HCL ENGINEERING AND R&D SERVICES

G H Rao
## Engineering Services Outsourcing vs. IT Outsourcing Market

<table>
<thead>
<tr>
<th>Key Stakeholder</th>
<th>Engineering Services</th>
<th>IT Services</th>
</tr>
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<tbody>
<tr>
<td><strong>Key Verticals</strong></td>
<td>CTO Organization</td>
<td>CIO Organization</td>
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<tr>
<td>Aero, Auto, Telecom, ISV/Online, CE</td>
<td>R&amp;D, product development (Revenue)</td>
<td>Internal IT organization (Cost center)</td>
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<td>Technology product verticals (HW/SW)</td>
<td>5-15% of revenues, depending on the industry</td>
<td>3-5% of revenues</td>
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<td><strong>Total Spend</strong></td>
<td>$ 1.4 Trillion Globally</td>
<td>$ 2.2 Trillion Globally</td>
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<td><strong>Typical Services</strong></td>
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<td>Enterprise/Custom Applications services, Infrastructure services</td>
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<td><strong>Impact levers</strong></td>
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*Engineering Services*

- **CTO Organization**: R&D, product development (Revenue)
- **Intensity**: 5-15% of revenues, depending on the industry
- **Total Spend**: $ 1.4 Trillion Globally
- **Key Verticals**: Aero, Auto, Telecom, ISV/Online, CE Technology product verticals (HW/SW)
- **Typical Services**: Product Engg., Platform Engg.
- **Impact levers**: **Topline** (Revenue impact) + **Bottom-line** (R&D cost optimization)

*IT Services*

- **CIO Organization**: Internal IT organization (Cost center)
- **Intensity**: 3-5% of revenues
- **Total Spend**: $ 2.2 Trillion Globally
- **Key Verticals**: BFSI, Retail, Telecom, Healthcare Applicable to all
- **Typical Services**: Enterprise/Custom Applications services, Infrastructure services
- **Impact levers**: **Bottom-line** (IT cost Optimization)
Business Impact through Engineering is all about **Accelerated** product development delivered at an incredible **Value** and enabled by the latest **Technologies**.
SOFTWARE IS BECOMING CRITICAL FOR REVENUE IMPACT AND BUSINESS SUCCESS ACROSS INDUSTRIES

Software underpins nearly every function in every industry: McKinsey

**Drivers**

- Increase Digitalization of Business leading to an exponential growth
- Companies are moving from Product to Platform
- Smart, connected, IoT are driving growth in Industrial, Mfg., Auto

**Market Trends**

- The digital market is projected to grow from $540B in 2013 to $944B by 2017 at a CAGR of 15% *(Source: IDC)*
- Platform-Cloud, Data, Mobile, Social, and Analytics is predicted to dominate IT growth. Projected to grow 15% YOY and drive 89% of growth in IT. *(Source: IDC)*
- 212B devices are projected to be connected by 2020 up from 12.5B in 2010. *(Source: IDC)*
WHAT IS THE MARKET – ENGINEERING SERVICES OUTSOURCING

$2.2 Trillion

$1.4 Trillion

$387 Billion

Pharma, Biotech, Chemical

$472 Billion

Non Focus Markets

$572 Billion

ERS Core Market

Source: NASSCOM Booz & Co. Global ER&D India's Maturing Ecosystem, HCL ERS Analysis
As per NASSCOM, India currently captures a 28% share of the global offshored ER&D, which is expected to grow to around 35% by the end of 2020.

Source: NASSCOM Strategy & Indian ER&D Reaching Inflection Point, April 2014
WHAT ARE THE MARKET DYNAMICS – GROWTH DRIVERS

Focus on emerging markets and reverse innovation

Uncertain markets, contracting PLC’s, stiffer competition

Changing Target Markets

Changing Business Models

OEMs differentiating through Software & Services

Non-tech industries expanding through Digital (SMAC, m/e-commerce)

Changing Management Practices

Changing Technology Landscape

Disruption of IoT across industries, Connected ecosystem

Post crisis - Flattening R&D intensities, to improve ROIs and Outsourcing

Hyper-convergence, Cloud based delivery, Embedded Analytics

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WHAT CREATES IMPACT – INDUSTRY LEADING CAPABILITIES

Flight Controls & Actuation | Cabin Electronics | IFE | Engine & Control Systems | Sensors & Integrated Systems

Smart sensors | Special Purpose Controllers | Process Controls

Copier | Fax Machines | Printers | Scanners | Multi-function Peripherals | Point of Sale Terminals | Smartcards

Set-top Boxes | Cameras | Mobiles and Tablets | White goods

Implantable Drug Delivery System | Automated Personalized Sedation System | Diabetes Management

Electronic Control Units – Chassis | Power train | Body Electronics | Active Safety | Telematics | Infotainment

SAN/NAS devices | Inter-connect Devices | Storage SW – SRM, DRM, ILM

Networking Solutions | Mobile & Handheld | Unified Comm Solutions

Accelerated Product Development | Reduced Testing Times | Lower Engineering Costs
PRODUCT EXAMPLES

Car Infotainment systems

We impacted 40% of the software footprint one of the world’s largest airplane maker by engaging with 7 tier 1 partners

Multi Function Printer – Frugally engineered monochrome printer with 30% cost saving using vertical paper path movement

End-to-end product engineering all weather wireless equipment

Completely configurable professional 4K-2K, 3D camera

Implantable drug delivery system for pain relief of terminally ill patients

RF antenna designed by HCL orbited Mars in “Mangalyan”
WHAT ARE OUR INVESTMENTS – TEST LABS

Product Testing/ Environmental Test labs

- Enterprise Infrastructure Lab
- EMC & Durability Lab
- Interactive Apps Testing Lab
- Voice and Data Test Lab
- Smart Devices Lab
- Smart Grid Lab
- DTV/Signal Generation Lab
- Gaming Innovation Lab
- Wireless Network Simulation Lab
- Enterprise Mobility Lab
- Hardware Engineering Lab
- Network Test Lab

Mechanical verification, Prototyping labs

Prototyping & Low Volume Manufacturing capability.
<table>
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<th>WHAT ACCELERATES OUR SERVICES – SOLUTIONS</th>
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<tbody>
<tr>
<td><strong>IoT Framework</strong></td>
</tr>
<tr>
<td><strong>Product Intelligence</strong></td>
</tr>
<tr>
<td><strong>Test Automation</strong></td>
</tr>
<tr>
<td><strong>Platform Acceleration Suite</strong></td>
</tr>
<tr>
<td><strong>Intelligent Sustenance Engineering</strong></td>
</tr>
<tr>
<td><strong>Data Analytics Work Bench</strong></td>
</tr>
<tr>
<td><strong>Intelligent Tech Support</strong></td>
</tr>
<tr>
<td><strong>Value Analysis &amp; Value Engg.</strong></td>
</tr>
<tr>
<td><strong>electronic Device Automation Testing</strong></td>
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WHAT ENSURES COMPLIANCE – OUR SYSTEMS & PROCESSES

Aerospace
- AS 9100 (July 2004)
- ISO 16949 (Feb 2010)

Automotive
- ISO 16949 (Feb 2010)
- AS 9100 (July 2004)

Telecom
- TL 9000 (Dec 2009)
- CMM Level 5 (May 2001)
- CMMI Level 5 for one of the group (2005)
- CMMI V 1.2 Level 5 (2011)
- CMMI Services L5 ERS LOB (OCT 2012)
- ISO 27001 (April 2007)
- CMM Level 5 (May 2001)
- CMMI Level 5 for one of the group (2005)
- CMMI V 1.2 Level 5 (2011)
- CMMI Services L5 ERS LOB (OCT 2012)
- ISO 27001 (April 2007)

Medical
- CMM Level 5 (May 2001)
WHAT IS THE OUTCOME – TOP 100 R&D SPENDERS AS CUSTOMERS

54 of the Top 100 R&D spenders are our Customers

- 5 out of 6 in Aerospace & Defence
- 6 out of 8 in ISVs and Online
- 3 out of 3 in Medical Devices
- 6 out of 9 in Industrial/Machinery
- 10 out of 12 in Telecom OEM
- 3 out of 4 in Semi Fab & Equip
- 5 out of 8 in Consumer Electronics
- 7 out of 17 in Automotive
WHAT IS THE OUTCOME – B$+ ENGG. SERVICES REVENUE

<table>
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<tr>
<th>Year</th>
<th>Revenue</th>
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<tbody>
<tr>
<td>FY 12</td>
<td>774</td>
</tr>
<tr>
<td>FY 13</td>
<td>821</td>
</tr>
<tr>
<td>FY 14</td>
<td>881</td>
</tr>
<tr>
<td>FY 15</td>
<td>1,087</td>
</tr>
<tr>
<td>FY 16</td>
<td>1,184</td>
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WHERE ARE WE W.R.T. COMPETITION – #1 TIER 1 INDIAN ESPS

For last 3 years HCL ERS lead has increased from $204 M (CY14-15) to $403M (CY16-17) over its nearest competitor.

Source: Public disclosures - investor relations
WHERE ARE WE W.R.T. GLOBAL COMPETITION – IN TOP 5

Global ESP Revenue

Source: Public disclosures, HCL ERS analysis
WHAT DO FOLKS SAY ABOUT US – CUSTOMER ACCOLADES

**Gartner**
Endo selected HCL as one of its partners not only for its technical depth and expertise, but more importantly because it was able to secure HCL’s commitment to a long term R&D partnership.

**TBR**
The HCL-Rockwell Collins relationship is a model case study in technology services outsourcing best practices.

**IDC**
Meggitt sees HCL’s role not only in executing to statements of work but also in contributing and adding value, such as suggesting ideas for design improvements.

**Frost & Sullivan**
We have used HCL all the way from testing, specification engineering, software engineering and areas in media as well.

**Thales**
We have given HCL not only development responsibilities, but products management responsibilities and technical engineering responsibilities.

**Cisco**
WHAT’S IN STORE AHEAD – INTERESTING TIMES

Engineering spend is going to change drastically in **next 10 years**
Creating **significant challenges for firms** with sub-optimal engineering planning

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<tr>
<th>Product R&amp;D, 52%</th>
<th>Service R&amp;D, 48%</th>
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<tbody>
<tr>
<td>2015</td>
<td>2025</td>
</tr>
<tr>
<td>Service R&amp;D,</td>
<td>Service R&amp;D,</td>
</tr>
<tr>
<td>62%</td>
<td>38%</td>
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- **Asset light technologies** are creating more incremental value creating the need to pivot to service R&D
- Firms with **large legacy product R&D** organizations will have to transition in a non-disruptive way
- Kick starting **Service R&D organization** will need extensive collaboration

- **Technology breakthroughs** create more sustainable competitive advantage in hyper competitive markets
- Incremental innovation is going to witness a **budget squeeze** that’s going to impact existing user base satisfaction
- Firms will have to find a way to **do more with less** to protect existing revenue

**Type of R&D**

**Disruptive vs Incremental**

**SOURCE:** Strategy&, R&D Mag, HCL Analysis
IN SUMMARY – HCL ENGG. AND R&D SERVICES

**Horizontal and Vertical Services**

- Aerospace
- Automotive
- Consumer Electronics
- Industrial Mfg
- Telecom & Networking
- Office Automation
- Semiconductors
- Servers & Storage
- Medical Devices
- ISV and Online
- Embedded Software
- Hardware Engineering
- Mechanical Engineering
- Product Engineering & Testing
- PLM / PDM & MES

**40+ Years** of Complex Engg. Experience

**Largest** Indian Engineering Workforce

**Only B$+** Indian Engg. Services Provider

Among the **Top 5 Global** ESPs

**300+** Global Customers

**54 of Top 100** R&D Spendere are Customers
WHAT ARE WE DOING FOR GROWTH – LARGE DEALS

- Managed Services for specific Programs / Processes
- Product Partnerships of Matured products
- Technology Partnerships of technologies with skill gaps at scale
- Rebadging of Workforce on Context specific Skillsets / Technologies
- Product Carve Outs of Legacy Products
- Vendor Consolidation using Risk Reward models

WHAT ARE WE DOING FOR GROWTH – LARGE DEALS
WHAT ARE WE DOING FOR ACCELERATED GROWTH – M&A

Three Pronged M&A Approach

**Niche Tech M&A**
Acquisition for Skill Enhancement

- C2SiS – VLSI Back End Design

**Growth Gap M&A**
Complementary Fitment
Scale and Customer Acquisition

- Geometric – Auto, PLM, Manufacturing Engg., Mechanical centric Products

**Account specific M&A**
Account specific capabilities

- Trygstad
THANK YOU