



MONTHLY NEWSLETTER
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The Evolution of the Engineering Services Outsourcing Industry



The integration of IT into daily life has already impacted the world to a very great extent. And this implementation is expanding day by day. Every year, the products are introduced with tight IT integration in them. 'Smart' is a new concept today and every product is getting smarter every year. Smart objects such as lights that automatically turn on and off are the next big thing. With such expansion of IT, the growth of engineering service outsourcing (ESO) industry is also booming. The ESO providers have taken the lead when it comes to integrating IT and engineering. There are

three waves of evolution in this industry, and we are currently in the second wave.

Wave 1 (2000 – 2010)

The first wave of engineering services is the services of yesterday. The enterprises till date consider engineering services as an extension of the engineering organizations. The market of ESO has remained smaller when compared to IT outsourcing (ITO) or business process outsourcing (BPO). The ESO has always survived with a core group of service

providers and the engagements have contacts that are tactical and delivered through time-and-materials (T&M) arrangements. From the data collected in 2014, it was found that a quarter of the overall engineering services market was accounted by India-based providers. The worth of this quarter of the market is approximately US \$80 million per year. The Engineering Service Providers (ESPs) and the Global Engineering Centers (GECs) make up the Indian ESO industry and almost half of the top 500 R&D spenders operate through these GECs in India.

The Three waves of the Engineering Industry

	Technology Shift	Example Industries
Wave 1 (2000 - 2010)	Embedded software in the product and product ecosystem	<ul style="list-style-type: none"> Healthcare - Medical devices and implants Auto manufacturing - infotainment and telematics Consumer electronics - embedded intelligence Aerospace - infotainment and advanced navigation
Wave 2 (2010 - 2017)	Internet of Things, machine-to-machine (M2M) adoption and digital transformation; IT envelops the product	<ul style="list-style-type: none"> Smart homes - all home appliances are connected Oil and gas - engineering information management Auto - vehicle to infrastructure (V2I), vehicle to vehicle (V2V), driver assistance Healthcare - continuous and remote monitoring
Wave 3 (2015 Onwards)	Manufacturing integrates with IT and engineering systems; 3-D printing (Evolution of IoT)	<ul style="list-style-type: none"> Oil and gas - optimized asset utilization, digital oil fields with integrated Cross-industry - 3D and additive printing applications, manufacturing execution systems/enterprise resource planning integration/ product lifecycle, big data and analytics to drive product design and usage Auto - Smart manufacturing

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Wave 2 (2010- 2017)

Technology has advanced in many fields like sensors, distributed company, wireless communications, and big-data. These technologies are provisioning the rapid transformation of the Internet of Things (IoT). The consumer expectations are increasing at a very fast pace and thus embedded electronics and IT are permeating the service and product engineering services.

In all the industries, the firms are dealing with a wide range of devices and data. These challenges create a unique opportunity for ESO providers. The ESO providers can create intelligent engineering applications that can monitor and customize the entire experience of any product. There are several ideas such as real-time health care, smart homes and remote monitoring them, connected cars and much more. The created intelligent products store their own data and use it to establish a feedback loop. The OEMs can constantly deliver intelligent products as-a-service whose customer experience and product

evolution are defined using software applications.

Wave 3 (2015 onwards)

In the third wave, the ESO industry integrates manufacturing as the third field of expertise. The security in the industrial internet is increasing day by day which is creating a new dynamic in robotics, 3D printing, and industrial automation. The third change is beginning and has two phases.

1. With the evolution of "Digital Shop Floor", the previously collected information will integrate with systems like product Lifecycle management (PLM), Enterprise resource Planning (ERP), and Manufacturing Execution Systems (MES). Such integration will increase the productivity, optimize the operational costs, improve the safety, and enhance asset uptime utility.

2. The product maintenance and the repair requirements will have a lot of impact with the introduction of design-to-print concepts of additive and 3D manufacturing.

For example, a washing machine that has the ability to provide 24/7 monitoring and can trigger the local provider with the need of printing a spare part.

Engineering Services and its changing nature

The need for change in the ESO delivery model has risen to realize the full potential of the growth capacities of technology. The current GECs must broaden their scope and invest further to meet all the upcoming challenges of IT-enabled engineering. Moreover, the GECs must also leverage the exposure, experience, and ESO providers' investments.

In the future, the managed service contracts for ESO will require shifting from traditional engagement models to demand tight integration of service which includes key performance indicators, metrics of client business, and service level agreements that are stringent. In such way, the business model will move towards sharing risk and reward between the service providers and the client.

for all those students who have recently completed their schooling and are ready to join college. Paradigm Shift acts as a career shaping assistance for such candidates at a stage where it is difficult to make choices about which degree to choose.

Employment Skill Development program (ESDP)-

This special program guides a candidate how to crack an interview to make an entry into the industry. Designed for the last year college students, this course covers areas such as interview skills, communication skills, resume writing skills, etc.

Other than the two courses mentioned above, other value added programs include:

- ❖ Bringing Industry experts to talk about emerging trends & technologies to colleges.
- ❖ Event sponsorship.
- ❖ Faculty development programs.
- ❖ Conduct Quiz program for engineering departments.
- ❖ Project Assistance.
- ❖ Assist students in creating product prototype, including 3D printing.

CADD Centre also provides customized programs for engineering students in the following products:

- ❖ AutoCAD
- ❖ CREO
- ❖ Ansys
- ❖ NCCAM
- ❖ MX Road
- ❖ NX Nastran
- ❖ 3D Printing
- ❖ Inventor
- ❖ ProSteel
- ❖ PDMS
- ❖ Ansys Fluent
- ❖ Ansys Civil

Special Programs to Empower Engineers

CADD Centre offers two special programs for the engineering graduates empowering them with this extra dose of knowledge. The centre works in association with the educational institutes to train and endorse students for their future careers.

Paradigm Shift- This program is designed

often do not meet all these requirements and therefore are not immediately employable.

The CADD Centre Training Services, the Asia's Largest Skill Development Network have taken initiatives to empower the young engineers and help them grab their dream jobs. The centre has joined hands with a number of educational institutes across geographies to generate highly productive workforce for the industries. The centre offers highly customized programs filling the technical requirement gaps of engineering candidates offering them hi-end skills.

Program Highlights

- ❖ Top-notch education and knowledge sharing by qualified and meticulously trained mentors.
- ❖ Skill development programs enabling employability right from the first year of college.

Institutional Training Services from CADD Centre



With the boom in the technical industry, thousands of graduate engineers are pass out every year across the nation. Even after professionally qualified, these candidates are not directly employable as they fail to meet the needs of the industry.

Organizations today not only demands knowledge in engineering fundamentals, but also know-hows about CAD software skills, Business Etiquettes, Communication skills and other soft skills. Engineering graduates



AutoCAD 360 Pro

The official Autodesk AutoCAD mobile App is the trending wave among CAD professionals today. This highly efficient mobile app offers an easy to use platform to create, edit, view and share your CAD drawings from anywhere. This amazing mobile platform helps you stay productive having some of the most exciting features.

Bridging Gaps between geographies

Access the latest CAD drawings between office and field and eliminate extra work cycles spent in communicating work.

Connect to the External Cloud Storage

The app lets you access your work from the external cloud storage such as OneDrive, Google Drive, Box and Google Drive.

Key Features

With the new AutoCAD 360 pro mobile app, you can do anything that can be done on a desktop system. The mobile app is loaded with capabilities to Draw, Edit, Measure, View, Annotate, Share, use external storage, work offline, sketch freehand, share read-only designs and orient yourself with the GPS.

New Features for the iPad users

Use the Apple pencil with your iPad Pro to access the CAD tools faster and work productively. You can split your screens to

work with notes, images, and to access other files while creating your drawings.

Meeting the Needs

The app is available in Pro and Pro Plus editions to work as a perfect CAD partner for Architects, Engineers, and Construction Professionals.

