TATA CONSULTANCY SERVICES
Experience certainty.

Life Sciences
Debashis Ghosh

TCS ANALYST DAY
March 17, 2016

From biology, chemistry and anatomy…to data, analytics and technology

Analytics driven Genomics Research

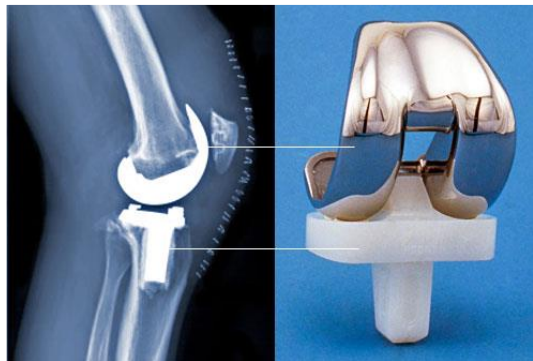We identify disease causing genetic mutations

By analyzing unknown rare genetic disorders of immunodeficiency

Technology driven Personalized Implants

We customize cutting blocks for knee implants

By reviewing knee X-Ray & MRI to develop 3D printer specification & precise pre-op planning

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Key Industry Trends

Adopting Digital Wave

- Transformation in Clinical Trial landscape – A shift towards Digital Clinical Trials
- New age Sales & Marketing using digital channels & tools
- Shift towards Cloud (as-a-service model)
- Real world evidence through social media analytics

Personalized Medicine

- Genomics driven new Drug R&D – Pharmacogenomics & Companion Diagnostics
- Translational research : from benchside to bedside

Smart Connected Devices

- IoT, Medical Electronics & 3D printing for miniature, non-invasive devices

Changing Regulatory Landscape

- Increasing focus on regulatory compliance & submissions
- Integrate regulatory affairs, patient safety and quality assurance to drive synergy

Merger & Acquisitions

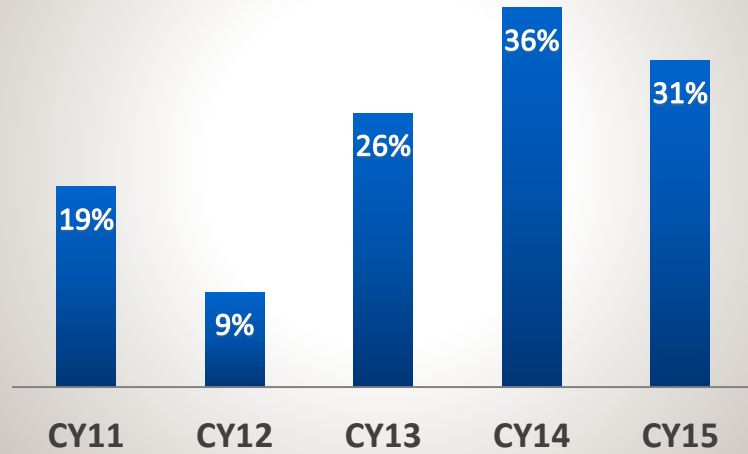- Standardization & optimization of business/IT processes & systems

Key Technology Trends

- **Increasing cloud adoption** as data security and privacy concerns are addressed by vendors

- Movement to **Platform as a service** (PaaS)

- Heavy focus towards **Analytics**

- Technologies for **gaining insights** on already available data especially in R&D

- **Big data** becoming mainstream and companies creating **data lakes**

- Leveraging **next generation collaboration** and KM across enterprise

- **Simplification** of application landscape and **consolidation** of technologies

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Holistic growth

Pharmaceutical & Biotechnology
13 of top 15

YoY Revenue Growth in CC

- CY11: 19%
- CY12: 9%
- CY13: 26%
- CY14: 36%
- CY15: 31%

Medical Devices & Diagnostics
8 of Top 10

Holistic growth across all service lines

Legend:
- ADM
- ITIS
- Consulting
- EntSol
- Engg Services
- Digital
- BPS
- Assurance

CY11 — CY15

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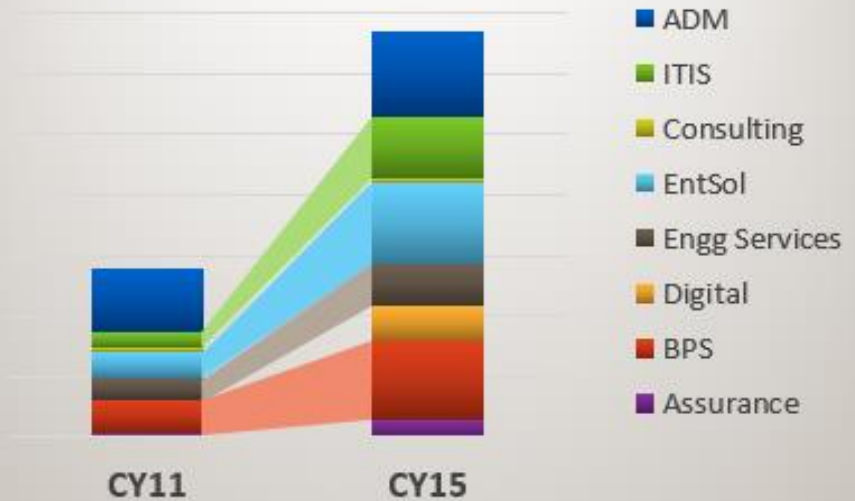
Recognitions in 2015

Everest PEAK Matrix Life Sciences ITO
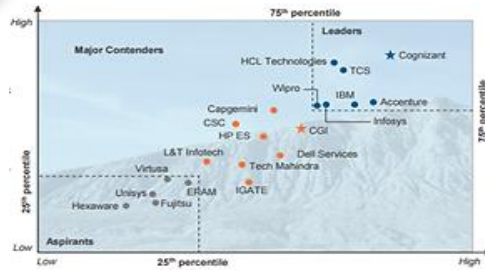
Sales & Marketing ITO by IDC

Everest PEAK Matrix Life Sciences European ITO

Manufacturing and Supply Chain ITO by IDC

Everest PEAK Matrix Life Sciences Clinical and R&D

Life Science R&D BPO Services by IDC

...& 4 more

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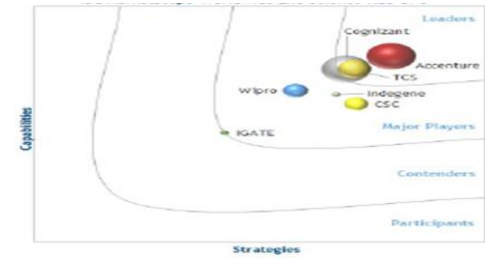
Trusted Digital Services Partner for Global Top Pharma

Business Approach 'Think Digital First'

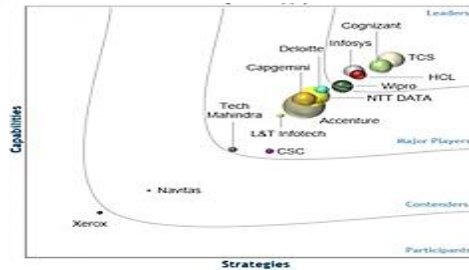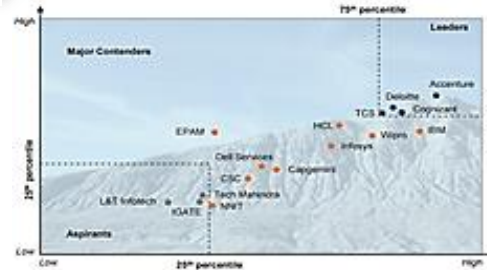**Delivering seamless Digital Experience with efficiency, effectiveness and global reach**

01   **Digital Marketing Services**: Unified Global Platforms & Assets supporting 1200+ sites, Solutions for each stakeholder (patients, physicians, sales & marketing teams)

02   **Mobility CoE**: Global Team working across US, UK and India serving multiple geographies as exclusive partner. Developed 75+ Mobile apps on Android & iOS.

03   **Digital Risk Analysis and Compliance Services**: Identify risks across externally facing Digital touch points covering 20+ risk domains with 90+ compliance requirements

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Drug Development Insights Platform for US Leading Pharma

TCS IP based Clinical Data warehouse Platform for clinical and operational analytics delivering significant savings

01 **Scale**: 35+ Studies on-boarded in 2 years with a plan to onboard 150 studies by this year end supporting 4300+ study sites & 21000+ patients

02 **Cost Savings**: > 100 M USD in 1 .5 years for Risk Based Monitoring

03 **Winner of CIO Award in 2015**

- Risk Based Monitoring
- Master Data Management
- Information Integration
- Operational Analytics

On-Demand Access to Gold Quality Clinical Data

TCS designated as a Leader in Worldwide Life Sciences R&D Risk-Based Monitoring by global market intelligence firm, IDC, in the "IDC MarketScape 2015"

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Digital Disease Management for US Leading Pharma

A Digital Health Platform for disease management in resource constrained countries

01   **Disease Covered** - HIV & TB

02   **Key Features** – Patient Management, Symptom checker & automated decision support, Counselling, HCP portal, and integration with external health platform

03   **Patient-centric Solution** for better patient-physician engagement improved adherence through IVR & SMS and reduced visits to Clinics

State of the art architecture

Standard phone & Smartphone Enabled

Disease Tracking & Reporting

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Innovation and Investment Led Change

Strong Life Sciences Industry Alliances
Product Vendors, Partners and Academia

Global Transformation Experience

5 IP-based Platform Business Solution on CLOUD

14+ Innovation Day and/or Though leadership Workshops

88+ Patents developed for clients and in-house in Life Sciences

14+ Resolved rare genetic disorder cases in children

Ranked Top IT Vendors - Leaders across LS IT Value Chain: IDC

10 White Paper / POV Published in 2015

Dedicated **Life Sciences Innovation Lab & Domain Academy**

6+ University Collaboration

Workforce with high Domain Competency

Dedicated Life Science Innovation Labs

- Genomics
- Bio-Informatics
- MBDD
- Clinical Development and Ops
- Drug Safety and Regulatory

- Serialization
- IoT/RFID Lab
- Predictive Analytics
- Process Engineering Lab
- SCM Optimization

- Digital Labs
- Enterprise Information Fusion
- Social Media Analytics
- Connected Marketing

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Medium term outlook

Increasing adoption of digital technologies

- Experience with large scale global digital transformation programs
- Trained Digital workforce & Digital CoEs

Innovation with External Partners by Life Sciences Industry

- Continue cutting edge research
- Establish TCS Life Sciences Cloud Platform

Personalized Medicine & Implants to expand

- Investments in TCS DNA Sequencing Lab & Translational Research capabilities
- Investments in 3D printing capabilities

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'Saving Lives by Serving Customers'

Thank You

IT Services
Business Solutions
Consulting