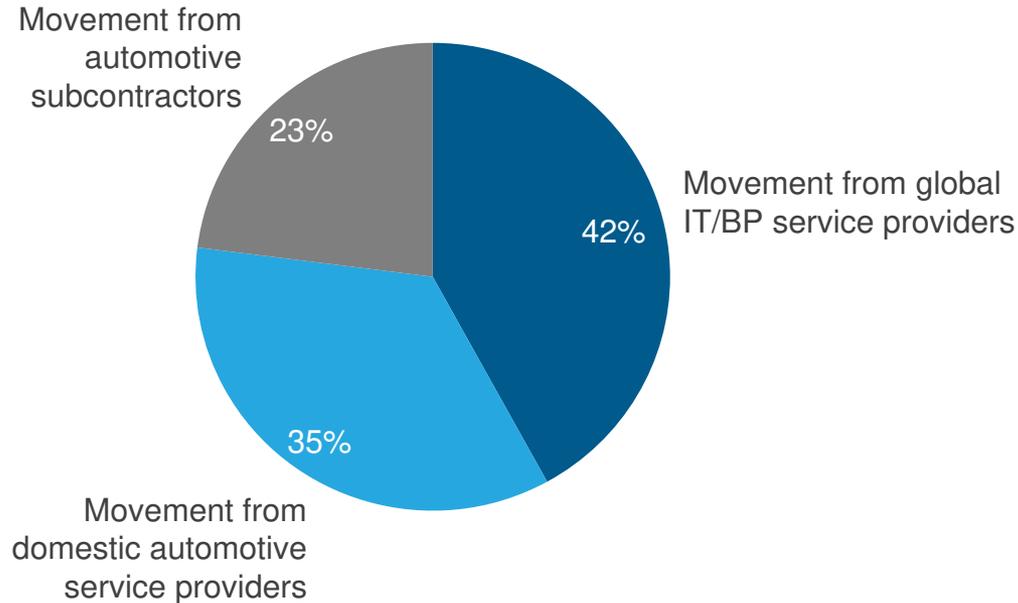
- Automotive engineering GICs hire a significant portion of their talent from service providers, both global and local. Key reasons for working in GICs include:
  - GICs typically offer better compensation than service providers
  - Opportunity to develop domain expertise
  - Better work-life balance

- Some examples of global IT/BP service providers that deliver automotive engineering services include TCS, Wipro, Cognizant, and Tech Mahindra. Key players from the domestic industry include Tata Motors, Force Motors, Ashok Leyland, and Kirloskar Oil Engines

- GICs also hire from other subcontractors and/or component manufacturers, such as Bharat Forge, Amtek Auto, and TVS

Note: Based on a sample of employees from more than 30+ leading automotive engineering GICs
Source: Everest Group (2017); market players; recruitment firms

GIC employees prefer to change jobs within the same vertical, although there are instances of movement from other related engineering verticals as well

Talent movement from other verticals into automotive engineering GICs
2017; Percentage of FTEs

Movement from other
engineering verticals

Movement from
aerospace/marine/
defense vertical

12%

21%

67%

Movement within automotive
engineering vertical
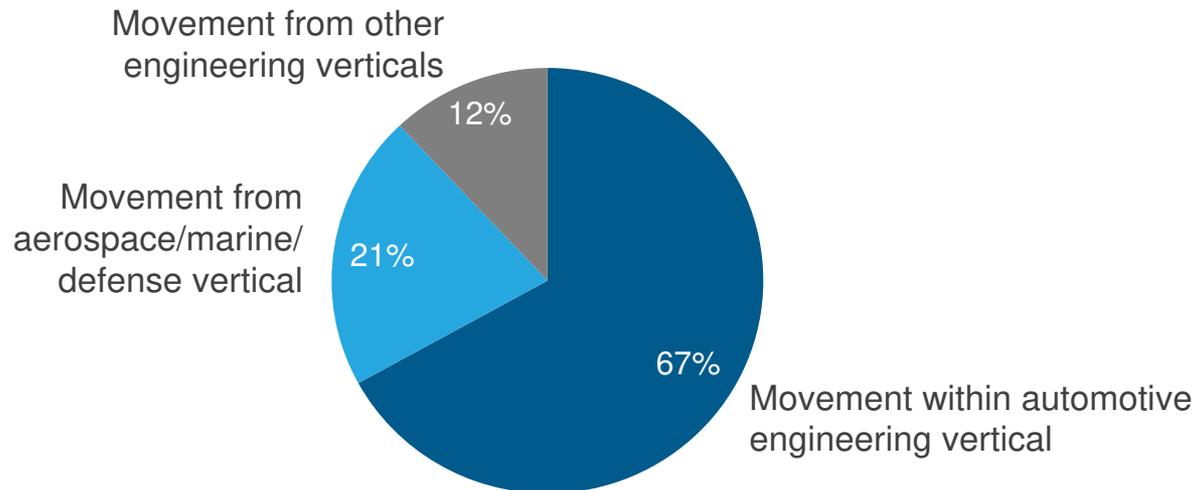
- Within automotive engineering GICs, the majority of tenured employees (~70%) have come from other automotive engineering GICs

- Due to similarity in core skills, such as engine design, design analysis, and embedded systems, there is also migration from other related verticals, such as aerospace, marine and defense

- Migration also takes place from other engineering verticals such as energy, agribusiness, industrial, and consumer electronics

Note: Based on a sample of employees from more than 30+ leading automotive engineering GICs
Source: Everest Group (2017); market players; recruitment firms

Everest Group
RESEARCH

Typically, attrition levels in automotive engineering GICs range between 8-12% for core skills

Attrition rate by skills
2017; Percentage of FTEs

Systems engineering — 6-10%
Engine design — 6-10%
Design analysis — 7-11%
Testing & quality assurance — 8-12%
Electronic/electical engineeiring — 10-14%
Software development — 13-17%
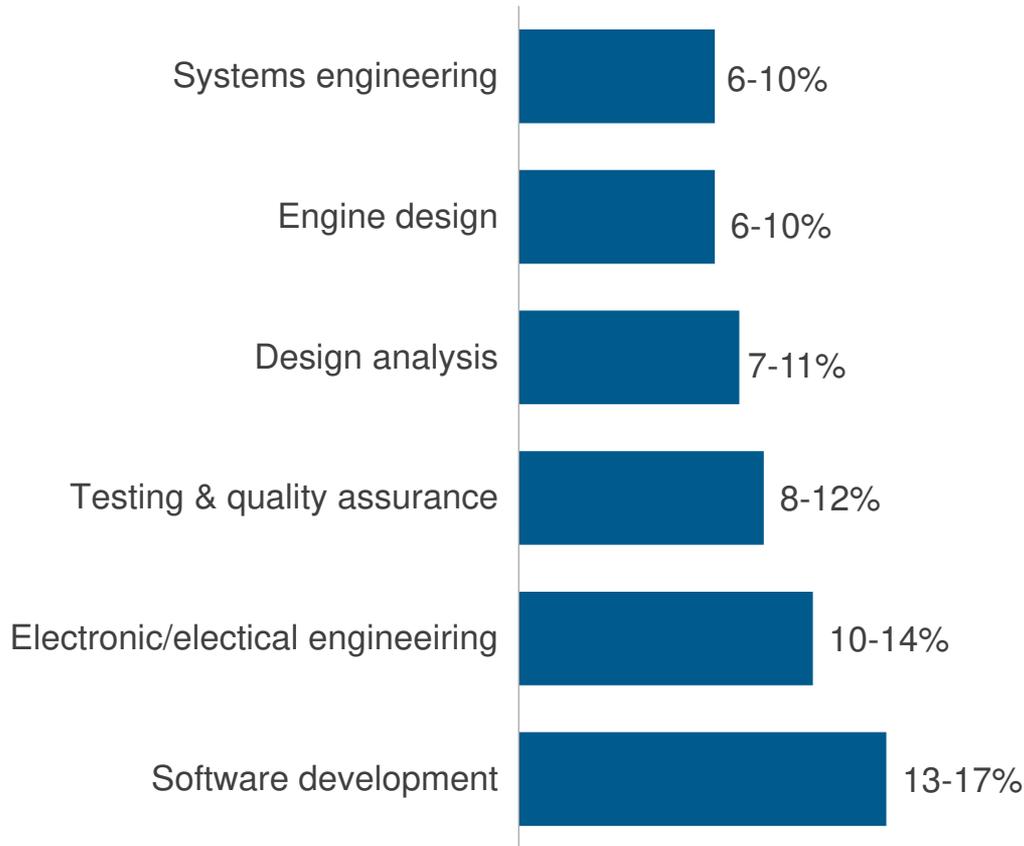
- GICs have been able to achieve much lower attrition as compared to the rest of the market due to higher compensation levels, branding strategies, and favorable work environments

- At an overall level, attrition is higher at junior roles as compared to mid-to-senior roles; this is mainly due to employees moving on for higher education

- Systems engineering has the lowest attrition, given that mostly tenured and experienced employees are hired for this role

- Other roles such as engine design, design analysis, and testing & quality assurance have low attrition. GICs also hire PhD graduates for some of these roles

Contents

- Background and scope

- Executive summary

- Assessment of automotive engineering services delivery from GICs in India

- Assessment of entry-level talent pool for automotive engineering GICs in India

- Talent mobility and attrition trends

- **Appendix**
  - **Details of courses**
  - **Engineering Services research calendar**
  - **References**

Everest Group
RESEARCH

Details of courses covered under different skills

NOT EXHAUSTIVE

Type of discipline	Examples of relevant degrees
Systems engineering	• B.E., Mechanical engineering
Electronic/electrical engineering	• B.E, Electronics & Communication / Instrumentation Technology / Electronics and Telecommunication engineering / Electrical and Electronics / Electronics and Instrumentation engineering
Engine design	• B.E., Mechanical engineering / Automotive engineering
Design analysis	• B.E., Mechanical engineering / Thermal engineering / Industrial Design / Product Design and Manufacturing
Testing and quality assurance	• B.E., Mechanical engineering / Production engineering / Electronics and Communication
Software development	• B.E., Computer engineering / Computer Science / Computer Applications • B.C.A

Engineering Services research calendar

Topic	Release date
Innovation Beyond Borders – Global Talent Hotspots for Engineering Services and Research & Development (ER&D)	August 2016
The Evolving Demand Paradigm in the Engineering and Research and Development (ER&D) Services Industry	November 2016
In Pursuit of Product Excellence: Quality Management in the Engineering Services Industry	May 2017
Identifying the Right Partners for Quality Management in the Engineering Services Industry – Service Provider Landscape	May 2017
Reimagining Design Thinking for the Human-Machine Nexus in the Global Connected Ecosystem	June 2017
Talent Landscape in the GIC Automotive Engineering Market in India	July 2017
Hot Engineering Startups: Focus on Software Product Development	Q3 2017
Hot Engineering Startups: Focus on Automotive Engineering	Q3 2017
Software Product Engineering Services – Service Provider Landscape with PEAK Matrix™ Assessment 2017	Q4 2017
Automotive Engineering Services – Service Provider Landscape with PEAK Matrix™ Assessment 2017	Q4 2017

Everest Group
RESEARCH

Additional research references

The following documents are recommended for additional insight on the topic covered in this report. The recommended documents either provide additional details on the topic or complementary content that may be of interest

1. **In Pursuit of Product Excellence: Quality Management in the Engineering Services Industry** (EGR-2017-15-R-2181); 2017. This report provides a detailed analysis of quality management activities in the engineering services industry. It covers market landscape of quality management services and focuses on the central idea of how digital technology themes are reshaping the way enterprises look at their product quality management efforts in the engineering services industry.

2. **The Evolving Demand Paradigm in the Engineering and Research and Development (ER&D) Services Industry** (EGR-2016-0-R-1977); 2016. This report provides an overview of the ER&D services industry. It covers demand trends in ER&D services industry across different industry verticals and global sourcing trends across major ER&D segments

3. **Innovation Beyond Borders – Global Talent Hotspots for Engineering Services and Research & Development (ER&D)** (EGR-2016-2-R-1865); 2016. This report provides an in-depth view of the ER&D global sourcing industry from a talent perspective. It covers the global distribution of ER&D talent and cost competitiveness of leading global sourcing locations providing readers with an up-close view of global talent "hotspots" for various ER&D segments

For more information on this and other researches published by Everest Group, please contact us:

H Karthik, Partner:	h.karthik@everestgrp.com
Chirajeet Sengupta, Partner:	chirajeet.sengupta@everestgrp.com
Ronak Doshi, Practice Director:	ronak.doshi@everestgrp.com
Prashray Kala, Practice Director:	prashray.kala@everestgrp.com
Shailee Raychaudhuri, Senior Analyst	shailee.raychaudhuri@everestgrp.com

Website: www.everestgrp.com | Phone: +1-214-451-3000 | Email: info@everestgrp.com

Everest Group

From **insight** to *action*.

About Everest Group

Everest Group is a consulting and research firm focused on strategic IT, business services, and sourcing. We are trusted advisors to senior executives of leading enterprises, providers, and investors. Our firm helps clients improve operational and financial performance through a hands-on process that supports them in making well-informed decisions that deliver high-impact results and achieve sustained value. Our insight and guidance empowers clients to improve organizational efficiency, effectiveness, agility, and responsiveness. What sets Everest Group apart is the integration of deep sourcing knowledge, problem-solving skills and original research. Details and in-depth content are available at www.everestgrp.com.

Dallas (Headquarters)
info@everestgrp.com
+1-214-451-3000

Bangalore
india@everestgrp.com
+91-804-276-4533

Delhi
india@everestgrp.com
+91-124-496-1000

London
unitedkingdom@everestgrp.com
+44-207-129-1318

New York
info@everestgrp.com
+1-646-805-4000

Toronto
canada@everestgrp.com
+1-647-557-3475

Stay connected

Website

www.everestgrp.com

Social Media

@EverestGroup

@Everest Group

Blog

Sherpas In Blue Shirts

www.sherpasinblueshirts.com