



Engineering Services Skills Handbook: Preparing for Next Wave of Growth in Global ER&D

Locations Insider™ (LI), Engineering Services (ES)
Market Report – July 2020: Complimentary Abstract / Table of Contents

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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

Membership information

- This report is included in the following research program(s)
 - [Locations Insider™](#), [Engineering Services](#)
- If you want to learn whether your organization has a membership agreement or request information on pricing and membership options, please contact us at info@everestgrp.com

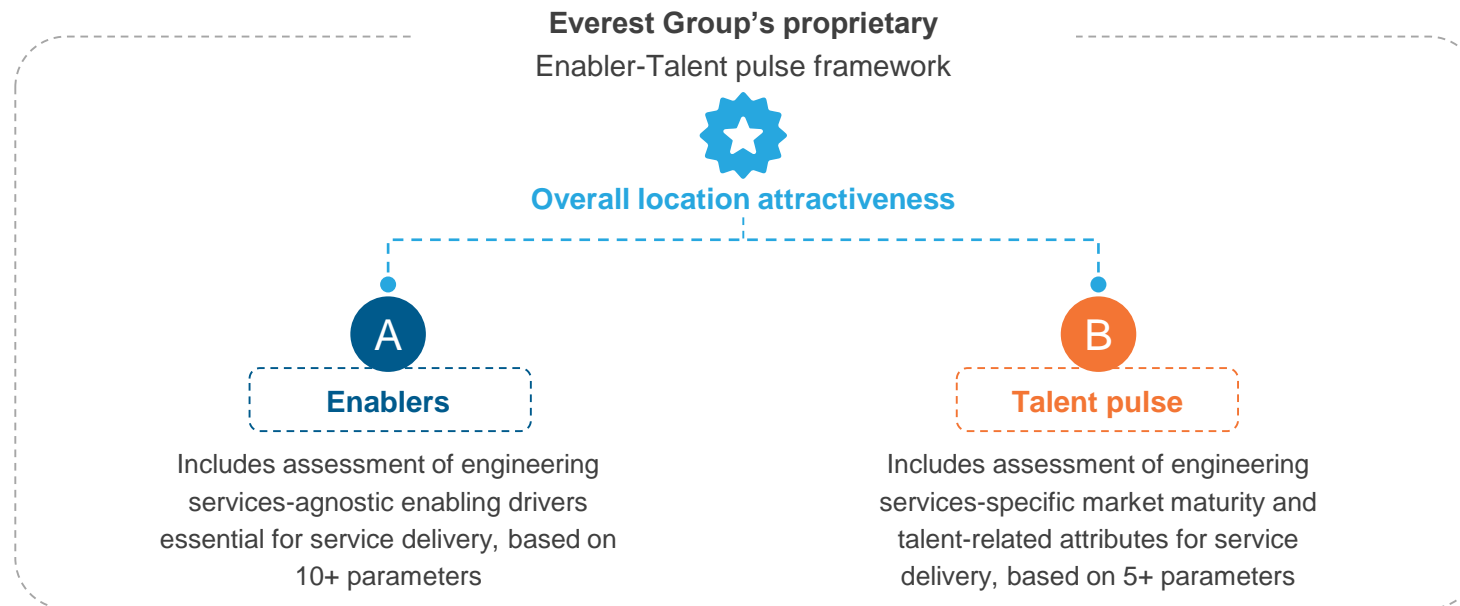
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Background and aim of this handbook

In the recent years, engineering services has witnessed a steady growth across enterprise spend as well as global sourcing. Enterprises continue to invest in emerging technologies (such as AI, blockchain, and 5G) to combine them with traditional engineering areas in order to create connected and intelligent products, and new enhanced services/operations. Therefore it is imperative for market players (enterprises, Global Engineering Centers (GECs), and service providers) to continue introducing and leveraging these new avenues into their wider service delivery construct in a sustained manner. In order to remain competitive, market players will have to review their location strategies and develop a delivery portfolio that aligns with the blueprint of their present day “go-to-market” agenda.

This handbook by Everest Group aims to support market players in their quest to identify the right locations for supporting engineering services. It highlights the relative attractiveness of key global locations for supporting engineering services, based on a holistic and multi-faceted assessment covering 15+ parameters. At an overall level, this handbook covers the engineering delivery attractiveness on two broad dimensions:



Source: Everest Group (2020)

Scope and coverage (page 1 of 2)



Five clusters with specific focus areas have been chosen for this assessment. These clusters represent different competency areas and skill families within the engineering services domain

Cluster	Competency areas / skills family
Software	<ul style="list-style-type: none"> • Software engineering – includes software development, mobile applications, database programming, Application Interface (API) management, microservices, and DevOps/Agile enablement • Quality assurance - includes functional and unit testing, security testing, performance testing, and test data management
Embedded	<ul style="list-style-type: none"> • Semiconductor – includes Hardware Description Languages (HDLs) and Integrated Circuit (IC) design/simulation/testing • Embedded hardware – includes Printed Circuit Board (PCB) schematics/simulation/design and Validation & Verification (V&V) • Embedded software – includes programming, operating systems, Digital Signal Processing (DSP), model-based design, and embedded software testing
Mechanical	<ul style="list-style-type: none"> • Plant engineering • Computer Aided Design (CAD) • Material modeling • Computer Aided Manufacturing (CAM) • Multibody dynamics • Computational Fluid Dynamics (CFD) • Mechanical V&V • Finite Element Analysis (FEA)
Design & research	<ul style="list-style-type: none"> • Experience design • Process design • Customer research design • Graphics design
Exponential technologies	<ul style="list-style-type: none"> • Internet of Things / Industrial Internet of Things (IoT/IIoT) • Artificial Intelligence / Machine Learning / Natural Language Processing (AI/ML/NLP) • Augmented Reality / Virtual Reality (AR/VR) • Cloud • Blockchain • Digital twins • 5G



The report focuses on delivery of engineering services



18 delivery locations across the globe have been prioritized for assessment. These represent the most leveraged locations for engineering services delivery in their respective regions

Americas			Asia Pacific						
 Costa Rica	 Mexico	 US	 Australia	 China	 India	 Japan	 Malaysia	 Singapore	 Vietnam
Central and Eastern Europe (CEE)			Middle East and Africa			Western Europe			
 Czech Republic	 Poland	 Romania	 Israel	 England	 France	 Germany	 Ireland		

Summary of key messages

1

Most Western European locations offer **favorable enabler infrastructure and adoption maturity**, but at a **high cost of operations** driven by high salaries and office rentals

Few CEE locations such as **Poland and Romania offer strong enabler infrastructure and talent pulse across multiple clusters**, supported by the presence of dedicated industry bodies to support delivery of engineering services

2

Among APAC locations, **Singapore and Japan have the strongest enabler infrastructure** due to favorable business environment, collaborative ecosystem, and presence of high-quality talent. On the other hand, **India has a strong talent pulse, including high adoption maturity**, driven by the presence of large entry-level and experienced talent pools across clusters

Other locations such as **Malaysia and Vietnam have been emerging hubs** driven by low competitive intensity and cost of operations

3

Most locations in LATAM and MEA have **relatively lower enabler ecosystem and talent pulse**, given smaller experience pool and relatively lower maturity of engineering services delivery

Among these locations, **Israel offers a relatively better infrastructure and collaborative ecosystem**. Mexico and Costa Rica have achieved stronger talent pulse profile given relatively lower competitive intensity for delivery of engineering services

4

Across functions, **software**, followed by **design and research**, has the **strongest talent pulse** in terms of higher number of supporting players and adoption maturity (especially breadth of operations being supported)

Exponential technologies is still emerging with lower adoption maturity due to limited talent availability and high cost of talent across locations

This study offers two distinct chapters providing a deep dive into key aspects of engineering services market; below are four charts to illustrate the depth of the report

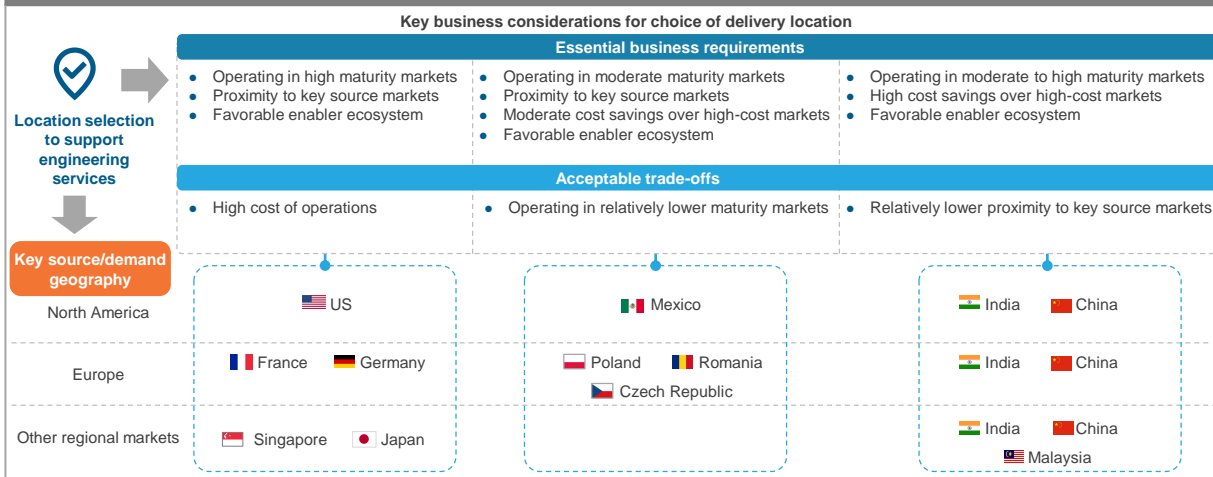
Everest Group's proprietary Enabler-Talent Pulse framework



Talent pulse: Key parameters considered

- B1 Adoption maturity**
 - Size of employed pool:** corresponds to size of the employed pool across leading players (both service providers and GICs) supporting each engineering services cluster
 - Perspectives on breadth complexity of operations:** indicates the breadth (i.e., across industry) and depth of services (i.e., across value chain) supported across each cluster. This includes perspectives on relative adoption maturity of transactional and knowledge-based processes
- B2 Competitive intensity**
 - Extent of market congestion:** corresponds to number of key market players, i.e., service providers and GECs supporting global operations from the location under consideration for each engineering cluster
 - Attrition:** indicates typical levels of annual voluntary attrition witnessed by leading players (both service providers and GECs)
 - Wage inflation:** corresponds to typical increase in wages as experienced by leading players (both service providers and GECs) on an annual basis
- B3 Financial feasibility**
 - Financial attractiveness:** corresponds to attractiveness of a location from an operating cost perspective

Key implications for market players



Enablers | Engineering infrastructure

Legend: ■ Highly favorable, ■ Moderately favorable; some constraints, ■ Least favorable

Location	Core engineering infrastructure 2020; rating	Digital infrastructure 2020; rating	General infrastructure 2019; rating	Infrastructure (Overall) 2020; rating
Americas				
Costa Rica	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Mexico	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
US	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
APAC				
Australia	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
China	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
India	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Japan	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Malaysia	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Singapore	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
CEE MEA				
Vietnam	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Israel	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Western Europe				
Czech Republic	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Poland	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Romania	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
France	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Germany	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
Ireland	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable
England	Highly favorable	Moderately favorable	Moderately favorable	Moderately favorable

Research calendar – Locations Insider™

Published
 Planned
 Current release

Flagship Locations Insider reports	Release date
Location Spotlight – The Czech Republic	September 2019
Location Spotlight – Morocco	October 2019
Location Spotlight – Romania	October 2019
Location Spotlight – Israel	October 2019
Location Spotlight – Trivandrum, India	October 2019
Location Spotlight – Vietnam	February 2020
Global Locations Annual Report 2020	March 2020
Location Spotlight – Bulgaria	April 2020
Location Spotlight – Indonesia	April 2020
Location Spotlight – Slovakia	May 2020
Location Spotlight – Georgia	Q2 2020
Thematic Locations Insider reports	
European Digital Services Talent Handbook: Prepare for Digital Disruption	June 2019
Global Handbook – Focus on Language Skills Availability Across the World	November 2019
Cloud Handbook – Talent guide to cloud skills across the globe	June 2020
Engineering Services Skills Handbook: Preparing for Next Wave of Growth in Global ER&D	July 2020

Note: For a list of all our published Locations Insider™ reports, please refer to our [website page](#)

Research calendar – Engineering Services

Published
 Planned
 Current release

Flagship Engineering Services reports Release date

Verification and Validation (V&V) Engineering Services PEAK Matrix® Assessment 2020: Enhancing Brand Assurance Through Intelligent and Integrated Quality Engineering	February 2020
Digital Engineering: An Opportunity Unparalleled	February 2020
Engineering Services Skills Handbook: Preparing for Next Wave of Growth in Global ER&D	July 2020
Industry 4.0 Services PEAK Matrix® Assessment 2020	Q2 2020
Semiconductor Engineering Services PEAK Matrix® Assessment 2020	Q3 2020
Digital engineering services PEAK Matrix™ Assessment 2020	Q3 2020
Software Product Engineering Services PEAK Matrix® Assessment 2020	Q4 2020

Thematic Engineering Services reports

Engineering R&D (ER&D) in 2020: Who Will Move My Cheese?	February 2020
The Future of Mobility – on the Cusp of the Electrification Revolution	May 2020
A Framework-driven Approach for Verification and Validation (V&V) of IoT Systems	May 2020
Engineering for the 5G World	June 2020
Eastern Europe Engineering Services GIC Landscape	Q2 2020
Trends in the Top 200 Engineering Research & Development (ER&D) Enterprises	Q3 2020
Digital Twins and their Adoption Across Industries	Q4 2020

Note: For a list of all of our published ES reports, please refer to our [website page](#)

Additional research references

The following documents are recommended for additional insight into 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. Global Locations State of the Market 2020: Moving Forward in Turbulent Times | Key Trends Shaping the Landscape** ([EGR-2020-37-R-3646](#)); 2020. The Global Locations State of the Market report describes the nuances of the global services locations landscape and interprets locations-related developments and trends to help in locations portfolio strategy design. It presents insights into market size and growth as well as global services exports by region and country. It also offers an update of location activity by region and country, and trends affecting global locations (changes in the investment environment, key global developments, and changes in exposure to various risks)
- 2. 2020 Locations Predictions: Confronting the Impending Slowdown** ([EGR-2020-37-V-3618](#)); 2020. Everest Group's predictions that the global services market would experience slightly lower growth in 2019 over 2018, both in terms of revenue and headcount, have been proven correct. Enterprises have been increasingly leveraging their locations strategies – based on talent quality and availability, rather than cost – as a tool to achieve service delivery transformation. Given these developments, what does 2020 hold for the global services industry? The report offers predictions on overall and location-specific services delivery, upon which organizations can anchor their transformation agendas. In addition to it, It presents insights into next-wave locations expected to gain prominence in the future and key risks to watch out for when transforming the delivery strategy
- 3. European Digital Services Talent Handbook – Prepare for digital disruption** ([EGR-2019-37-R-3194](#)); 2019. This handbook by Everest Group aims to support market players in their quest for supporting the right digital service from the right location. It highlights the relative attractiveness of key European locations for supporting digital services, based on a holistic and multi-faceted assessment covering 20+ parameters

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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 empower 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.

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