Global Engineering R&D Landscape

- PES Market Landscape
- Zinnov Zones for PES 2017
Global Corporate Engineering and R&D spend in excess of **USD 1 Trillion** in 2017

- **USD 640-650 Billion**
  - **G500 R&D Spend**
  - R&D Spend of Global Top 500 R&D Spenders

- **USD 830-850 Billion**
  - **Total Corporate R&D Spend**
  - R&D Spend by Global Corporates (Includes companies beyond top 500 R&D Spenders)

- **USD 1,050-1,100 Billion**
  - **Total Corporate Engineering and R&D Spend**
  - Includes Traditional R&D spend and Total Engineering Spend Organization wide

*All numbers are tightly ranged; Exact numbers will be released in the full version of the report*

**Source:** Zinnov G500
United States headquartered enterprises constitute ~45% of Global R&D spend

**United States**
- USD 640-650 Billion*
- USD 480-490 Billion*
- USD 285-295 Billion*

**Europe**
- USD 310-320 Billion*
- USD 180-190 Billion*

**Others**
- USD 280-290 Billion*
- USD 165-175 Billion*

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**Highest R&D Spenders**

<table>
<thead>
<tr>
<th>Company</th>
<th>USD Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMAZON</td>
<td>16.0 Bn</td>
</tr>
<tr>
<td>ALPHABET</td>
<td>13.9 Bn</td>
</tr>
<tr>
<td>INTEL</td>
<td>12.8 Bn</td>
</tr>
<tr>
<td>MICROSOFT</td>
<td>11.9 Bn</td>
</tr>
<tr>
<td>MERCK &amp; Co.</td>
<td>10.1 Bn</td>
</tr>
<tr>
<td>VOLKSWAGEN</td>
<td>15.0 Bn</td>
</tr>
<tr>
<td>ROCHE</td>
<td>10 Bn</td>
</tr>
<tr>
<td>NOVARTIS</td>
<td>9.0 Bn</td>
</tr>
<tr>
<td>DAIMLER</td>
<td>8.3 Bn</td>
</tr>
<tr>
<td>ROBERT BOSCH</td>
<td>7.6 Bn</td>
</tr>
<tr>
<td>SAMSUNG</td>
<td>13.1 Bn</td>
</tr>
<tr>
<td>HUAWEI</td>
<td>11.3 Bn</td>
</tr>
<tr>
<td>TOYOTA</td>
<td>9.5 Bn</td>
</tr>
<tr>
<td>HONDA</td>
<td>6.3 Bn</td>
</tr>
<tr>
<td>NISSAN</td>
<td>4.5 Bn</td>
</tr>
</tbody>
</table>

Note: R&D Spend accrued to the HQ of each company. It hasn’t been attributed by the geography of spend. E.g.: Ericsson has engineering spend in the US, but numbers have been attributed to Europe.

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R&D spending continues to stay highly consolidated with top 100 R&D spenders accounting for two-third of the total R&D Spend

### Contribution of G500 R&D Spenders

- **68%**
  - New Entrants in Top 100: 9 New entrants from Telecom, Software/Internet, Semicon verticals.
  - Dominant Industries: Automotive, Software/Internet, Telecom

- **16%**
  - Dominant Industries: Software/Internet, Semicon, Automotive

- **8%**
  - Dominant Industries: Software/Internet, Industrial, Energy & Utility

- **5%**
  - Dominant Industries: Industrial, Automotive, Semicon

- **3%**
  - Dominant Industries: Industrial, Software/Internet, Energy & Utility

2016 R&D Spend Ranking

- **648 Billion**

Source: Zinnov G500
Global Engineering R&D Landscape

- PES Market Landscape
- Zinnov Zones for PES 2017
Specialization, R&D practice maturity (depth and maturity services), Innovation & IP, Eco-System Linkages, Customer input
Mechanical Engineering Services Ratings 2017

**Expansive**
- Complete Participation by Service Provider
- Partial Participation by Service Providers

**Niche**
- Scale & Scalability, # of Verticals serviced, Client Spread

**Emerging**
- Specialization, R&D practice maturity (depth and maturity services), Innovation & IP, Eco-System Linkages, Customer input

**Established**
- HARMAN Connected Services
- Tata Elxsi
- KPIT Technologies

**Companies**
- Altran
- TCS
- Tech Mahindra
- Cyient
- QuEST Global
- Alten
- Assystem
- HCL
- Tata Technologies Infosys
- L&T TS
- Wipro
- Capgemini
- Genpact

Proprietary - Not for Redistribution
Zinnov Zones – Leading Service Providers

**Nurture Zone**
- R&D and PES as a focus area
- Niche capability in one type of PES service (Engineering / Embedded / Software)
- Innovation, if at all, in process optimization
- Generic - MoUs with universities and alliances

**Breakout Zone**
- On the way into big league, delivering R&D services effectively, tear down, purpose fit labs
- Generic Capability across Engg, Embedded and Software services and Niche capability in one area
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**Execution Zone**
- Capable of delivering complete product development as a true engineering partner, Customer Labs
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**Leadership Zone**
- Capable of performing concept to Go-To-Market for the product – Significant investment in Lab infrastructure
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Nurture Zone

- •

Scalability

- Scale & Scalability, # of Sub-Ventrizes serviced, Client Spread

High

Low

- •

Zinnov Zones – Leading Service Providers

TCS

Cyient

HCL

Infosys

Capgemini

Wipro

EPAM

Tech Mahindra

Innominds

Tata Technologies

EPAM

Tech Mahindra

Innominds

Tata Technologies

Construction & Heavy Machinery Ratings 2017

Zinnov Proprietary Confidential
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R&D Practice Maturity
- Breadth
- Innovation
- Eco-system Connect

Scalability
- Scale & Scalability, # of Sub-Verticals serviced, Client Spread

Consumer Electronics Ratings 2017

Proprietary—Not for Redistribution
High

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Scale & Scalability, # of Subverticals serviced, Client Spread

Scalability

R&D Practice

Maturity

Breadth

Innovation

Eco-system

Connect

Energy & Utility Ratings 2017

Zinnov Zones – Leading Service Providers

Innominds

Happiest Minds

SoftDEL

HARMAN Connected Services

ITC Infotech

EPAM

Genpact

Leadership Role

TCS

L&T TS

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Zinnov Zones – Leading Service Providers

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**R&D Practice Maturity**
- Scale & Scalability, # of Sub Verticals serviced, Client Spread

**Breadth**
- R&D and PES as a focus area

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- Niche capability in one type of PES service (Engineering / Embedded / Software)

**Eco-system Connect**
- Innovation, if at all, in process optimization
- Generic - MoUs with universities and alliances

**Proprietary - Not for Redistribution**
Zinnov Zones – Leading Service Providers

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Scalability

- Scale & Scalability, # of Subverticals serviced, Client Spread

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Zinnov Zones – Leading Service Providers

Proprietary - Not for Redistribution

• Capable of delivering complete product development as a true engineering partner
• Reusable components IP’s built, and benefits quantified
• Large ISVs and Niche ISVs

Leadership Zone
• Capable of performing concept to Go-To-Market for the product
• Formal innovation culture, resulting in IP’s and strategic innovations
• Worlds Largest ISVs

Execution Zone
• On the way into big league
• Innovation frameworks resulting in tangible benefit to customers

Breakout Zone
• R&D and PES as a focus area
• On the way into big league
• Generic ISVs, Startups

Scale & Scalability, # of Sub-VERTICALS serviced, Client Spread

R&D Practice Maturity
• Innovation, if at all, in process optimization
• Niche ISVs

Customer Type
• Innovation, if at all, in process optimization
• Niche ISVs

Innovation
• R&D and PES as a focus area

High
Low

Nurture Zone
• Capable of performing concept to Go- To-Market for the product
• Formal innovation culture, resulting in IP’s and strategic innovations

Leadership Zone
• Worlds Largest ISVs

Enterprise Software Ratings 2017
### Zinnov Zones – Leading Service Providers

**Nurture Zone**
- R&D and PES as a focus area
- Innovation, if at all, in process optimization
- Generic ISVs, Startups

**Breakout Zone**
- On the way into big league
- Innovation frameworks resulting in tangible benefit to customers
- Niche ISVs

**Execution Zone**
- Capable of delivering complete product development as a true engineering partner
- Reusable components IP’s built, and benefits quantified
- Large Internet and Consumer ISVs

**Leadership Zone**
- Capable of performing concept to Go-To-Market for the product
- Formal innovation culture, resulting in IP’s and strategic innovations
- Large Internet and Consumer ISVs

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### Consumer Software Ratings 2017

- Wipro
- Cognizant
- Itransition

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**Scale & Scalability, # of Sub Verticals serviced, Client Spread**

**R&D Practice Maturity**

**Innovation**

**Customer Type**

- TO THE NEW
- Consumer Software

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Zinnov Zones – Leading Service Providers

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**Telecommunication Ratings 2017**
R&D Practice Maturity  
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Breadth  
- Innovation, if at all, in process optimization
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