Data Analytics

Critical inputs for businesses

ANALYTICS TODAY HAS BECOME A pre-requisite for driving continuous success. Companies are using new technology and techniques to integrate data from multiple sources in a structured format for better analysis.

It is estimated that the Big Data and Analytics market will reach $125 bn worldwide in 2015. According to IDC, every day more than 2.5 quintillion bytes of data is produced from multiple sources including social media, sensor data, transaction data and mobile phone usage data to name a few. Companies across industries are heavily dependent on using this data for better and faster decisions in everyday business. And India is no different. Nasscom in its recent report predicted that the Analytics market in India is expected to grow more than double to

$2.3 bn by the end of 2017-18.

There is a growing realization among Indian companies that Analytics is a key ingredient for success. Every industry vertical in India is opening up to Analytics as a driver of success, telecom giants are predicting customer purchase pattern through predictive Analytics, big automobile companies have been using data for decision making. The online companies are not far behind. They have started leveraging a combination of in-house and third-party technologies for developing a 360 degree view of their customers.

TelecomLive spoke to industry leaders to get more insight about the growing data Analytics market.

Heavy investments are being made by Indian MNCs in Analytics

Sudeshna Datta, *Absolutdata*

Trends

The global Big Data market opportunity is estimated to grow at 45 pc annually to reach $25 bn and the Indian Big Data industry is expected to reach $1 bn in 2015 according to Nasscom. Analytics industry is expanding at an ever increasing rate, playing a significant role in the decision making process of companies worldwide. The biggest trends that affect companies across the globe today are Big Data, IoT, social media analytics, and the automation of sophisticated analytics practices - all of which require advanced Analytics.

Heavy investments are being made by Indian MNCs in Analytics to leverage the power of growing amount of data captured in their systems. A major pie of the Analytics driven industries include the BFSI (Banking, Financial Service and Insurance), Telecom Services, ITES (Information Technology Enabled Services), CPG (Consumer Packaged Goods), and Retail in India. Other sectors are still at a nascent stage of leveraging the power of Analytics and need Analytics thought partners who can help them in embedding data driven decision making culture.

Verticals to look at

In today's age each and every department of a company relies on data for effective decision making. In our experience we have seen clients using data Analytics across Human Resources, Supply Chain, Revenue Management, IT and Finance.

Competition

Every industry whether it is Retail, CPG, hospitality, health,

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automobile, etc., is becoming more and more data-driven. There is plethora of data being generated by companies which gives an opportunity to evaluate, understand and fulfil customer needs like never before. However, most of the companies struggle to put this data to the best possible use and are heavily dependent on Analytics service providers. This proliferation of data has created a vast ocean of opportunities for new companies, it also creates new opportunities for well-known Analytics and IT companies who have been in the market for decades.

Products and services

There are numerous techniques used for doing Analytics, however it largely depends on the business requirement. For instance, while doing Marketing & Sales Analytics, commonly used techniques are Regression Analysis (OLS, Linear and Multinomial Regression), Mixed Models, Generalized Estimation Equations, Structural Equation Modeling, VARX, Fast Fourier Transformation, Bayesian & Markov Models.

Absolutdata offers an extensive depth and breadth of Analytics services including, marketing & sales Analytics, customer Analytics, market research, digital media analytics, social media analytics, dynamic dashboard design, beautiful visualizations, ETL services and Big Data architectures.

A sample of the state-of-the-art work includes:

- Mobile behavior activity classification framework
- Deployed Big Data technologies through platforms such as, Hadoop, MapReduce and Python to deliver a massive project on predictive maintenance for a large mining company
- Projects wherein we have combined research, transactional and contextual data
- Significant experience in working on multiple Conjoint Analysis, Segmentation Analysis, Marketing Mix Modeling and Price Pack Architecture projects

In 2015 we launched the Navik line of automated marketing Analytics tools including Navik Converter and Navik Concept Test. These easy-to-use products put the power of advanced Analytics in the hands of line-of-business managers at major global brands in CPG, hospitality, retail, and technology companies.

Navik Concept Test is a cloud based decision support tool that automates concept testing for brand managers, product managers and market researchers. Guided research design, easy panel selection, and advanced Analytics under the hood provide clear and decisive Go/No Go results.

Challenges

Every organization today recognizes that the exponential increase in the volume, velocity and variety of data represents a great opportunity. What they don't always fully grasp is how Analytics should be applied to turn that data into the kind of insight that will enable them to develop Analytics into a competitive advantage in today's

dynamic marketplace.

Key challenges faced may vary depending on the scale of operations to the services being delivered. However some of the challenges faced are primarily:

- Absence of right skill-set to devise and implement an effective Analytics strategy
- At times right skills are not in sync with current trends and new technologies
- Absence of streamlined process to setup Analytics practice
- Never ending struggle with volumes of unstructured data

Future plans

At Absolutdata we understand 'the need of the hour'. We realize that clients now needs a partner

who goes beyond insights to deliver high quality information at the right time in the decision making cycle. Keeping in mind the changing market requirements Absolutdata has changed the way it delivers its services, using a new approach called "Decision Engineering" delivered through a combination of products & services. Under the umbrella of 'Decision Engineering', we launched 'Absolutdata Labs' an in-house innovation hub focused on developing new analytical products and services.

In the coming future we will be focused on developing and extending our Navik suite of cloud based Analytics & research products. We will also continue to expand other significant parts of the business for clients, based on their expanding needs: Big Data/IoT services; and the social media Analytics business. These are high growth areas for our clients.

The role of data for actionable insights has become more important

Vivekanand Venugopal, *Hitachi Data Systems*

The data Analytics market

According to Gartner, the Big Data and Analytics is expected to reach $125 bn by the end of 2015. Buying and selling data has become new business trend in the market, with 70 pc of large organizations having already purchased external data and 100 pc expected do so by 2019. In parallel, more organizations will begin to monetize their data by selling them or providing value added content. Adoption of technology like automation, self-service, augmentation is on rise and organizations are spending on the same for workforce management.

Big Data and the Internet of Things (IoT) are disrupting entire markets, with machine data driving the merging of the virtual world with the physical world. Gartner expects this market to reach $263 bn by 2020. The IoT has integrated Information Technology (IT) and Operation Technology (OT) together which data generated needs to be stored, analyzed and used for predictions. The role of data, which can be correlated, visualized and generated for actionable insights, has become more important.

Trends

From a global and Indian perspective, data has become more relevant today both with regards to making business decisions as well as to share information on products manufactured in our daily personal lives. In a competitive business environment, there is a growing need of Analytics and ensuring the protection of this data should be as high on the agenda for companies to provide better customer experience. Companies in the management, marketing and e-commerce space in India are doing well with the use of data Analytics.

According to a survey by The Economist Intelligence Unit (EIU) and Hitachi Data Systems, the adoption report of these companies stated that: 91 pc of companies' citied internal barriers to Big Data adoption. The biggest obstacles are the lack of suitable software and skills. Also the survey highlighted that 40 pc of respondents have showed concern over the absence of proper communication channels.

Below are the few emerging trends on data Analytics:

a) **Big Data Lakes:** The Big Data lake is the cloud based storage repository that can hold vast amount of unstructured data in the native format until it is needed. There is a great need of data lakes due to surge of data sources i.e. social media platforms.

b) **Predictive Analytics:** The predictive Analytics doesn't forecast the future IT but it helps in extracting information from existing data sets in order to determine further outcomes and trends.

Business verticals to look at

At Hitachi Data Systems, we build solutions on data and for data. Our charter is to liberate data from the infrastructure, location constraints and make it more mobile and our

software defined approach is the step towards the same. We believe that technology should simplify operations by automation, and assessment. There should be better agility by abstraction due to virtualization.

We are predominately focusing on BFSI, manufacturing, telecom, IT and ITeS sectors, where we help customers to leverage their data, engage with customers and work more efficiently while spending less.

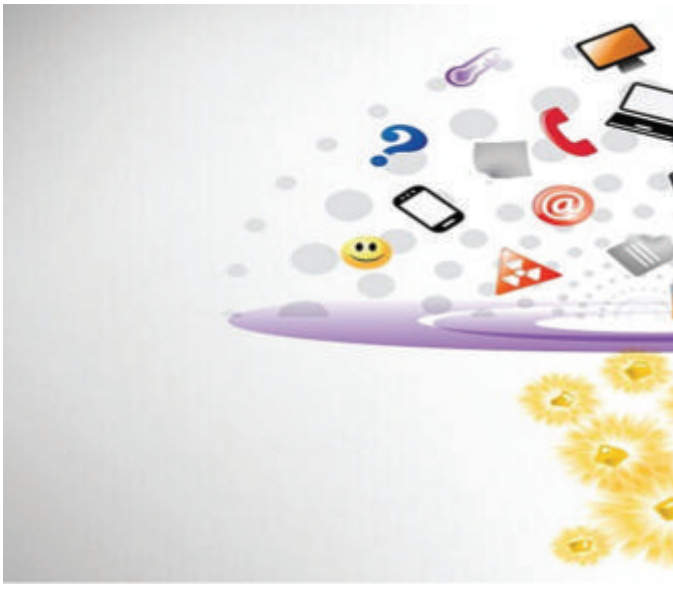
In the last 4 years, we have had a strong focus on the government sector. HDS is directly contributing to government's initiatives like Digital India, MyGov, etc. About 15 pc of our revenue comes from the government sector. We don't reach out to the government directly, but through our partner and system integrators. We are looking at a unique set of partners for the government sector based on their expertise.

Products and services

A major trend that we see in the market is Social Innovation, which is using innovative technology and business solutions to address larger societal trends that range from urbanization and smart, connected technology to new health models and strained natural resources. Over the next few years, we are focusing on transforming ourselves into a market leader in the market of solutions for Big Data and the IoT. Social innovation is the unifying strategy across Hitachi's businesses to deliver solutions for the IoT and Big Data – solutions that enable healthier, safer and smarter societies.

Some of our Social innovation solutions are:

- **Hitachi Live Insight for IT Operations:** It enables users to analyze all the machine data in their data center - from enterprise applications and data storage, to power distribution units and temperature sensors - to detect and identify the root cause of data center outages. Customers can also benefit from a new Analytics accelerator service, which employs a five-step approach that leverages data acquisition, mapping and interpretation, predictive modelling, and data processing and retrieval tools, such as Hadoop and NoSQL, to gain actionable insights and drive business-level results.
- **Hitachi Clinical Repository (HCR) for Connected Health:** HCR is extended to support connected health with secure mobile access. HCR for connected health empowers healthcare professionals with sophisticated data Analytics, tools and proven delivery methods that let them adapt better to societal changes and increase strategic decision-making to optimize patient care. Built on Hitachi Content Platform technology, HCR provides a multipurpose data repository where all clinical and non-clinical data can be stored, backed up, preserved and retrieved on a single, integrated platform.
- **Hitachi Live Insight Center of Excellence:** It is designed to help organizations confidently and swiftly test, customize and deploy advanced data Analytics solutions, applications, platforms, and integrated solutions to support new business initiatives. It helps in developing precise Big Data strategies and Analytics roadmaps with expert-led workshops that explore opportunities and clarify business impact.
- **Hitachi Visualization for Public Safety:** HDS has powerful new predictive Analytics capabilities for its Hitachi Visualization solution that will enable police to better prepare for potential events. The solution is powered by the Pantascene and Avrio technologies.
- **Hitachi Live Insight for Telecom:** It offers enhanced network Analytics that are specifically designed to support communication service providers and their customers' ability to enhance network services using real-time insight.



Challenges

Big Data has changed earlier way of Analytics. All kinds of companies need Analytics for large data size and the variety of data is a great challenge. For example, apart from transaction data, we now have audio feed, video feed, social data, senor data from smart phones, etc., also, the hiring trend in Analytics industry is also low and tough. It is really difficult to find the best talent who would have the passion about Analytics. It is important to measure the results alongside client satisfaction.

Future

HDS is transforming from a data storage provider into an information solutions company. We also aim to become a leader in the market for Big Data and IoT, enabling customers to turn data into intelligence. Big Data is not just IT but a business requirement and businesses must

understand what IT can do to deliver the desired outcome. We are uniquely positioned to innovate with information for IoT through collaborations with Hitachi family of companies. We are focused on taking a major leap forward to Big Data Analytics and Social Innovation through continuous innovation & acquisitions.

HDS's Social Innovation initiative aims to address both business and society challenges including population growth and urbanization, aging public infrastructures and populations, rising healthcare costs and public safety concerns. To address these needs, HDS is leveraging its data infrastructure technologies and smart Analytics software foundation to develop purpose-built solutions for a variety of markets. These solutions combine the IoT with operational technology, and IT infrastructure all in a unified, fully integrated stack.

Social Innovation is the unifying strategy across Hitachi's businesses to deliver solutions for the IoT and Big Data solutions that enable healthier, safer and smarter societies. HDS has recently announced several strategic acquisitions including Avrio, Oxya, Pantascene and Pentaho over the past year to bolster its Social Innovation and Analytics portfolio.

Companies are changing their business models based on data Analytics

Dr B Muthukumaran, ***HTC Global Services***

The data Analytics market

New generation customers leave forensic trails of information footprints distributed across physical stores and digital channels like company web sites, e-commerce portals, social media platform and customer support call centers. The good news is the genesis of our ability to converge and monetize such large volumes of data through data analytic platforms. Globally, the scale and scope of change influenced by data Analytics is the key that creates the inflection point across the industry verticals.

Hence, companies are changing their business models based on data Analytics to identify and segment customers with similar behavioural parameters and not by demographics. Such foot prints have different contextual meaning across different business verticals with varying degrees of influence on business outcomes. It calls for the interpretations of domain specialist. As a result, an organization's strength is dependent on its ability in data Analytics to create its strategic differentiators creating the gold race across the world including India.

Trends

Globally, data Analytics has emerged as a discipline of discussions creating new job profiles like data scientist, data analyst, etc. Global enterprises have started their race to take their stake on the emerging data Analytics platform as a service provider, as a manufacturer, as a consulting firm to create value to organizations and as a research entity. Indian Analytics market has been fuelled by the government's Digital India program igniting the digital Analytics fire. Increase in the number of start-ups in India indicates the surge and the thrust created by software start-up to convert raw data into useful business insights. India has set its place as an Analytics hub due to its talent pool in disciplines like mathematics, statistics and economics. The surge in Analytics education market across India spread over universities, technical and business schools and private players like the Institute of Technology Management and Research (ITMR) has created the essential spring board for growth.

Data analytic platforms are shaping up across the world. Thanks to the thought leaders. New thoughts and application areas are being identified and tested. In the next couple of years, analytic solutions will mature across different business verticals. Such solutions will take their place in the board rooms and will start influencing the business outcomes across the world.

Verticals to look at

High-end Analytics is on demand in the telecom sector to identify new sources of revenue from streaming data flowing across their digital pipes. Emerging analytic capabilities from sensor based Internet of Things (IoT) has started influencing different business sectors, like mining, oil and gas, utilities, and healthcare. Real time voice based Analytics is an upcoming technology, which captures spoken words and generates Analytics coupled with intelligent suggestions leading to business value across various business domains.

Cyber Security Analytics will emerge as a large domain area to influence the security market and stabilize itself as cyber security operating center (CSOC). Stylometric Analytics built out of text Analytics is another upcoming area to generate insight in Healthcare, Web Analytics, Social media textual Analytics, cyber policing, cybercrime

busting and Customer communications across different business verticals influencing the results of recommendation systems to name a few. Video Analytics is emerging as an influential domain to analyze sports recordings, political recordings, movies and other recordings to understand the behavioural patterns.

Competition

Though competition is acute, there is still a shortage of talent. Right talent coupled with domain understanding creates the tipping point in favour of competitions.

Products and services

Data Analytics educational products in Technology and Management domain areas addressing the current skill gaps are critical service offerings. HTC Global Services offers consulting services, implementation services, and managed services in data Analytics domain. Apart from educational products, HTC's solutions include, email gateway Analytics, sentiment Analytics, call Analytics, claims Analytics, Analytics as a service, security event Analytics and cyber security operations.

Challenges

Different challenges constitute the solution space in streaming data Analytics. Though the data platform is in place, there is a need to address the data dynamics and the information swing embedded as a part of streaming data. This calls for new data models to map the data flow for better insights coupled with real data sets. There is an acute shortage of data models since data models are domain specific and solution specific. A lot of work needs to be carried out to identify new data models coupled with advanced statistical techniques to siphon out intelligence.

Future plans

Creation of data analytic intellectual property in terms of advanced algorithms is an area of focus from HTC's research units. From a business stand point, cyber security and healthcare Analytics solutions are an emerging market in the US, and HTC's BigData CoE is moving towards this.

SME sector is still in a nascent stage of deploying Analytics & Business Intelligence

Harsh Tikku, *SoftAge*

The data Analytics market

Analytics as a standalone business process has gained pre-eminence in the past 15 years, more so in countries such as India with the advent of offshoring of IT oriented work to cheaper production sites around the world. Hence, India has witnessed the emergence of service units that have assimilated certain specialized tasks that were hitherto part of a large policy making unit in workplaces in the developed markets. Over time, these tasks and processes were farmed out to cheaper labor markets such as India, and consequently, the genesis of standalone Analytics processes.

A reason for Analytics gaining ground is the advent of technology that can compile data in a form that is amenable to analysis leading to decision-making. In addition to the internal business data and well-structured corporate or customer data, organizations can potentially acquire large external data sources.

Trends

Globally, the Advanced and Predictive Analytics (APA) software market is projected to grow from $2.2 bn in 2013 to $3.4 bn in 2018, attaining a 9.9 pc CAGR in the forecast period while Cloud-based Business Intelligence (BI) is projected to grow from $0.75 bn in 2013 to $2.94 bn in 2018, attaining a CAGR of 31 pc.

In India, the Analytics and BI industry together is sized around Rs 1,000 cr and is expected to grow by 22.4 pc to Rs 2,690 cr by 2017. However, the

small and medium enterprise sector is still in a nascent stage of deploying Analytics and BI as compared to their larger counterparts, the latter contributing up to 65 pc of the total services utilized in the Analytics and BI market (Netscribes' Report, 2013). Indian Analytics Industry holds the advantageous position of having one of the biggest shares in the global outsourcing market. By 2018, half of all consumers will interact with services based on cognitive computing on a regular basis.

Verticals to look at

The major chunk of the Analytics usage comprises of the BFSI (Banking, Financial Service and Insurance), Telecom Services, ITES (IT Enabled Services), FMCG (Fast Moving Consumer Goods), and Retail.

Competition

Indian Analytics industry holds the advantageous position of having one of the biggest shares

in the global outsourcing market (total KPO market) with margins as high as 25-30 pc in Analytics off-shoring. The data Analytics off-shoring by global companies to India will increase to 21 pc in the total KPO market opportunities of $5.6 bn. Hence, India is expected to maintain its edge over major offshore destinations such as China, the Philippines, Eastern Europe, and Latin America.

Products and services

Brand Auditing: Brand Audit helps companies track and evaluate how effectively they position and deliver their brand strategy across all points of consumer contact. It is an analysis of a brand's verbal and visual communications and associations, designed to assess the brand's messaging, perception and loyalty across market segments.

Customer Satisfaction Measurement: Customer satisfaction measurement is to measure customer attitudes towards how products and services supplied by a company meet or surpass customer expectation. Customer satisfaction is defined as "the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals."

TURF Analysis: Total Unduplicated Reach and Frequency (TURF) is used to find the optimal choices that give you the maximum unduplicated coverage for your product or advertisement.

Customer Profiling: Customer profiling is based on building common definitions that groups of people will fit into. These are based upon age, race, income, housing choices, household structure and more.

Segmentation Modeling: The process of dividing a total market into sub-groups who exhibit differing characteristics that provides critical insights about customer differences and ways those differences effect business strategies and tactics.

Marketing Material Penetration and Effectiveness Testing: Measure and determine the extent to which a specific advertisement or advertising campaign meets the goals and objectives of the campaign.

Market Sizing & Market Share Sizing: The size of a market and the share of this market held by a business and their competitors are key to assessing the competitive environment and planning products and marketing initiatives.

Market Exploration & Landscaping: Market exploration is intended to identify viable new sales and marketing concepts, new products and new services, through a deep analysis of the business environment.

Challenges

Accurate Financial Risk Assessment, Uniting business and Analytics in real time, Measuring Social ROI, Employee Performance Metrics, Unlocking Big Data's True Potential, Paradox of mobile Analytics.

Future plans

Our future plan includes diversifying our service offerings across different sectors and verticals. Doing complete analysis by adopting the most suitable and required analytical technique.

Expanding our services in every sector by adopting the ATL/BTL approach for reaching the target customers and being the single player offering end to end DMS to every sector and industries.

Effective Analytics can result in insights that can deliver bespoke services, products and communication that will guarantee customer loyalty

Ram Prasad Mamidi, *Tata Teleservices Ltd*

The data Analytics market

As Indian businesses continue to produce and have access to large quantities of data, it has become clear that that the ability to integrate and shape these Big Data sets into insights is the key to nurturing future-ready enterprises. Real-time decision-making based on these data insights could enable cost reductions, processing time reductions, new product development and optimised offerings, amounting to smarter business operations and increasingly satisfied customers.

Research has found that the majority of customers today want companies to share personalised (relevant to them) offers. The function of one-size fits all is not applicable anymore. If company data is mined and analysed effectively, it can result in insights that can deliver bespoke services, products and communication that will guarantee customer loyalty.

Trends

Businesses are churning huge amounts of data at an unprecedented rate from a multitude of sources - posts to social media sites, application downloads, digital pictures & video uploads, mobile GPS signals, etc. Big Data applications give businesses the ability to integrate all of the different sources of data and shape it in a way that allows business leaders to make informed decisions.

Superior customer experience, cost effectiveness and profitable growth remain priorities for businesses across the world. Big Data solutions allow companies to meet these needs by optimising usage of existing resources to create an intelligent and responsive enterprise that understands its customers and provides real-time, insight-driven services and support.

Indian companies are at different levels of data maturity - some companies are struggling to visualise their data while others are using predictive models and real-time Analytics to drive decisions. Agile Analytics and campaign management tools used by new generation Analytics companies have made the technology affordable for Indian companies, strengthening the promise of greater Big Data integration by businesses in the future.

Growth in recent years

There is already an increasing sense of urgency around Big Data and as businesses establish faster and stronger connections with their customers, the case for Big Data becomes stronger. Big Data enables enterprises to dive deeper into more varied and voluminous records to yield actionable insights which could not be accessed earlier.

As it is emerging concurrently with a host of complementary trends - cloud computing, social media, enterprise mobility etc., we are seeing the beginnings of a very new kind of convergence, which brings all of these trends together, to create the enterprise information architecture of the future. One that is quite different from today's landscape of disjointed applications and databases somehow connected together. Big Data is here to stay and grow. It is going to be a key driver in enabling not just enterprise growth but its very sustenance.

Verticals

We have successfully deployed Big Data solutions to manage key operational requirements. These include legal and regulatory requirements that come with a growing volume of data and time sensitivity. While organisations usually look to procure additional storage and servers incurring high expenditure for these requirements, we have deployed Big Data solutions that are cost effective and also provide timely information. There are other areas of business which benefit from these tools and the concept is now being extended to marketing, customer and network management. We expect to see a spiralling trend in the deployment and adoption of Big Data Analytics for business operations, primarily in customer experience management.

How do you leverage it?

Tata Teleservices has been one of the early movers in the usage of Big Data solutions in India. We have data warehousing and the predictive tools we use are based on SAS technology. While these solutions help us better leverage structured data, we are also looking at how best to mine unstructured data.

For telecom service providers - with the rise and reach of mobile network rollout - as volumes grow exponentially so does the need to understand customer behaviour across various geographies. Big Data technology offers the necessary tools and mechanisms for real-time generation and application of insights to cater to rapidly evolving customer needs while improving profitability.

Deployment challenges

Some of the common barriers to Big Data Analytics are the same as one would expect with any new transformational concept. First, there are organizational barriers – who owns it? Is it IT/CIO, Business/Marketing, or a brand new 'department'? How do we ramp up the skills to design, establish and run functional Analytics? Do we need to engage expensive consultants? Then there are the inevitable RoI worries – sponsorship, business case, TCO. But these are temporary hiccups and will fade as the technology matures to gain stakeholder confidence.

Future plans

Technology is one of the most critical enablers of innovation in the telecom sector today. A robust IT backbone is what allows businesses to keep their hands firmly on the pulse of their customers. Our team is committed to nurturing the seamless integration of new technologies as one of the key pillars of our business. The company has a clear mandate to invest in any new technology that ensures added value to our customers and, as a result, to our business.