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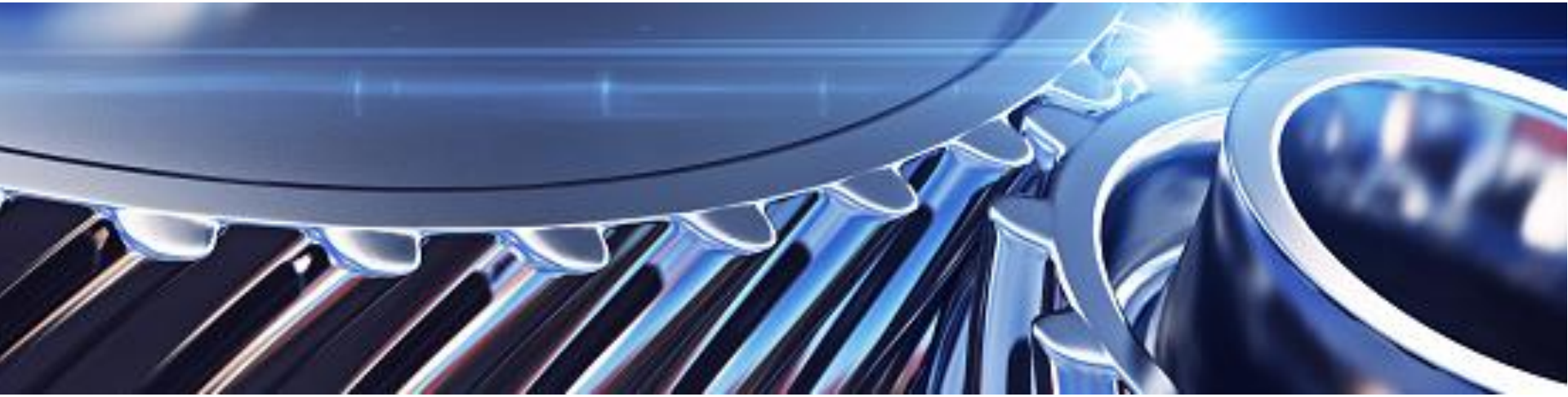

India Takes the Pole Position in Talent Availability for Automotive Engineering Services

Engineering Services (ES)
Market Report – July 2017 – Preview Deck

EGR-2017-15-PD-2248

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* Banking, financial services, and insurance

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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

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.

Overview and abbreviated summary of key messages

The Global In-house Center (GIC) market for automotive engineering services in India is ~20% of the overall GIC engineering market. In terms of availability of talent for automotive engineering, India is one of the leading locations that offers sufficient relevant entry-level and employed talent pool for key skills in this space.

This report covers the automotive engineering talent market in India from the perspective of GICs. In particular, it describes the size of this market (in FTEs) across major locations/cities in India along with trends in availability of key skills. It also includes a demand-supply analysis for relevant entry-level talent for the GIC automotive engineering space. Additionally, it describes the talent migration patterns across locations and within organizations (other GICs, service providers and automotive subcontractors) in this sector

Some of the findings of the report

GIC market overview for automotive engineering services

- The GIC automotive engineering market in India is sizable at 45,000-50,000 FTEs. The key locations for delivery include Pune, Chennai, Bangalore, and Delhi/NCR, with Pune and Chennai being considered as automotive hubs
- 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

Assessment of entry-level talent pool for automotive engineering services

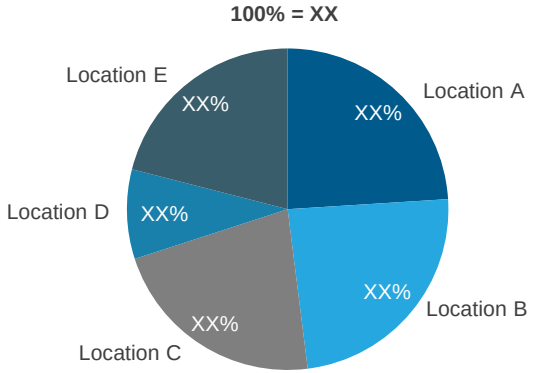
- While India offers a considerably large talent pool of mechanical engineering graduates, ~10% of them are employable in the GIC automotive engineering space. In 2017, the number of employable graduates is ~12,000
- However, the annual demand for such graduates at the entry-level position was <2,000 graduates per annum in 2013-2016. While this demand is expected to grow at a significant pace in the forthcoming years, the annual supply of graduates will be more than sufficient to meet it

Talent mobility and attrition trends

- Within the GIC automotive engineering space, migration of talent takes place in three ways: across locations, within different organizations, and across verticals
- Delhi/NCR witnesses the highest degree of inward migration in the GIC automotive engineering space
- Apart from movement of talent within automotive engineering GICs, there is migration of talent from global IT/BP service providers, domestic automotive service providers, automotive subcontractors (e.g., component manufacturers), and from GICs of other engineering verticals (aerospace/marine/defense, etc.)

This study offers a deep-dive into the GIC automotive engineering space in India; the snapshots below illustrate the depth of analysis of this report

Distribution of GIC FTEs in automotive engineering services by key locations



Availability of key automotive engineering skills across locations in India

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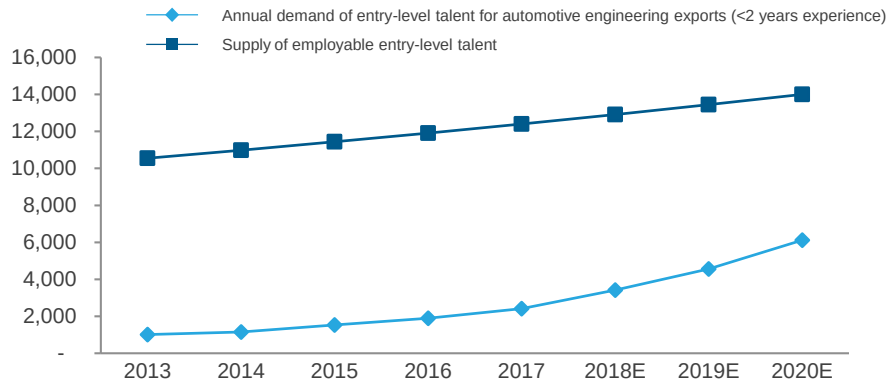
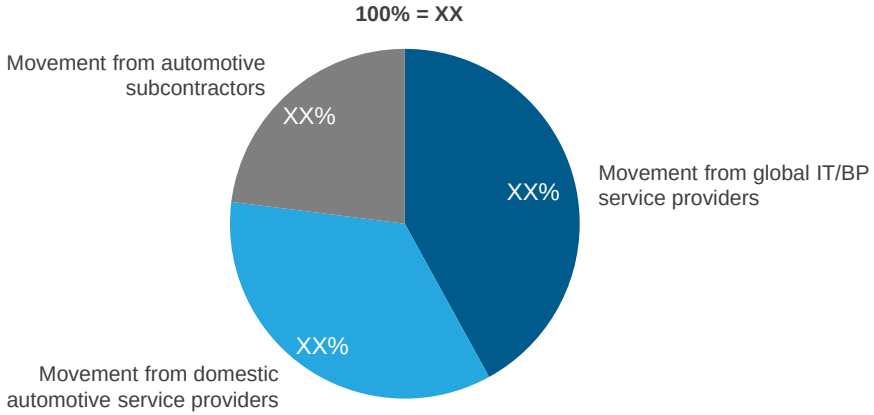
Skills	Bangalore	Pune	Chennai	Delhi NCR
Systems engineering				
Electronic/electrical engineering				
Engine design				
Design analysis				
Testing & quality assurance				
Software development				

Automotive exports industry demand & supply for entry-level talent pool in India



Talent movement from other verticals into automotive engineering GICs



Source: Everest Group (2017)

Engineering Services research calendar

Published Current

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

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

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