Global Outlook on Analytics Industry
Executive Summary

- Consumer at the center of the universe
- Increased rate of data generation
- High Growth Industry
- India’s outsourcing potential
- Imperatives for service providers
- Increased PE and M&A deals in the industry

» High focus on providing customized solutions to customers in order to remain competitive
» Analytics industry seeing more number of niche players coming up rather than traditional players
» To provide the best services to the customers, companies are spending more on marketing analytics based solutions
» For convenience of both the vendor and the customers, pay as you go services on the rise (SaaS based solutions)

» High amounts of data being generated by firms due to inclusion of automation at various stages
» Analytics is being seen as a game changer as the huge amount of data helps the companies generate various insights to use them as a source of competitive advantage
» With increased use of IOT, sensors would act as a source of huge amount of data which would be used by the firms to improve operational efficiency and reduce costs

» Worldwide business analytics services market valued at USD 54Bn in 2014 and expected to reach USD 101Bn by 2019
» Worldwide business analytics software market valued at USD 15.5Bn in 2014 and expected to grow at a CAGR of 6.7% to reach USD 17Bn by 2016
» Indian analytics software and services market valued at 1 billion USD in 2015 and is expected to grow 3X by 2020
» Indian analytics software market generated revenues of 144 million USD in 2014 and would be growing at a CAGR of 17%

» India owing to its large talent pool and cost effectiveness stays the primary destination for outsourcing
» Globally the BPM Industry is now being driven by process transformation, analytics and automation
» India’s share in global data analytics outsourcing is nearly 70% which shows India’s analytics capabilities

» With the changing landscape, more and more companies are going in for non-linear growth models with the help of automation and analytics
» To acquire state-of-the-art technologies, high number of M&A transactions can also be seen in this industry
» Increased competition leading to companies targeting only one product or service (Niche Solutions)

» More than 200 million USD were invested in the Indian analytics industry across 15 deals in 2014
» More than 180 million USD were invested till July 2015 itself across 20 deals, most of these were early stage funding
» Niche solutions based companies are the leaders in investments with 30 deals since 2014 (till July 2015)
<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
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<tbody>
<tr>
<td>Introduction</td>
<td>5-9</td>
</tr>
<tr>
<td>Components of Analytics Industry</td>
<td>10-15</td>
</tr>
<tr>
<td>Industry Trends and Drivers</td>
<td>16-23</td>
</tr>
<tr>
<td>Big Data Analytics</td>
<td>24-28</td>
</tr>
<tr>
<td>Major Players</td>
<td>29-31</td>
</tr>
<tr>
<td>Deal Activity</td>
<td>32-34</td>
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<td>Case Studies</td>
<td>35-38</td>
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Section 1: Introduction

*Increasing significance of analytics as part of the IT-BPM Industry*
Global IT-BPM Industry and its Components

Segments where analytics is considered important

Key Notes

» Analytics has penetrated almost every segment of the IT-BPM industry
» Its importance is being realized due to the huge amount of data being generated in every segment
» Any new technology which comes up in any segment is an after product of analytics which helps in finding out the voids
» Cloud computing is another technology which is being extensively used in every segment in conjunction with analytics
» Most of the spending done under these is to acquire SMAC (social, media, analytics, cloud) capabilities

Source - NASSCOM
Analytics Industry Solutions

Global Analytics Industry

Analytics Products
- Include core technology systems or software which are essential to run analytics in any firm

Analytics Services
- IT Services: Includes application development and management of analytics technology
- BPS Services: Includes mainly outsourced analytics focused business process services

Private & Confidential
Global Analytics Industry

The global analytics market is largely broken down into software and services and currently the revenues are being driven by the services market.

The services market is experiencing a double digit growth but the software market is experiencing a growth of just 7% showing a clear sign of shift to service based models.

Out of the USD 54Bn services market, data analytics outsourcing is just USD 880Mn which highlights the huge scope for outsourcing analytics.

Advanced analytics is still a small portion of the software market which again presents a big opportunity for startups to explore.

Source – NASSCOM, IDC, Gartner
Global Data Analytics Outsourcing Market

GLOBAL DATA ANALYTICS OUTSOURCING MARKET (IN $B)

- 2014: $0.9
- 2015: $1.1
- 2016: $1.5
- 2017: $1.9
- 2018: $2.5
- 2019: $3.3

CAGR ~ 30.5%

DATA ANALYTICS OUTSOURCING BY VERTICAL

- Manufacturing and Retail: 33%
- BFSI: 26%
- Healthcare: 28%
- Telecom: 9%
- Others: 5%

DATA ANALYTICS OUTSOURCING BY END-USER

- Americas: 68%
- EMEA: 23%
- APAC: 9%

GLOBAL DATA ANALYTICS OUTSOURCING BY SERVICE PROVIDER

- India: 70%
- China: 15%
- Latin America: 10%
- Others: 5%

Key Notes

» Data Analytics Outsourcing comprises 14% of the total KPO market and is growing at strong CAGR of 30%

» Out of various outsourcing destinations, India comes out as the leader with about 70% of the market (~USD 600Mn)

» Manufacturing and Retail are the most outsourced verticals due to extensive use of marketing analytics by these industries

» Most of the revenue is being generated from the Americas (~USD 600Mn)

Source - Technavio
High growth is seen in the Indian Analytics Industry and most of it is driven by services.

- Most Indian firms which are new in the market are targeting marketing analytics and niche solutions as their product or service.
- Most of these firms are start-ups and mid sized firms.
- Under niche solutions, most of them are targeting telecom, BFSI, retail and e-commerce.
- The primary aim for analytics under niche solutions is to gather customer data and come up with customized products for them.
- Most of the new companies to save infrastructure costs are going for cloud based services (SaaS).
- Due to increased mobile usage, many companies are targeting mobile analytics as a niche product/service offering.

**Key Notes**
Section 2: Components of Analytics Industry

Strong amalgamation of traditional and novel practices
**Major Verticals and Horizontals of the Industry**

**ANALYTICS COMPANIES IN INDIA BY VERTICALS**

- BFSI: 30%
- Next Gen Commerce: 25%
- Healthcare: 15%
- Telecom: 10%
- Others: 20%

**REVENUE GENERATION PER MAJOR FUNCTION GLOBALLY**

<table>
<thead>
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<th>Category</th>
<th>2014 (B USD)</th>
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<td>10.3%</td>
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<td>2.5</td>
<td>4.8</td>
<td>13.9%</td>
</tr>
<tr>
<td>Risk Analytics</td>
<td>6.9</td>
<td>13</td>
<td>13.5%</td>
</tr>
<tr>
<td>Location Analytics</td>
<td>6.8</td>
<td>11.8</td>
<td>11.6%</td>
</tr>
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</table>

**PERCEIVED IMPACT OF ANALYTICS PER VERTICAL (IN %) #**

- BFSI: 46%
- E-commerce: 34%
- Healthcare: 25%
- Telecom: 13%
- Others: 21%

**Key Notes**

- BFSI, E-commerce, Healthcare and Telecom are the major verticals which will drive the analytics industry.
- CRM analytics, Supply Chain analytics and Risk analytics are expected to be high growth functions with business analytics still contributing the maximum to overall revenue.
- According to KPMG Survey, 40-50% of the companies expect analytics to have a high or moderate impact on the overall functioning of the firm.
- On an average 20% companies expect analytics to have a very high impact on the functioning of the firm reinstating the faith of companies in analytics.

Source – NASSCOM

# KPMG Survey, TMT – Telecom, media and technology, BPS – Business processes and services
## Horizontals and Verticals Mapping

<table>
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<tr>
<th></th>
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### Key Notes

» Customer analytics, financial analytics and HR analytics are the most widely used services/products but the main revenues are driven by customer analytics

» Web analytics which includes social media analytics has experienced high growth in the past few years and has been used by almost all industries

» Engineering analytics is mainly driven by IOT market which is prominent across healthcare, telecom and automotive industries and is now becoming a source of competitive advantage for these industries

» Sales analytics is highly important for industries like retail/CPG as accurate demand forecasts are highly important for them and their entire business is driven by sales
Horizontals (1/3)

**Customer Analytics**

- Predictive analytics based on customer buying behavior to personalize its buying process for making it more convenient
- Analyzing their journey through various channels to identify trends so as to generate further insights
- Most startups entering the market through consumer analytics platforms
- Near 13% CAGR expected in this domain over the next 5 years

**Engineering Analytics**

- Internet of things is the primary tool under engineering analytics
- Data from connected devices can be analyzed to generate various patterns and predict future anomalies in terms of services or products
- Due to shortage of skilled labor, engineering analytics is a big tool used by firms for automation
- Increase in smartphone sales would support its growth further

**Financial Analytics**

- Forecasting of financial performance using analysis of past data
- Analysis of various products and customers to identify the best combination in order to generate maximum revenue
- A huge requirement for the BFSI industry
- Also used by many industries for revenue prediction and optimization models and is provided as a product/service by most major firms

Source – IBM, NASSCOM, News & Reports, Company Websites
<table>
<thead>
<tr>
<th>Horizontal</th>
<th>Offerings</th>
<th>Major Players</th>
</tr>
</thead>
</table>
| Risk Analytics      | » Predictive analytics used for adapting to risk and regulatory compliances  
                     » Trading and banking book risk management  
                     » Investment and insurance risk management  
                     » High growth domain with a CAGR of 13%+ for the next 5 years  
                     » Huge demand by BFSI Industry and the Government as it helps in reducing leakages | INDIAN: Mu Sigma, Measurify  
                     GLOBAL: rapidminer, Verisk Analytics |
| Sales Analytics     | » Analytics used for deciding the optimum amount of compensation to motivate sales employees  
                     » Help achieve sales targets  
                     » Develop insights and trends to come up with the optimum sales mix for highest revenue  
                     » Highly important for all customer oriented industries  
                     » Differs from customer analytics as the main motive under this is to increase sales through tweaking the sales mix instead of providing customized products | INDIAN: Retigence  
                     GLOBAL: altervx, GoodData |
| Web Analytics       | » Analysis of social media data to generate insights and come up with personalized solutions for customers and digital marketing campaigns  
                     » Online sentiment analysis to come out with the right product or service at the right time  
                     » Gained traction with the onset of social media  
                     » Almost a billion people already connected via social media which provides a huge scope for this function | INDIAN: Abibat, Trend-Monitoring  
                     GLOBAL: GoodData, tamr, CoreMetrics |
Horizontals (3/3)

Supply Chain Analytics

» Supply and demand forecasting in order to avoid unnecessary costs
» Inventory management using analytics of past data to decide the optimum order size to avoid inventory holding and carrying costs
» Optimum sourcing mix
» Highest CAGR expected for this function though from a lower base

HR Analytics

» Optimum compensation is decided on the basis of analytics which ensures employee satisfaction and motivation
» Use of analytics to recruit new people in the firm on the basis of past data and the data of the applicants
» Due to dearth of skilled labor, companies these days go for HR analytics software
» Compensation management is another important capability companies look for to save costs

Location Analytics

» Decision of optimal location of facility/plant to ensure low costs of procurement and sales
» Strategic placement of dealers to ensure maximum demand is satisfied without incurring high costs
» Strategic placing of advertisements
» Very niche function with very few companies using it
» Has an expected CAGR of 12% for the next 5 years
» Huge potential for growth and low competition provides huge investment opportunities

Source – IBM, NASSCOM, News & Reports, Company Websites
Section 3: Industry Trends and Drivers

A-Z of what’s driving the analytics industry
What’s Driving the Analytics Industry

1. **Analytics leads to significant ROI**
   - Companies who have embraced analytics and are using as part of their business strategy are able to achieve better results.
   - Companies who have analytical capabilities but are not using it as part of their strategy tend to struggle in generating significant ROI and results.
   - Having analytical capabilities is not sufficient but making it a significant contributor to your strategy is more important.
   - Companies who have realized this are already experiencing exceedingly well bottoms and top lines.

2. **High Growth Rate of Data**
   - For the past few years, data has been growing at an accelerated rate.
   - The CAGR of data is 37% if the base year is 2008 but if the base year is 2015, the CAGR has increased to 42% showing the high growth rate of data.
   - The amount of data being generated is not only from traditional sources like points of sale and surveys but also through sensors (IOT).
   - The huge potential of this data is something every company wants to exploit using analytics.

Source – Oracle, Accenture

* Accenture Survey of companies using analytics. High performers use analytics as part of their strategy.
Increase in Smartphone usage

» No of smartphones has been increasing for the past 5-6 years
» This means huge amounts of data in the form of text and voice data will be generated which presents huge opportunity for the telecom industry to generate insights from it
» Not only has the no of smartphones increased but the time an individual spends on it has also increased
» In USA, a smartphone user on an average spends 4.7 hours on his phone; this could help in analysis to generate personalized content

Lower Data Storage Costs

» Along with the huge amount of data being generated, the cost of storing data is reducing considerably which is motivating companies to generate insights by collecting as much useful data as possible
» There has been a decline of nearly 80% in the cost which means that the company can increase data storage by 400% to incur the same cost as they were incurring earlier which presents huge potential
» With cloud computing gaining more importance, this cost is expected to decrease even further
What’s Driving the Analytics Industry

5 High Affordability of Analytics

- Due to high competition in the analytics industry, various players are coming out with products which are priced competitively.
- Almost 60% of the products are priced in the lowest price levels showcasing the affordability of these software.
- The low cost of these software can also be attributed to the low cost of acquiring data these days and change from licensing of products to cloud based services.
- Niche product based companies which are coming up are expected to drive down the prices of these software even lower.

6 Spurt of E-commerce Companies

- Increase in e-commerce sales and companies has been significant and is expected to increase even more.
- With many companies coming up, the competitive landscape is driving the companies to acquire analytics for competitive advantage.
- The main benefactors are marketing analytics companies as e-commerce companies are trying to acquire as many customers as possible by providing customized solutions/products.
- Smartphone growth is also contributing to growth in e-commerce which is again driving the analytics industry.

Source – Euromonitor, Company Websites

* Predictive analytics products were considered with a sample size of 64, 5 is the highest price level and 1 is the lowest.
### Analytics Trends (1/2)

#### Data Security on the Rise
- Huge amounts of data not only provides opportunities to generate insights but also poses a problem of keeping it safe.
- With big data analytics in the picture, data security becomes a huge responsibility for organizations.
- Companies having big data capabilities are hence using analytics to predict future threats and tackle them in advance.
- Analytics hence is the first and last line of defense for most companies.

#### Internet of Things
- Internet of Things is a source of huge amounts of data and is the main component of engineering analytics.
- It is being extensively used for productivity improvements and to enhance security protocols across various industries.
- The main problem companies face with IOT is integration issues as IOT is all sensor based data which doesn’t go well with traditional sources of data; once tapped, it has immense potential.

#### Data Monetization
- With big data and type of insights which can be extracted from it, companies have started associating monetary value with it.
- Raw data if kept as it is may have little value but once sorted and analyzed to generate trends and patterns, the value of the data becomes manifold.
- Analytics helps in increasing the value of the data you have and is an exciting value proposition for data aggregators.

#### Artificial Intelligence
- Artificial Intelligence has reduced the difference between human and machines in terms of thinking capability.
- Since AI is all about automation and complex processing, analytics is at the root of this as well.
- Data from machines is being analyzed real time to generate patterns and outputs for complete automation of all procedures.
- Cognitive analytical procedures are becoming more and more prominent with the advent of artificial intelligence.

Source – Deloitte Reports, NASSCOM, News & Reports
Analytics Trends (2/2)

Onset of Open Source Solutions

- With the onset of open source solutions, the cost of acquiring analytics capabilities has become significantly cheaper.
- Ease of configuration as per the usage of the firm makes using open source capabilities very convenient.
- Open source software like Hadoop (Big Data) and Mahout (Machine Learning) are being used extensively.
- The challenge lies in the fact that the firm should have a clear picture of what it wants to achieve with open source.

Analytics for Taxation

- Tax analytics refers to the practice of using analytics for saving taxes and doing a what if analysis of different financial decisions.
- For global firms, the taxation policies of different geographies can be highly complex, and having tax analytics in place helps to solve it by generating geography specific tax reports.
- As of now, tax analytics is just restricted to simulation processes but has a huge potential in the future for simplifying taxation.

Facial Recognition for Analytics

- With boom in social media, many images of people are uploaded everyday which provides huge potential for facial recognition.
- Facial recognition data can help in analyzing customer non-verbal behavior and generate insights.
- Customer responses to different environments can help in analyzing the likes and dislikes they have.
- Such data can be really helpful for marketing analytics companies and also for crime/theft detection.

Geospatial or Location Analytics

- Location based data can really help generate multiple insights with respect to customer profiling and location profiling.
- Many companies can market specific products based on location and type of people they map to that location.
- Strategic placement of factories and retail outlets is another outcome which can be achieved through location analytics.
- This function has increased in relevance due to better GPS facilities and location based searches through smartphones.

Source – Deloitte Reports, NASSCOM, News & Reports
Major Technology Drivers for the Industry

**Internet of Things**
- Major source of data for analytics companies as the number of connected devices increase on a daily basis
- Has lead to the introduction of many niche IoT analytics players

**Robotic Process Automation**
- Automation will drive analytics as companies look to reduce costs by making robots intelligent enough to modify functioning as per input and output data
- As more intelligent robots come in, the need for analytics will arise dramatically

**Artificial Intelligence**
- AI will drive analytics as cognitive computing runs on real time analytics to modify the functioning of machines
- Shift in AI capabilities from automation to augmentation as companies to look to gain competitive advantage
- Many niche AI players have come up in this space

Source – NASSCOM, IDC
Major Technologies CEOs would like to Invest in

**TOP INVESTMENTS, NEXT 5 YEARS**

- AI/Smart Machines: 15%
- Design Thinking: 15%
- Sustainability: 18%
- Supply Chain Optimization: 19%
- Social Engagement: 20%
- M-Commerce: 20%
- IoT: 25%
- Digital Workplace: 26%
- Digital Products and Services: 29%
- Business Analytics: 29%
- Cloud: 29%
- Smart Processes: 30%
- Big Data: 34%
- Customer Experience Management: 34%
- Digital Marketing: 37%

**BOTTOM 5 INVESTMENTS**

- Additive Manufacturing: 9%
- Robot Staffing: 10%
- Neurobusiness: 10%
- Mass Customization: 11%
- Pay As You Go: 13%

**Key Notes**

» Among the top 15 responses, 4 were core analytics technologies which have huge potential for providing companies with competitive advantage.

» The other 11 technologies were related to analytics in some way, directly or indirectly, which shows that analytics is the way forward for most companies around the world.

» The top spot among analytics was held by big data which showcases how crucial it has become for most companies simply owing to the fact that huge amounts of data is there for the taking if you have the capability to generate insights from it.

» Most of the revenue generating technologies are analytics based which again points to the fact that most analytics capabilities have the scope of generating high ROI if used with the right scope and strategy in mind.

Source – Gartner Survey of CEOs of 396 companies
Data Analytics – Sources and Challenges

**Importance of Big Data (in %, based on company revenues)**

<table>
<thead>
<tr>
<th>Revenue Bracket</th>
<th>Extremely Important</th>
<th>Important</th>
<th>Moderately Important</th>
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<tbody>
<tr>
<td>$250M-$500M</td>
<td>43%</td>
<td>43%</td>
<td>12%</td>
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<tr>
<td>Overall</td>
<td>59%</td>
<td>34%</td>
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**Sources of Big Data**

- Large Data Files
- Advanced Analytics/Analysis
- Data from Visualization Tools
- Data from Social Networks
- Unstructured Data
- Geospatial/Location Information
- Social Media/Monitoring/Mapping
- Telematics
- Log Files/Free Text

**Challenges to Big Data**

- Data Security
- Budgets
- Lack of Talent to implement Big Data
- Lack of Talent to run Big Data
- Integration with Existing Systems
- Procurement Limitations on Big Data Vendors
- Enterprise not ready for Big Data

**Key Notes**

» It is seen that since big data capabilities haven’t been exploited to the core, companies with low revenues are more reluctant to invest in it thought majority of them consider it important.

» Companies with high revenues are very much clear about its benefits and are more than willing to invest a significant portion.

» On an average, nearly 60% companies across all revenue brackets considered big data to be extremely important.

» Reluctance to implement is mainly because of the challenges associated with it but nowadays since almost everything is a source of big data, this mindset is changing.

Source – Accenture
The primary software used by most big data companies is Hadoop. Due to its capability to handle large streams of data, most companies adopt a version of Hadoop if not in its purest form. Hadoop is an open source software developed and maintained by the Apache software foundation. Major pure play Hadoop vendors around the world include Hortonworks and Cloudera. As of now, Hadoop is a small segment of the overall market but is expected to reach almost 50% by 2020 driven by increase in services.

Source - Hortonworks
Hadoop Ecosystem Components

Management & Monitoring (Ambari)
Software for provisioning, managing and monitoring Hadoop clusters by providing easy to use UIs

Workflow & Scheduling (Oozie)
Scheduling software to manage Hadoop jobs

Scripting (Pig)
Helps in analyzing large data sets that consist of high level language

Machine Learning (Mahout)
Implement machine learning algorithms like clustering

Query (Hive)
Provides SQL like language to perform queries to support analysis of data stored in HDFS

Distributed Processing (MapReduce)
Processing technique for distributed computing based on Java, performs map and reduce operations for performing parallel computations on large data sets

Distributed Storage (HDFS)
Java based data storage having a capacity of up to 200 petabytes supporting billions of files

NoSQL Database (Hbase)
Non relational distributed database running on top of HDFS to provide big table like capabilities to Hadoop

Data Integration (Sqoop)
Helps in transferring relational databases to and from Hadoop

Coordination (ZooKeeper)
Provides synchronization and naming registry for large distributed systems

Scripting (Pig)
Helps in analyzing large data sets that consist of high level language

Management & Monitoring (Ambari)
Software for provisioning, managing and monitoring Hadoop clusters by providing easy to use UIs

Workflow & Scheduling (Oozie)
Scheduling software to manage Hadoop jobs

Distributed Processing (MapReduce)
Processing technique for distributed computing based on Java, performs map and reduce operations for performing parallel computations on large data sets

Distributed Storage (HDFS)
Java based data storage having a capacity of up to 200 petabytes supporting billions of files

NoSQL Database (Hbase)
Non relational distributed database running on top of HDFS to provide big table like capabilities to Hadoop

Data Integration (Sqoop)
Helps in transferring relational databases to and from Hadoop

Coordination (ZooKeeper)
Provides synchronization and naming registry for large distributed systems

Workflow & Scheduling (Oozie)
Scheduling software to manage Hadoop jobs

Scripting (Pig)
Helps in analyzing large data sets that consist of high level language

Machine Learning (Mahout)
Implement machine learning algorithms like clustering

Query (Hive)
Provides SQL like language to perform queries to support analysis of data stored in HDFS

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Section 5: Major Players

Analytics Companies which have made a mark in the Industry
Global Analytics Vendor Mapping

**COMPREHENSIVE ANALYTICS SOLUTIONS**

- SAS
- IBM
- Accenture
- Microsoft
- DOMO
- BeyondCore
- Tableau
- MicroStrategy
- Qlik
- SAP
- Pyramid Analytics
- Sisense

**COMPREHENSIVE MARKETING ANALYTICS**

- Alteryx
- Birst
- DataHero
- ClearStory
- GoodData
- indix

**SOCIAL MEDIA ANALYTICS**

- Tamr
- Identified
- Bluefin
- GoodData
- Salesforce
- Sysomos
- Talkwalker
- Brandwatch
- Sift
- Sprinklr

**SENTIMENT ANALYTICS**

- Lexalytics
- Clarabridge
- Attensity
- Lymbix
- Kanjoya

**CUSTOMER LIFECYCLE ANALYTICS**

- Interana
- Neustar
- Coremetrics

**DASHBOARDS / VISUALIZATION**

- Jaspersoft
- Chartio
- Zoro Reports
- Looker

**RISK/FRAUD ANALYTICS**

- Rapidminer
- DataMee
- Verisk Analytics
- FICO

**WEB ANALYTICS**

- New Relic
- Applause
- Winning Apps Get It

**MOBILE ANALYTICS**

- Adaptive Insights
- Kanjoya
- VoloMetrix

**HR ANALYTICS**

- Skytree
- Alpine Data
- Datapm

**AUTOMATION ANALYTICS**

- Skytree
- GT Nexus

**IOT ANALYTICS**

- Glassbeam
- Platformia
- Predixion

**HEALTHCARE ANALYTICS**

- Wellcentive
- Pentaho
- Yruus
- Valence Health

**SUPPLY CHAIN ANALYTICS**

- Chainalytics

**VERTICAL BASED ANALYTICS**

- Tidemark
- AYASDI
- Palantir
Indian Analytics Vendor Mapping

COMPREHENSIVE ANALYTICS SOLUTIONS
- TATA
- WIPRO
- Infosys
- absolutedata
- Tech Mahindra
- WNS
- Fractal
- manthan
- The Smart Cube
- Ramco
- Hexaware Technologies

COMPREHENSIVE MARKETING ANALYTICS
- Marketintelligent
- Mobstac
- Datamatics
- Crayon
- Komli
- iKen Solutions
- Fly Data
- Blue Ocean

SOCIAL MEDIA ANALYTICS
- Ariba
- unmetric
- Heckyl
- Simplify
- Cubole
- BDI Systems

CAMPAIGN ANALYTICS
- Tokitaki
- Infozech
- 3forz
- Touchsy
- Uniphore
- Zonetel

SENTIMENT ANALYTICS
- Profoundis
- Authent
- BDI Systems
- CustomerXps
- Gramyan
- Talsa

CUSTOMER LIFECYCLE ANALYTICS
- BDI Systems
- Gramyan
- Talsa

WEB ANALYTICS
- Avizury
- Uniphore
- Zonetel

DASHBOARDS / VISUALIZATION
- Innovaccer
- Gramenei
- Appointy
- FusionCharts
- ProGen

RISK ANALYTICS
- Salted
- i2v
- VeKomy
- Avizury
- Pervasive
- MachinePulse

MOBILE ANALYTICS
- Webmobi
- Infomate
- Inmob

HR ANALYTICS
- Belong.co
- Bridge 121
- Sapience
- Spire
- Contextual Search & Intelligence

AUTOMATION ANALYTICS
- Pervasive
- MachinePulse
- Greenfield Software
- Allgreen Software
- Flutura
- Altizon

HEALTHCARE ANALYTICS
- CGSL
- GetActive

SUPPLY CHAIN ANALYTICS
- Retigence
- Nati
- Newgen

VERITCAL BASED ANALYTICS
- Fintellix
- Capillary
- Avendus
### Initiatives by Major Players in the Analytics Space

**TCS** is taking the partnership route to provide customized solutions to customers across multiple industries –

- a partnership with **Symantec** group will help in providing analytics-driven security services
- a partnership with **Intel** will help in providing IOT solutions on the Intel platform
- a partnership with **Siemens** will help TCS in delivering product performance intelligence through big data analytics

**To leverage the importance of analytics**, a separate division (Tata Consumer Analytics Division) was formed which would be providing services to the Tata Group of Companies

**For leveraging big data capabilities**, TCS has a tie-up with **Cloudera**, a global big data software vendor (Hadoop)

**Wipro** has undertaken many strategic partnerships in the analytics space –

- a partnership with **Qlik** to provide advanced analytics solutions to their customers by widening the scope and scale of visualization solutions offered
- a partnership with **Etiya**, a software vendor providing CRM and big data solutions, to provide analytics solutions to communication service providers
- a partnership with **Xactly Corp.**, a provider of SaaS and cloud based incentive solutions, to provide sales performance management solutions to clients
- a partnership with **Tableau** to offer holistic and future proof advance visualization solutions to customers around the globe

Wipro is also an active investor in analytics companies like **Altizon Systems, Vicarious** to name a few

**Infosys** has leveraged strategic partnerships along with going for a few acquisitions and investments –

- a partnership with **Microsoft** as well as **Amazon** to utilize their cloud platform (Azure and AWS respectively) for data collection and software delivery
- a partnership with **KUKA**, a German automation company, for leveraging Industry 4.0 capability utilizing its expertise in analytics

**Infosys** has also made investments in analytics companies like **Trifacta** to gain the comprehensive expertise in analytics

It has gone for acquisitions as well looking for inorganic growth; it has acquired **Panaya**, a leading provider for automation technology, with a robust cloud based system which will help Infosys come out with SaaS based offerings

**Capgemini** has multiple strategic partnerships to expand its analytics practice –

- a partnership with **Amazon** to use their cloud services for providing solutions over the cloud
- a partnership with **FICO** for expanding to risk and fraud analytics which is the main product of FICO
- a partnership with **Siemens** for providing smart building solutions using Siemens smart energy platform and Capgemini’s IoT analytics

**To provide automation solutions to BFSI companies**, Capgemini has launched an intelligent test automation platform promising up to 30% savings
Initiatives by Major Players in the Analytics Space

» Tech Mahindra is a strategic partner with many global companies to give the best analytics offerings –
  • a partnership with Qlik for providing best in class visual predictive analytics platform
  • a partnership with Microsoft for utilizing their cloud facilities to provide IOT analytics solutions
» Tech Mahindra has also invested in a center of excellence in the field of robotics and analytics
» It has strategic tie-ups with many schools and colleges around the world for the grooming of data scientists
» The big data platform used by Tech Mahindra is also certified by Hortonworks to provide the best in class big data analytics solutions

» Hexaware has undertaken many strategic partnerships in the analytics space –
  • a partnership with UiPath to provide intelligent process automation solutions utilizing its expertise in analytics
  • a partnership with Blue Prism to enable clients to rapidly automate manual processes and drive efficiency
  • a partnership with Tele2 to develop solutions along Machine-to-Machine and IOT again utilizing its analytics strength
  • a partnership with Riversand to provide master data management solutions as a support to their analytics offerings

» Accenture has teamed up with multiple global players to improve its analytics offerings –
  • a partnership with GE Healthcare for application of big data analytics to the claims management process
  • a partnership with IPsoft to help organizations in accelerating the adoption of artificial intelligence
  • a partnership with Splunk for leveraging machine data for better business outcomes in terms of higher operational efficiency
» Accenture has acquired multiple companies in the analytics space to diversify its portfolio of solutions – Acquired OPS Rules Management Consultant for supply chain and operations analytics expertise, Gapso Services to again improve its operations analytics capabilities and some companies like Sollum, Cloud Sherpas and CRMWaypoint for acquiring cloud based systems for expanding to cloud based analytics and enterprise solutions

» IBM has strategic partnerships with many companies from diversified businesses to leverage its analytics capabilities –
  • a partnership with Twitter for leveraging social media data for analytics
  • a partnership with The Weather Company for utilizing Watson analytics for integrating real time weather insights into business
  • a partnership with Box to provide analytics services over the cloud
  • a partnership with Nvidia to use their accelerator over the cloud for providing faster processing
» IBM has gone for some strategic acquisitions also to strengthen their analytics offering like Truven Health for providing healthcare analytics using Watson, Optemia for acquiring SaaS capability for over the cloud analytics offering and many other companies again to enhance their cloud platform
Initiatives by Major Players in the Analytics Space

- Mu Sigma has invested recently in acquiring IoT and Artificial Intelligence capabilities by developing platforms which specifically cater to them
- Mu Sigma has come up with a testing platform, muApt, which helps in acquiring talent in the field of data scientists
- Another product by Mu Sigma named muUniverse was launched which works with big data and operational intelligence to help make business decisions
- Mu Sigma has a strategic partnership with Information Resources Inc. to come up with Q-IRI which is a prescriptive analytics engine to help marketers
- To develop its social media analytics platform, muFusion Social, Mu Sigma acquired Webfluenz (a social media analytics company)

- To remain up to date with the trends in the industry, Microsoft has updated its SQL server database with new analytics, big data and encryption features
- Microsoft Azure is being used at the cloud platform by multiple analytics firms, specially for the firms who are using IOT technology
- It has a strategic partnership with Alteryx where the Microsoft Azure platform is being used by Alteryx to provide self service analytics over the cloud
- Microsoft has also gone for multiple acquisitions to scale up its analytics business like Metanautix (US based provider of data analytics services), Datazen Software (Canada based provider of BI and analytics solutions) and Revolution Analytics (US based company providing analytics software solutions) to name a few along with some firms providing cloud based services like CloudFare, Adallom, C9 and InsideSales to strengthen its cloud platform and also look to diversify to over the cloud analytics solutions

- SAS Institute has recently come out with a software for IoT analytics to stay in sync with the coming of age of IoT
- SAS Institute also came up with a new analytics and visualization architecture, Viya, to make analytics more accessible to all users via cloud
- Using its expertise in data management, SAS Institute has a strategic partnership with Duke Clinical Research Institute to provide cardiac data
- SAS Institute has launched SAS Customer Intelligence 360 which is a SaaS based analytics solutions for providing insights to firms on their customers
- SAS has strategic partnerships with many analytics vendors and customers –
  - partnerships with analytics consulting firms like Deloitte, Accenture, EY and Capgemini to help them with software solutions
  - partnerships with big data vendors like Hortonworks and Cloudera to develop hadoop like data analytics platforms

- Manthan Systems has many strategic partners for both capability and geographical expansion –
  - a partnership with Tableau for coming up with a retail analytics solutions having Tableau’s visualization tools
  - a partnership with Hortonworks to provide big data solutions over Hortonworks data platform
  - a partnership with Intelloyl to increase its presence in Latin America in terms of providing analytics solutions
  - a partnership with KASP to increase its presence in Middle East in terms of providing analytics solutions
  - a partnership with Amazon to utilize their cloud services to provide SaaS based solutions
- Manthan Systems have come up with a special customer analytics app which runs over Hadoop as its adoption increases in the industry
Analytics Industry coming out as an important area where companies are looking to invest
Over USD 400Mn is the amount which is said to be invested in the Indian analytics industry alone in the years 2014 and 2015.
## Major Deals in Analytics Space

<table>
<thead>
<tr>
<th>Date</th>
<th>Target</th>
<th>Description</th>
<th>Deal Type</th>
<th>Acquirer</th>
<th>Deal Value</th>
<th>EV</th>
<th>EV / Revenue</th>
<th>EV / EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>May-16</td>
<td>Fractal Analytics</td>
<td>US-based provider of analytics solutions</td>
<td>PE Fund Raise</td>
<td>Khazanah Nasional Berhad</td>
<td>100</td>
<td>1307</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Apr-16</td>
<td>Verisk Health</td>
<td>US-based healthcare information technology company engaged in providing healthcare analytics solutions</td>
<td>PE Fund Raise</td>
<td>Veritas Capital</td>
<td>820</td>
<td>820</td>
<td>2.6x</td>
<td>9.1x</td>
</tr>
<tr>
<td>Mar-16</td>
<td>EagleEye Analytics</td>
<td>US-based company that provides predictive analytics software and consulting services</td>
<td>M&amp;A</td>
<td>Guidewire Software</td>
<td>42</td>
<td>42</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Mar-16</td>
<td>Value Edge Research</td>
<td>India-based provider of commercial research and analytics services to clients in the Pharma and Biopharma industry</td>
<td>M&amp;A</td>
<td>WNS Ltd</td>
<td>18</td>
<td>18</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Feb-16</td>
<td>Truven Health Analytics</td>
<td>US-based company that offers information, analytic tools, benchmarks, and services to the healthcare sector</td>
<td>M&amp;A</td>
<td>IBM Watson</td>
<td>2600</td>
<td>2600</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Jan-16</td>
<td>Qubole</td>
<td>US-based company engaged in developing a cloud data platform for analyzing and processing data sets</td>
<td>PE Fund Raise</td>
<td>Institutional Venture Partners</td>
<td>30</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Nov-15</td>
<td>MarketShare</td>
<td>US-based advanced analytics software and technology company engaged in providing cross media analytics solutions</td>
<td>M&amp;A</td>
<td>NeuStar</td>
<td>450</td>
<td>450</td>
<td>7.9x</td>
<td>NA</td>
</tr>
<tr>
<td>Oct-15</td>
<td>Litmus Software</td>
<td>US-based company that develops email testing and marketing analytics solutions</td>
<td>PE Fund Raise</td>
<td>Spectrum Equity</td>
<td>49</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Sep-15</td>
<td>LogiNext Solutions</td>
<td>India-based provider of real time tracking and analytics solutions for logistic and supply chain networks</td>
<td>M&amp;A</td>
<td>One97 Communications</td>
<td>10</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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Source: Mergermarket, Avendus estimates; All figures are in US$ Mn
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<td>Jul-15</td>
<td>Bluefin Solutions</td>
<td>UK-based consultancy specializing in SAP HANA and providing digital and real-time-analytics</td>
<td>M&amp;A</td>
<td>Mindtree Ltd</td>
<td>53</td>
<td>53</td>
<td>1.2x</td>
<td>13.5x</td>
</tr>
<tr>
<td>Jun-15</td>
<td>Seed Scientific</td>
<td>US-based data innovation and advanced analytics firm</td>
<td>M&amp;A</td>
<td>Spotify Ltd</td>
<td>13</td>
<td>13</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>May-15</td>
<td>ColdLight Solutions</td>
<td>US-based company which provides analytics, predictive technology and machine learning science</td>
<td>M&amp;A</td>
<td>PTC</td>
<td>105</td>
<td>105</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Apr-15</td>
<td>Applied Predictive Technologies</td>
<td>US-based company engaged in providing cloud-based analytics software solutions</td>
<td>M&amp;A</td>
<td>MasterCard</td>
<td>600</td>
<td>600</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Feb-15</td>
<td>Manthan Systems</td>
<td>India-based provider of business intelligence and retail analytical solutions</td>
<td>PE Fund Raise</td>
<td>Temasek, Norwest Venture Partners</td>
<td>56</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Jan-15</td>
<td>Antuit Holdings</td>
<td>Singapore-based company engaged in developing big-data analytics software</td>
<td>PE Fund Raise</td>
<td>Goldman Sachs</td>
<td>56</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Jan-15</td>
<td>RateGain IT Solutions</td>
<td>India-based company providing revenue management, distribution channel management and real-time pricing data and analytics software</td>
<td>PE Fund Raise</td>
<td>TA Associates</td>
<td>50</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Nov-14</td>
<td>Nettpositive</td>
<td>India based company engaged in the provision of high velocity analytics and business intelligence solutions</td>
<td>M&amp;A</td>
<td>Equifax</td>
<td>14</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Aug-14</td>
<td>Invati Insights</td>
<td>India based data analytics services provider</td>
<td>M&amp;A</td>
<td>Cyient</td>
<td>10</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
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Source: Mergermarket, Avendus estimates; All figures are in US$ Mn
Analytics in Action acting as a game changer for multiple companies
## Analytics Case Studies

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<th>Illustrative client relationships</th>
<th>Client objective</th>
<th>Solutions provided</th>
<th>Benefit derived</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mu Sigma, Leading US based retail bank</td>
<td>The client required a framework that would allow them to forecast losses driven in various portfolios, while incorporating the impact of macroeconomic conditions, within a three-month time frame to meet the regulatory requirements of the Fed</td>
<td>Mu Sigma developed a framework based on discussions with various teams and developed a loss forecasting model Mu Sigma further added the capability to manage recoveries and predict portfolio growth into the model Loss reserves were calculated for various portfolios based on this framework</td>
<td>The client was able to successfully pass the Fed mandated stress tests. This allowed the client to acquire other banks as part of their expansion strategy The client was able to improve the overall loss reserving process by driving down the cost of reserving by more than 5%</td>
</tr>
<tr>
<td>Fractal, Fortune 500 E-com Brand</td>
<td>The client wanted to measure the ROI and contribution of online and offline channels It also wanted a standardised cross media optimization approach and wanted to scale it across markets</td>
<td>Fractal modelled complex relations using 5 different mathematical techniques It developed a Bayesian belief network Fractal developed over 3 million models in 2 months and finalized a robust ensemble mode</td>
<td>Increase in traffic, revenue impact and reduction in marketing budget was observed Overall time to measure ATL marketing effectiveness reduced by 80% Enabled standardization of marketing ROI measurement</td>
</tr>
<tr>
<td>EXL, US Based Healthcare Provider</td>
<td>The client wanted reduction of annual healthcare cost for US based network of healthcare providers The preventable hospitalization costs has high costs associated with it</td>
<td>EXL developed an advanced machine learning algorithm for predicting number of days a person is expected to spend in the hospital in the coming year leveraging their past healthcare records</td>
<td>Hospitalization costs were reduced by preventing predicted short term hospital stays Better budgeting decisions for long term stays Patient satisfaction increased by avoiding unnecessary hospitalization</td>
</tr>
<tr>
<td>Hexaware, A UK Customer</td>
<td>The client wanted a reduction in high customer churn situation which it was facing It also wanted an improvement in win back rates through understanding customer behaviour</td>
<td>Hexaware developed a churn prediction model based on demographics, relationship and transactions It also developed a retention prediction model to identify lead indicators of potential customer churn in the next 30 days</td>
<td>9% improvement in identification of potential churn customers Win back rates improved from 55 to 68% Net bad churn reduced to 8% from 10% within 3 months of implementation</td>
</tr>
</tbody>
</table>
## Illustrative client relationships

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<tr>
<th>Client</th>
<th>Solutions provided</th>
<th>Benefit derived</th>
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</thead>
<tbody>
<tr>
<td><strong>GENPACT</strong>&lt;br&gt;Leading Aircraft Engine Supplier</td>
<td>Genpact consolidated engine data to forecast failures and came up with an engine retirement model to optimize service costs. It also came up with an analytical model to increase contract profitability and also to calculate safety stocks.</td>
<td>The client witnessed a 82% reduction in stock outs and 26% reduction in inventory costs. The entire activity led to a savings of more than 200 million USD for the client over 3 years.</td>
</tr>
<tr>
<td><strong>Capgemini</strong>&lt;br&gt;Leading FMCG Company in India</td>
<td>Capgemini came up with a series of analytical solutions like voice analysis, influencer analysis, sentiment analysis, real time social media monitoring and analysis of various events and campaigns by the company and its competitors.</td>
<td>The client experienced an increased reach on social media channels. Customer engagement improved by 7% and brand image by 4%. Increase in customer satisfaction was also seen and social media analytics helped in improving content marketing.</td>
</tr>
<tr>
<td><strong>SIBIA</strong>&lt;br&gt;Major Retail Chain</td>
<td>SIBIA Analytics came up with a forecasting engine that created a SKU-Store forecast for thousand of cases. All the forecasts and business intelligence reports were made available over a SaaS platform.</td>
<td>Forecast accuracy of 85-98% was achieved during the production period. Inventory cost saving increased by 20%.</td>
</tr>
<tr>
<td><strong>Manthan</strong>&lt;br&gt;Leading Retail Group</td>
<td>Manthan Services used customer segmentation, propensity models to understand region and store-wise buying patterns and churn modelling and assortment tuning to enhance the knowledge of customer behaviour.</td>
<td>A 7-9% reduction in stock outs was observed. A recovery of 5-7% was achieved in lost sales. A 10-12% reduction in churn was achieved through this process.</td>
</tr>
</tbody>
</table>
## Analytics Case Studies

<table>
<thead>
<tr>
<th>Illustrative client relationships</th>
<th>Client objective</th>
<th>Solutions provided</th>
<th>Benefit derived</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>StatLabs</strong>&lt;br&gt;Deploying Decision Management&lt;br&gt;Government of Middle East Country</td>
<td>» The client wanted prediction of real time demand for taxis for optimized deployment</td>
<td>» StatLabs Implemented a big data predictive analytics platform with dedicated modules for revenue and sales analytics, demand forecasting and demand planning using a Hadoop based big data platform and a web based presentation layer for visualization purposes</td>
<td>» The client was able to witness a rise in the number of trips per taxi in a day by 20%&lt;br&gt;» This led to an increase in gross margin by 14% within two quarters</td>
</tr>
<tr>
<td><strong>Agora Analytics</strong>&lt;br&gt;Global Staffing Company</td>
<td>» The client wanted an ease of making a JD for a particular role and also wanted to reduce time wasted in searching for an appropriate resume</td>
<td>» Agora analytics came up with a customized product which helped in semantic matching of resumes with a JD, applied shortlisting criteria based on rejections by the hiring manager in the past and came up with a hiring criteria by observing historic hiring patterns</td>
<td>» The client experienced an improved speed of hiring by 200%&lt;br&gt;» The hiring costs also reduced by almost 50%</td>
</tr>
<tr>
<td><strong>Ideal Analytics</strong>&lt;br&gt;A Multi-national Cooperation</td>
<td>» The client wanted to reduce the leakage of software licensing piracy which was significantly affecting its top line</td>
<td>» Ideal Analytics developed a model by checking for mismatch between usage and purchases through various mediums of research&lt;br&gt;» The model statistically estimated number of active users, number of user licenses, type of usage, and gaps in licenses purchased</td>
<td>» All the data collected converged to target customers and then a customer lifecycle management activity helped the company increase its revenue by 20%</td>
</tr>
<tr>
<td><strong>AbsolutData</strong>&lt;br&gt;Intelligent Analytics&lt;br&gt;Mining Major</td>
<td>» The client wanted identification of failure risk by predicting engine failure&lt;br&gt;» A predictive maintenance model to identify the optimum time for changing engine oil&lt;br&gt;» A reduction in false alarm rates for operational efficiencies</td>
<td>» AbsolutData used truck’s sensor data along with operations and alarms data&lt;br&gt;» This data was merged using big data, machine learning algorithms were applied&lt;br&gt;» Sentiment analysis and word cloud inputs were used to further refine the model</td>
<td>» Critical alarms reduced to 6% from 24% using a robust segmentation&lt;br&gt;» 3-5 days of saving on every engine oil change&lt;br&gt;» Engine replacement costs went down by 50%</td>
</tr>
</tbody>
</table>
## Concluding Thoughts

### Software ➡️ Services

- Companies instead of having an in-house software are looking to either go for a per user delivery system or outsource the entire analytics to a third party in order to save costs.
- This shift is also attributed to the availability of cloud platform through which the vendor can provide the software over the cloud in a SaaS based delivery system benefitting both the client and the vendor.
- This shift is also attributed to the lack of data scientists in the industry which is a big concern for most of the companies which are now looking to train new recruits in house.

### Comprehensive Analytics ➡️ Niche Offerings

- Due to high competition between multiple firms, companies are looking to provide niche products or services in order to differentiate rather than having comprehensive solutions.
- Most new companies in the industry come up with one or two offerings in order to target specific clients.
- Being niche also helps small firms to be acquired by big companies if they fail to scale up in the future.
- For providing customized and niche offerings, companies can demand higher revenues for the work they do for their clients which is not possible if a company has a standard product.

### Emerging Verticals

- Traditionally BFSI used to drive the analytics industry with most of the firms targeting only this vertical.
- Initially analytics was started by mostly captives who were the analytics offices of major financial companies like Citi, UBS etc.
- Now a shift is seen towards emerging verticals like Healthcare, which has recently seen very high growth, and Retail, which is gaining popularity due to the spurt of e-commerce companies.

<table>
<thead>
<tr>
<th>Vertical</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>24%</td>
</tr>
<tr>
<td>Retail</td>
<td>19%</td>
</tr>
</tbody>
</table>

### What are Companies Doing?

- Most big analytics firms or IT/BPO firms are looking to acquire smaller firms in order to expand to new verticals or horizontals or for geographical expansion.
- Many of them are going for strategic partnerships in order to acquire technology which would help them in providing state of the art solutions to their clients.
- Most major players, in order to remain in sync with what is in demand these days, are looking to acquire Big Data, IoT, Artificial Intelligence or Automation capabilities as most clients these days want to invest in these technologies for competitive advantage and higher operational efficiencies for their businesses.
Section 8: Annexures
Evolution of Analytics over the years

Level of Complexity

Late 1990s

Basic Analytics

OLAP

Query Drill Down

Standard Reports

Descriptive Analytics

Predictive Analytics

Prescriptive Analytics

2000 Onwards

Big Data Analytics

Complex Event Processing

Extreme SQL

Predictive Modelling

Forecasting

Statistical Analysis

Alerts

Ad-hoc Reports

Standard Reports

Basic Analytics

Advance Analytics

Analytical Database Functions

Behavioral Analytics

Stochastic Optimization

Optimization

Social Network Analysis

Semantic Analysis

Time Series Analysis

Natural Language Processing

Behavioral Analytics

Stochastic Optimization

Optimization

Social Network Analysis

Semantic Analysis

Time Series Analysis

Natural Language Processing

Complex Event Processing

Extreme SQL

Predictive Modelling

Forecasting

Statistical Analysis

Alerts

Ad-hoc Reports

Standard Reports

Basic Analytics

2000 Onwards

Evolution of Analytics over the years

Analytics as a separate value chain function

In-database analytics

Source – NASSCOM, CRISIL GR&A analysis
### Verticals (1/4)

#### VERTICAL

**Natural Resources**

- MINING – Reducing the time and cost associated with locating a natural resource
- Operational efficiency improvement for past and future tasks
- ENERGY – Demand forecasting and revenue management
- Fraud and loss prevention
- Asset and customer management

#### Healthcare

- Improve effectiveness of clinical procedures along with improving customer/patient and physician satisfaction
- Making day to day operations more effective such as reducing time to perform various clinical procedures
- Bring in strong financials through revenue management models and improve effectiveness of administrative staff

#### Banking

- Customer behavior analysis and generation of marketing campaigns
- Credit risk evaluation before giving out loans through customer analysis methods
- Prevention of fraud and money laundering using pattern recognition techniques
- Optimization of banking products and portfolios using simulations

### FUNCTIONS

#### CASE STUDY

**Absolutdata**

- **Predictive maintenance of trucks**
  - Predict engine failure and optimum time for engine oil replacement
  - Alarm generation using truck data for increasing operational efficiency and save costs

**Saama Technologies**

- **Patient Sentiment Analysis**
  - Using big data analytics to provide enriching experience to patients
  - Optimization of patient engagement strategies leading to satisfied and happy patients

**WNS Global Services**

- **Mortgage Survival Model**
  - Probability of survival was predicted for mortgage customers using analytical methods
  - Accuracy of predictions helped in reducing customer attrition rate

Source – IBM, NASSCOM, News & Reports, Company Websites
Verticals (2/4)

**Telecom**
- **FUNCTIONS**
  - NETWORK DATA ANALYSIS – Monitoring the network and planning desired capacity
  - Optimization of network and call/data routes
  - SUBSCRIBER DATA ANALYSIS – Use of social media analytics for subscriber profiling and customized advertisement
  - Churn management and use of analytics for coming up with new products and pricing strategies

**Insurance**
- **FUNCTIONS**
  - Use of analytics to acquire potential customers and also to reduce the churn rate
  - Coming up with the best cross-sell and upsell offers for customers at the right time
  - Prevention of fraud
  - Pricing models for revenue maximizations
  - Portfolio management of various customers to come up with the best solutions

**Aviation and Aerospace**
- **FUNCTIONS**
  - Optimizing the travel route to save fuel costs and reduce travel time
  - Opting for dynamic pricing strategies for maximum revenue generation
  - Monitoring the functioning of the airplane to prevent accidents
  - Reputation management activities and use of analytics to improve operational efficiency

**CASE STUDY**
- **ABIBA Systems**
  - Mobile money life cycle analysis
  - Use of analytics to increase subscribers of mobile money, extract more revenues from present customers and reduce cost associated with mobile money

- **Axtria**
  - Customer Engagement
  - Use of big data analytics to generate insights and improve customer engagement
  - Development of various applications for better customer services

- **TCG Digital Solutions**
  - Revenue forecasting
  - Use of analytics to forecast revenue based on multiple parameters
  - Helped in finding out an optimal mix of various resources for generating maximum revenue per flight

Source – IBM, NASSCOM, News & Reports, Company Websites
### Verticals (3/4)

<table>
<thead>
<tr>
<th>VERTICAL</th>
<th>FUNCTIONS</th>
<th>CASE STUDY</th>
</tr>
</thead>
</table>
| Retail / CPG / E-Commerce | - Customer behavior and need recognition  
- Coming up with customized advertisements, promotions and products for various customers  
- Optimizing the inventory by predicting the demand with high accuracy to save costs  
- Pricing strategies to maximize revenue  
- Optimal locations decisions for various stores, distribution centers and other facilities | Fractal Analytics  
- Market Mix Model  
  - Measurement of ROI and contribution of various channels in an effective manner to come out with the best marketing mix  
  - Reduced time to measure effect |
| Hospitality       | - Dynamic pricing of rooms in a hotel to maximize revenue collection  
- Optimization of day to day operations and supply chain  
- Analyze customer loyalty and generate customer profiles to provide customized products  
- Reputation management and management of staff for scheduling purposes | eClerx Services  
- Improve RevPAR for a hotel  
  - Demand forecasting was done based on data gathered from various sources  
  - Optimum stay prices were found out to maximize revenue collection |
| Agriculture       | - Geo-mapping of crop growers to efficiently utilize agricultural land  
- Optimizing commodity prices for benefit to both the provider and payer  
- Predicting the crop yield for a particular season to take necessary steps to improve it  
- Increasing the efficiency of on field employees to generate high yield per hectare | Mjunction Services  
- Predicting Reserve Price for tea  
  - Replaced the traditional tea tasters who used to set the price by coming up with a model to accurately predict the reserve price for the various varieties of tea produced |

Source – IBM, NASSCOM, News & Reports, Company Websites
<table>
<thead>
<tr>
<th>Vertical</th>
<th>Functions</th>
<th>Case Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>- Quick launch of complex vehicles using analytics on engineering data</td>
<td>General Motors</td>
</tr>
<tr>
<td></td>
<td>- Optimizing the supply chain by using past data to predict failures and work on them</td>
<td><strong>Optimum location of dealers</strong></td>
</tr>
<tr>
<td></td>
<td>- Improve service quality through analysis of vehicular data by making use of sensors (IOT)</td>
<td>- Use of location analytics to strategically place dealers in location which are more likely to have customers who are looking to buy a new vehicle</td>
</tr>
<tr>
<td></td>
<td>- Use of customer analytics for reputation management and coming out with customized products</td>
<td><strong>Fraud Analytics</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Development of an algorithm to detect fraud in transactions by various traders and stop influx of fraudulent money into the system through illegitimate means</td>
</tr>
<tr>
<td>Government</td>
<td>- Prediction of crimes and improvement of investigative procedures</td>
<td>Capgemini</td>
</tr>
<tr>
<td></td>
<td>- Use of analytics to improve defense capabilities</td>
<td><strong>Fraud Analytics</strong></td>
</tr>
<tr>
<td></td>
<td>- Improving cyber security by predicting potential threats</td>
<td>- Development of an algorithm to detect fraud in transactions by various traders and stop influx of fraudulent money into the system through illegitimate means</td>
</tr>
<tr>
<td></td>
<td>- Targeting the right people for various social initiatives to tackle any fraud cases</td>
<td><strong>Optimum location of dealers</strong></td>
</tr>
<tr>
<td></td>
<td>- Improvement in tax collection activities</td>
<td>- Use of location analytics to strategically place dealers in location which are more likely to have customers who are looking to buy a new vehicle</td>
</tr>
<tr>
<td>Media &amp; Entertainment</td>
<td>- Analysis of audience through various media channels to gather insight as to the viewing patterns and preferences of the customer and provide targeted advertisements and products</td>
<td><strong>Scheduling of NFL matches</strong></td>
</tr>
<tr>
<td></td>
<td>- Analysis of fans before and after sporting events to provide personalized content</td>
<td>- Use of analytics to strategically schedule big matches of the National Football League on the best days so as to generate maximum viewership and revenues</td>
</tr>
<tr>
<td></td>
<td>- Use of cloud based services to perform analytics through various sources of data available</td>
<td><strong>Scheduling of NFL matches</strong></td>
</tr>
</tbody>
</table>

Source – IBM, NASSCOM, News & Reports, Company Websites
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