



Issue 20, Dec 2013

# Gravity

*The Great Lakes Magazine*



Business,  
Social &  
Big Data  
Analytics



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## MESSAGE FROM THE DEAN

The topic “Big Data and Business Analytics” is one that, I am sure, would engage the reader instantly, for it is a source of much analysis and discussion today. Given the general air of curiosity surrounding the phenomenon called Big Data, practically everyone has a view on the extent to which it is relevant in today’s business scenario. Indeed, it makes for a fascinating exercise to ponder about how the use of data-driven analytics to aid decision-making has grown over the last few decades.

The 1960’s saw the advent of Decision Support Systems as arguably the first regular usage of computers for Statistical Analysis, when large corporations gradually began to turn their attention to data-intensive business functions. In the following decade, packaged computer applications (such as SPSS) became more common in workplaces, and the Executive Support System - widely used for reporting and monitoring system performance - was the next link in the evolutionary chain, without really taking the world by storm. Eventually, with the arrival of ERP systems and the Internet, larger amounts of data were being generated on a transactional basis, and the emphasis on storing, analysing, reporting and managing data had grown considerably overnight.

The focus is now on Business Intelligence, in the form of analytical applications that take advantage of readily available data to provide information that is useful to the organization from a business point of view. However, until this point, the scope of analytics

has been largely confined to the functional unit level, without really being explored with the bigger picture in mind. Now, more than ever, analytical techniques are seen as the way forward for optimal decision-making. This is applicable to just about every sector, whether healthcare or banking or retail, given that the amount of data available to businesses will only continue to increase. The major shift, however, lies in the fact that Big Data is now viewed not just as an asset to the firm, but a source of competitive advantage. The challenge for businesses, therefore, lies in recognising the opportunities afforded by Big Data, controlling the manner in which data is used to drive decision-making, and constantly improving upon analytical techniques and approaches.

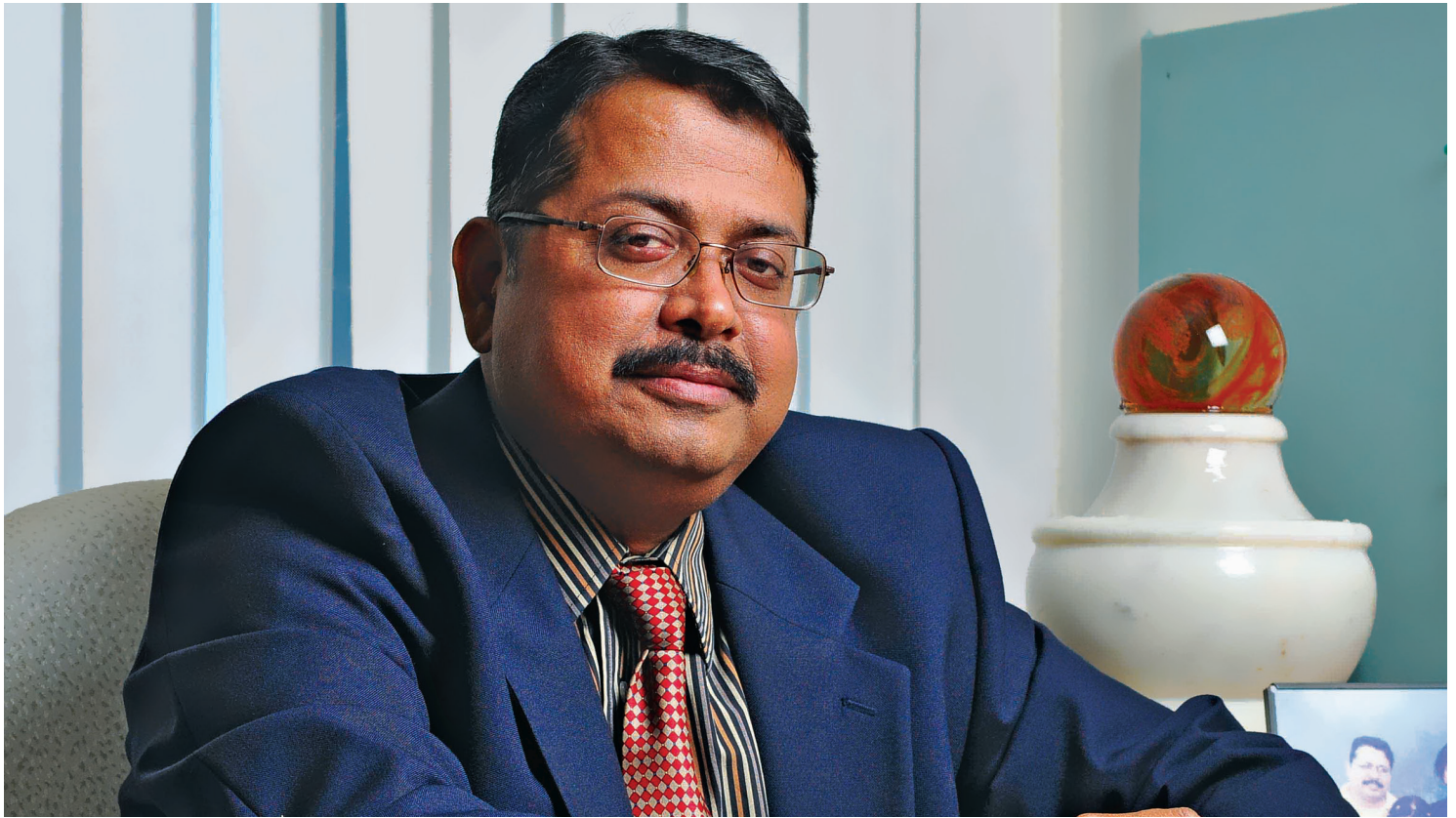
So, from the point of view of the manager and the interested observer, what are Big Data and Business Analytics really all about? What lies behind all the buzzwords and hype? This issue of Gravity aims to uncover just that.

**Happy Reading!**

**Prof Bala V Balachandran**

*J L Kellogg Distinguished Professor of Accounting & Information Management (Emeritus in service), North Western University, Illinois, USA*

*Founder, Dean & Chairman, Great Lakes Institute of Management, India*



## MESSAGE FROM THE EXECUTIVE DIRECTOR

This issue of Gravity focuses on a topic that has been making waves for some time now – Big Data and Business Analytics. Unusually for a modern phenomenon, the origins of the term “Big Data” are uncertain; what can be confirmed is that the volume of data available to businesses today is immense, and comes in various forms. The need of the hour is to harness and synthesise the information available to enable better and more informed decision-making.

It is unsurprising that the data-driven approach to solving business problems should have gained so much in importance, given that numbers are the cornerstone of business. Also, statistical methods lend themselves to effective pattern recognition and the anticipation of future consumer trends. Another crucial factor in the

recent surge in importance of Analytics would be the widespread influence of social media. Analytics is no longer seen as a specialised piece of work; it has become a fully integrated part of systems, and is therefore here to stay.

The feeling surrounding Big Data and Business Analytics is one of being at the tip of an iceberg. There is much room for debate and discussion, which this edition of the magazine aims to provide.

Sincerely

**Happy Reading!**  
**Prof S. Sriram**  
*Executive Director*



## EDITORIAL

### THE REALITY OF 3V IN BIG DATA MANAGEMENT

Is big data a fad? As we experience varied revolutions in the sphere of information technology, we confront plethora of data which are characterized by volume, velocity and veracity. Current systems & platforms generate petabytes of data beyond the capability of existing systems to process; the velocity at which this data is generated is also mindboggling; to add on to the complexity is the nature and type of data being generated for making business decision. This is called "3V" phenomenon in bigdata.

Data available are voluminous and unstructured. These data are being generated from various sources like clickstream data from the web, social media content from tweets, blogs, facebook postings and video data from various uploads in youtubes and other channels. The big data encompasses voice data from call centers, genomic and proteomic data from biological research labs & hospitals. Popular search engine google generates 24 petabytes (24,000 terra bytes) of data everyday. The question is now how do we capture, process this data to information and intelligence and make proactive decision. Companies are going to capture real time data from sensors, radio frequencies and other identifying devices to understand the business cases at a granular level and make marketing decisions.

Bigdata has altered the strategic thinking inside organizations by linking business and information technology. The traditional data analytics tools focus on the data inventories in organization that the dataflows. This is a growing need of data scientists and product/process developers than simple analysts to categorize data in rows and columns. Analytics is

moving from the domain of information technology to core production, operation and business strategy domain.

Big data analysts are giving importance to flow of data than the inventory or past data-mostly from customer facing processes. Various tools are used for fraud detection, health risk mapping and monitoring of consumer sentiment. Such streaming analytics helps process data during the event and map consequences as and when it happens data marts and static data helps for developing data models where as big data analytics use the real time stream to link internal operation, external relations and consumer sentiments for meaningful business strategy.

The analytics tools are also moving mere capturing, filtering, storing and analyzing model to managing data swaps by using open source platforms such as Hadoop. It allows organizations to load, store and query massive data sets on a large grid of inexpensive servers as well as execute advanced analytics in parallel.

The real challenge is on meaningful discovery of intelligence to make managerial decisions. Bigdata from social and other sources along with enhanced analytics capabilities is going to change the future of business decision making. This issue of gravity focuses on such issues and tries to capture the trend in big data management. Please feel free to write your view to me at [tapan@greatlakes.edu.in](mailto:tapan@greatlakes.edu.in).

**Happy Reading!**

**Tapan K Panda**

*Editor-Gravity*

# BUSINESS ANALYTICS: THE NEXT LEVER MOVING FROM PROMISE TO PRACTICE

The symposium held on 24th November with eminent speaker from the industry included Prakash Arunachalam - VP & Head - Chennai & Pune Delivery Centres of Virtusa, Sathya Venkatraman-Associate partner/ Director - IT, Strategy & Design Consulting Services - IBM GTS (India\ South Asia), Ajay Kashyap - Ajay Kashyap, Prakash Rajagopalan - Vice President - NTT Data and Nagarajan Karuppiyah-Chief Architect – Big Data Solutions & Consulting - TCS. The insights included the Big Data landscape, the Analytics, Convergence of all technologies, the challenges and the future. It was a platform where the academics interacted with the industry and shared the opinions.

From pre-internet age, before Y2K to the internet age or the dot com stage we had seen a huge transformation. But currently, it's the internet of things which is changing the way we live, we think and even our future. The exponential rise in data generation is attributed to the media and business. Facebook currently has 1.1 billion active accounts, YouTube has 4 billion view each day, Wal-Mart generate 2.5 Zettabytes of data every hour. 90% of world's data has been produced in last two years, and it is predicted that 60% of business workload will be virtualized by 2014.

Business has been customer centric since its inception. But what is it that drives the use of Big Data Analytics? The way to do business has evolved and customer has been given more and more power. Today's customer is technologically and socially empowered. He has umpteen choices. He can compare, he can complain. And it is empirically proven that the cost to attract a new customer is five times more than the cost incurred to retain the customers.

Business is Knowing Your Customers (KYC) and create a solution for them which only improves the customer experience. Analytics and prediction has been deployed

## Every 60 seconds



98,000+ tweets



695,000 status updates



11million instant messages



698,445 Google searches



168 million+ emails sent



1,820TB of data created



217 new mobile web users

since ages, but never was it formed or defined. Instead people relied on the intuition and their gut feeling. But technology and especially Social media has driven to enormous data which drives the use of analytics. Analytics helps one describe, model and improve the business performance.

Gartner defines big data has 3 attributes: "high volume, high velocity, and/or high variety information assets".

### VOLUME

AMOUNT OF DATA  
FROM MEGABYTES TO PETABYTES

### VELOCITY

SPEED OF DATA IN AND OUT  
FROM BATCH DATA TO PERIODIC  
DATA TO REAL TIME DATA COLLECTION

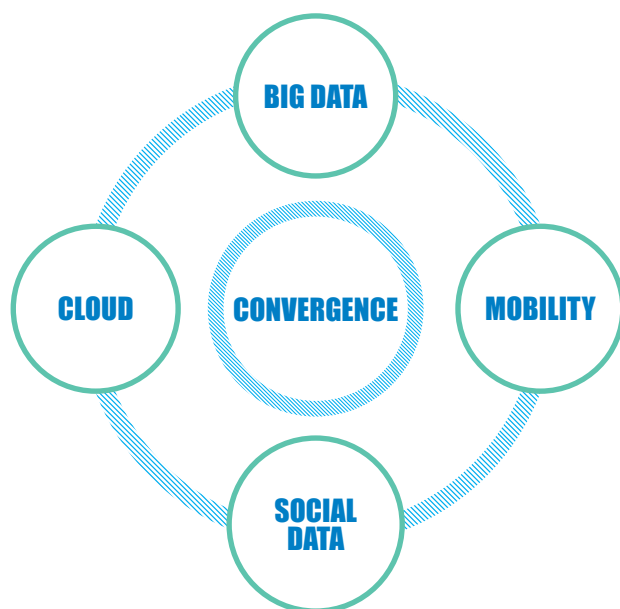
### VARIETY

RANGE OF TYPES OF DATA AND SOURCES  
THE MILLENIAL CUSTOMERS HAVE HIGH WEB FOOTPRINTS



The enormous data generated in PetaBytes, This require new forms of processing to enable enhanced decision making, insight discovery and process optimization. The biggest innovator is the customer today, and invention happens and the edge and not the core. And the organizations fail to cater to the innovators because:

- **UNABLE TO TAP DATA FROM SOCIAL MEDIA AND MAKE SENSE OF IT**
- **DESIGN POOR USER EXPERIENCE**
- **BUILD SOLUTION IN SILOS**
- **CREATE A LOT OF CONFUSION**



Business has seen the convergence of four disruptive technologies.

These technologies helps organizations leverage the data generated enormously. Gamification is yet another emerging technique to leverage people's natural desires of competition, achievements, status and self-expression.

To leverage the Big Data and the other inter-related technologies, variety of tools are available. Big Data alone makes no sense. It is only when it is coupled with analytics aides in predictive analytics. And for this various tools like SPSS and crystal Ball are available.

The Big Data Analytics has a wide scope for all B2C and B2B businesses. Amidst the gloomy season of inflation and crisis one ray of hope with us has been the "Big data" and this will shape our future- a bright one. The future will be a virtual world. But the question lies ahead is "how much data is too much data" and another "V – Veracity" comes into picture.

**Swati Verma**

*Gravity Member,*

*Great Lakes Institute of Management*



# BIG DATA IN EDUCATION

**‘ALL I HAVE LEARNED,  
I LEARNED FROM  
BOOKS’,**

**–ABRAHAM LINCOLN**

Mr. John is teaching chemistry in his study center. Now Vicky went to the study center to sharpen his knowledge in chemistry. After couple of classes Mr. John conducted a quiz and he found out that Vicky is good in inorganic chemistry, but having problems in equating the chemical equation. As that chemistry class has 20 other students it is very difficult for Mr. John to look after each of the students.

Let's have a look to another situation. After couple of years Vicky's sister Neha wanted to learn chemistry, but she did not go to any study center. She joined one online chemistry learning courses. Now after each lecture there is a quiz and after answering the quiz Neha got the feedback instantaneously that which answers are wrong and not only that the website instantly forwarded some links related to the concepts of the questions which Neha answered wrong.

We are living in the era of data. Everywhere we can get large amount of data. Data is generated almost from every sector. It can be Aviation sector, sports, social media and also in the education sector. The primary focus of this paper is to analyze how the big data is generating in the education sector and also how those data can be managed and how to apply predictive modeling to best use of the dataset.

Big data-simply means large unstructured data. Education sector now a days started to become technology oriented. There are lot of Massive open online courses (MOOC) which are generating huge amount of data.

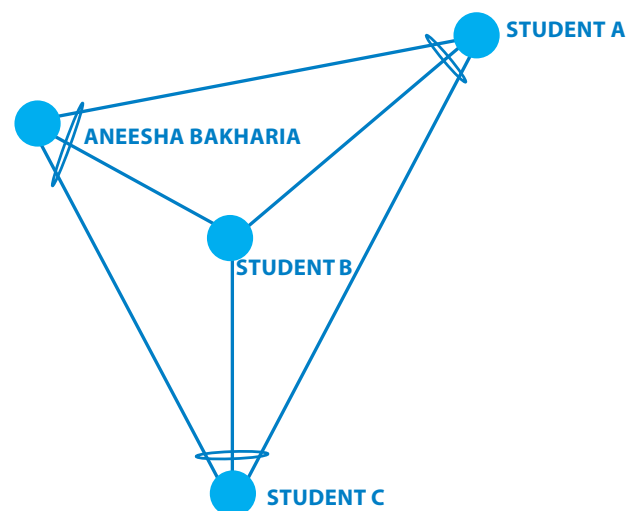
Lot of researches now a days are working in this field. Researcher Paulo Blikstein studied a group of college

**‘ALL I HAVE LEARNED,  
I LEARNED FROM  
INTERNET’,**

**–NEW GENERATION STUDENT**

students in a computer lab how they are working on the modeling assignment. The students use a software called **Netlogo** which logs the activity of all the users when they click. As students initially made the mistake with the button click and then gradually they learn the steps and then make it correct, so after having the log data it has been found that the error rates progress rates of those students have followed the pattern 'inverse parabolic shape'. Not only that, if you follow this kind of shape individually you can find out which student made more mistakes and how long that student stayed in which part of the graph.

Researchers use lot of various tools to understand the student quality and how to develop the course structure so that the students will get benefited. Instructors use **Social Networks Adapting Pedagogical Practice (SNAPP)** to understand various students' blogs. This software can visualize the student interaction and according to that it can take decision that.





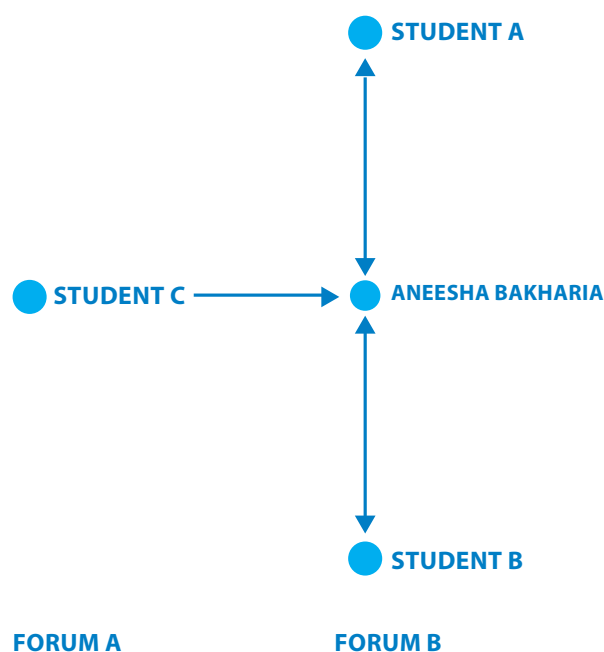


FIGURE 1: SOURCE: NETWORKED LEARNING CONFERENCE 2011

How much the students are interested in this course. In Figure1, Faculty of this forum is Ms. Aneesha Bakhana. In the forum B one can find out that all the interaction is happening via the faculty, no social interaction; but in the Forum A the interaction is quite social. Not only that SNAPP helps to get the picture of how the course coordinator has performed during the discussion. SNAPP can also be integrated with various Learning management system (Blackboard, Moodle).

Learning management system is another tool which is very popular now a days to handle the education system. All the physical works now can be handled by the learning management system. Instructor can upload document, create quiz, assignment and more over they can limit the visibility from the student. So if the due date of the assignment is 14th November, after 14th November the link to submit the assignment will no more be visible.

Another important tool is becoming popular that is called virtual classroom. All the distance programs now days are based on it. In these tools the instructor can share his/her desktop, so all the slides he wants to share in the webinar class and all the demonstration he wants to show can easily be shown. There is always an option

to raise the question from the students' side which creates the notification to the instructor.

All these tools generate lot of data, data that can be stored, analyzed and on the basis of that forecasting can be done; but one thing should be kept in mind that learning analytics data are **big, but not google big**. The size can be like this. For a open source free online program almost 1,00,000 students have registered. In the PSLC data shop, 2,50,000 hours of students are using educational softwares, more than 30 million students actively participate to access data. So all those data are really large.

On the basis of various data those have been generated it can be forecasted that which students will fail? Which students are off-task?

Baker & Siemens, in press; building off of Baker & Yacef, 2009 the following types of techniques of Education data mining has been discussed. According to them, there are four types of analysis can be done.

- Prediction
- Structure Discovery
- Relationship mining
- Distillation of data for human management.

For the prediction type they recommended 3 methods, **classification, regression** and **latent knowledge Estimation**.

In the context of structured discovery they prefer to use **clustering, factor analysis, domain structure discovery and network analysis**.

**Associate rule mining, correlation mining, sequential pattern mining**, causal data mining are most preferable for relationship data mining.

It can be interpreted from their article that all the methods they are using for education data mining are quite similar with the other data analytics method. So education data mining technique and learning analytics methods are not new in the analytics field. For example, It is very convenient to use Binary logistic

regression to find out who will fail. As logistic regression requires binary dichotomous variables we can code 'pass->1 and fail->0. So if we perform the logistic regression thereafter we can get the criteria behind one student's fail and pass.

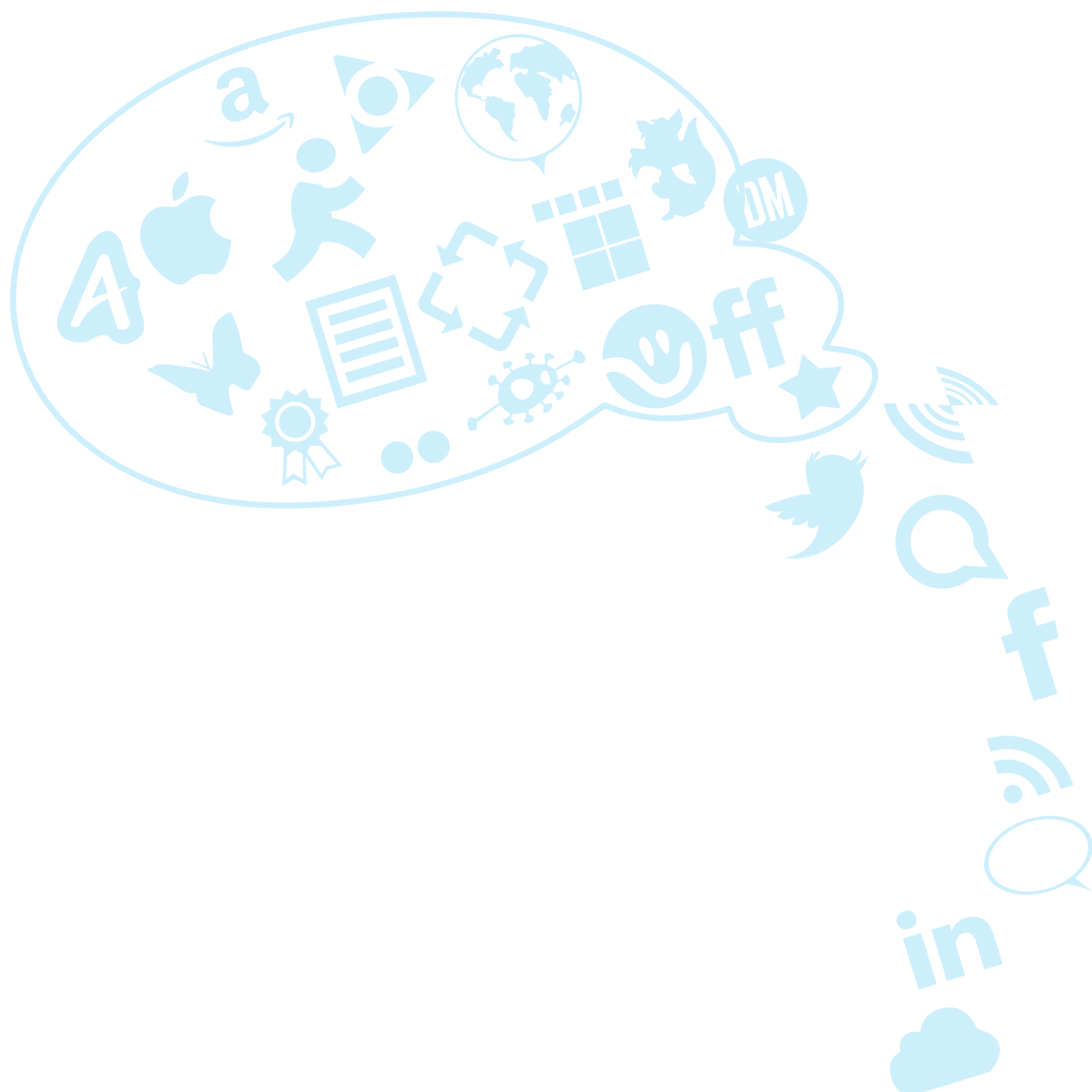
Online education becomes popular day by day and the amount of data generation increases day by day. So handling this huge amount of data will be a challenge now. For the other big data management researchers started using various new databases like **NOSQL**. For the education data also, lot of analysis and researches are going on to handle the data with the proper techniques and lot of researches are going on to invent new tools to generate real time solution, prediction in this particular sector.

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**Saptarshi Ray**

*Lecturer, Great Lakes Institute of Management*





## BIG DATA : THE VOLUME AND SPEED PARADOX



Dr. Bhuvan Unhelkar has more than two decades of strategic as well as hands-on professional experience in the Information and Communication Technologies (ICT) industry. Founder and Consultant at Method Science he has mastery in business analysis & requirements modeling, business intelligence, software engineering, agile processes, quality assurance, collaborative web services, mobile business and Green IT.

Bhuvan prides himself on thought leadership reflected through many executive reports, journals and 17 books. He is also passionate about coaching senior executives, training, re-skilling and mentoring professionals, forming centers for excellence and creating assessment frameworks to support these initiatives. Bhuvan is winner of the Computerworld Object Developer Award (1995), Consensus IT professional award (2006) and IT writer award (2010). He currently chairs the Business Analysis Specialism Group of the Australian Computer Society.

Dr. Unhelkar earned his PhD in the area of “object orientation” from the University of Technology, Sydney, in 1997 (supervised by Prof. Brian Henderson-Sellers). Subsequently he designed many industrial as well as Master’s degree courses like Global Information Systems, Agile Method Engineering, Big Data Management, Object Oriented Analysis and Design, Business Process Reengineering and New Technology Alignment and delivered them across Universities in Australia, USA, China and India.

An exclusive Interview with **Dr. Bhuvan Unhelkar** on his views on **Big Data**.

***Could you throw some light on the basic premise of the 3 Vs of Volume, Velocity and Variety, or to say in other words Scale, Speed and Scope that Big Data is based upon?***

When we talk about Big Data, how big is it. Experts have different opinions, but there’s no graded cut-off points. Today I am carrying 2 terabytes of data carrying every photograph I took in the last 10 years in the digital format. If I convert that to a bank or an airlines or a hospital, they have enough capacity as well as budget for their IT stuff. It’s such a large amount of volume that there’s no cutoff. If we put any particular point for that cutoff, say 5 petabytes, it’s not going to remain stagnant. The velocity at which data is changing is really fast. It’s not just about the amount of data, but also about their relevance in the current times. Then there comes the issue of variety - billboards, dashboards, internet, mobile - today we find data from so many different sources in many complex forms. So the Big Data platform should support diverse kind of evolving data in a structured manner.

***What do you think of Big Data in the broader context of business agility?***

We have used the word Agile in the widest possible way. In my 3 decades of experience I have not come across a word that has been thrown around in every aspect of business and technology. Obviously I have to discuss it through what I have been presenting here at Great

Lakes. Agile as a root word has come from a software solution approach which is fundamentally opposed to waterfall. What happened is as Agile started providing value through IT, business woke up and said what are you guys doing, what's this thing called 'Agile'. So, IT showed business how they are collaborating, communicating, doing less documentation, making things visible, working on trust, honesty, simplicity and courage. Then came the Agile manifesto in probably 2004, biblical sentences that dictate every Agile implementation like Scrum and XP. Now that Agile as a keyword has come in business, people are wondering what do we do with this Agile. We are not developing software, we are developing a banking product, we are refining a process on how to admit a patient in a hospital..how do we name this - Agile - that's been the keyword. So if you look at Agile as a generic term, if you are lean, you are Agile like the lean methodology that has been used in manufacturing also came in business. If a business has to be lean, it has to not have all other peripheral departments and divisions that are supporting but not adding direct value. A bank is not a IT shop, so a bank doesn't need a single IT person, the bank has to collaborate. If a bank collaborates with IT, it becomes lean, that's the fundamental of being Agile in business. I have a book on Agile processes that covers both business and ICT. It's called The Art of Agile Practice. I have talked about all this in that book.

So, now it comes to Big Data. I have not only information that I own and know about, but also information that is available out there in the open on the net, that I don't own and sometimes I don't even know what I am looking at. It is that information, when analyzed, provides me insights. Those insights are business insights. For example, I have been putting together information for a banking or insurance product for Home insurance. In Australia, wherever I am right now coming from, there are push fires in the new mountains. The insurance doesn't cover that natural calamity. If I have to put a new product together, I need a phenomenal amount of insight which will be based upon your and my conversation on facebook, twitter or linked in. Therefore Big Data enables business in many ways to think about what it wants to change and then they provide solutions.

***What are your opinions on the adoption of Big Data technology in India to make better business decisions, considering the lack of proper infrastructure as well as skills to keep pace with the rate of innovation.***

We in India will have no issues in picking up the technology. In fact based on my interactions that I have had even at Great Lakes, I find that we Indians are tech-heads, my students are asking me 'show us the code'. It's understandable, I am not passing a value judgment, I am just stating the fact that we are more into technology than its application to business. I did spend a phenomenal amount of time in educating my students at both levels. I have taught batches from both PGPM as well as PGXPM here. The PGXPM batch has an average experience of 14 years and those people are more focused on the business aspects, while the PGPM batch, those 2-3 years experienced guys all wanted the technology part and I have to force them to look at the big picture of business. So, we in India don't have any problem in picking up the technology. In terms of infrastructure, we had very long chats in my classes about it. We have heard about cloud and its capacity and mechanism to host anything. So if you meant by infrastructure the Data servers, data capacity and so on, we really don't need it here. If we are connected through a reliable net connection, then yours and my data, bank's, airlines and hospital's data could all be sitting in Iceland, in fact Google has a centre in Iceland. So we are in a way leapfrogging. US is covered all with copper wires for telephone. So for them to move from copper wires to internet to mobile was a bigger challenge than for you and me sitting here in India or in the surrounding regions. Why, because we don't have the overhead of copper wires. We know that half the villages are still not covered. So in terms of technology, talent as well as infrastructure I think we are absolutely fine, I don't see any major challenges in implementing Big Data.

In terms of use, we have excellent and much wider opportunities here because Big Data discussions that I have come across are all focused on making use of technology that do not have internet connection. Jo has talked on the Ted Talk about how Asia and Indonesia

can walk up to each door and knock them up to ask if your child is vaccinated. That data, if you enter it with data entry errors and then analyze it in two years. In that 2 years time, the child would have died. We in India have opportunities to leapfrog.

***What trends do you foresee for the domestic Big Data opportunities as well as challenges that India would be facing in the coming years?***

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***What trends do you foresee for the domestic Big Data opportunities as well as challenges that India would be facing in the coming years?***

We in India have opportunities to use mobile and technology to collect data. We have meteorological department to collect data on weather, we can then analyze that data using Big Data to identify the patterns and advise the farmers on when to harvest, what to sow as a crop, to advise the health workers on where there's a potential for epidemic and diseases. So we can go in space and we can move in time with Big Data. You can analyze 50 years of records and say that that in this region of Chennai, rice may not be the right crop. For practical purposes, I have given my students 5 case studies on different areas, all in Indian context - Agriculture, Banking, Education, Healthcare, Travel and Tourism.

Challenge will be from the application viewpoint as I said technology-wise there will be no issue. But we may not understand this generalizing in business, we use this at the corporate level but we tend to think of it only in the technical side. Like a drop in the ocean, I have tried to encourage my students here to think in the lines of application of opportunities to business rather than just the technology-wise implementation of the Big Data technologies.

***Big data tends to focus on extreme scale. However, many professionals argue that the scale of your data platform should not be your primary focus. What is your take on that? Do you think just because of being in vogue, the Big Data hype has a tendency to interfere with rational decision making, both among users as well as solution providers.***





## NEXT 'BIG BANG' IS 'BIG DATA'

By now everyone would have been aware of a letter written by an Indian about the difficulties faced by him and his fellow passengers in Charles De Gaulle Airport, Paris which is the hub of Air-France KLM. The letter went viral on social media and there was an immediate impact on twitter. The tweets @airfrance suddenly surged and there was a large hue and cry everywhere on the twitter and other social media. The reputation was plummeting and finally Air France CEO reacted to save his brand's image. In today's world, companies cannot ignore social media while doing business. Several software firms like IBM have come up with social analytics tools to help the companies like Air France to know more about what people are thinking about their brand. Knowing the customer insights like attitude towards the brand, opinions they hold on the brand are essential for improving their services to the customers.

Companies can learn the customer behaviour by analysing their social media feeds. It may be easier said than done. Can anyone take a rough guess about the bytes of data that we generate online every day? Not in mega or giga bytes. It is in exa bytes. Yes, we generate about 2.5 quintillion bytes of data every day. The data, in addition to millions of transactions that happen online every day, comes from everywhere like videos, images, Facebook's likes and shares to tweets and retweets of twitter. This data has three dimensions namely Volume, Velocity and Variety. Yes, now we have entered into the world of BIG DATA. Is it possible for a marketer to process this Everest height data accumulated? The answer is NO. To make his life easier, the technology driven analytics has born.

### BIG DATA IN RETAIL:

Target, an American multinational retail giant, used big data effectively that it was able to figure out the girl's pregnancy even before her parent's did. The girl visited the store and bought unscented body lotion and some calcium and zinc supplements. The unscented body lotion is used during pregnancy period as it is considered

safe. This vital clue was enough for the analytics software and after a few weeks it sent email to the girl about the baby related products that is available. The girl's father checked the email and he was very furious on the store's manager for sending such emails from the store to the fifteen year old girl. The manager was clueless and he apologized to the girl's father. But after few weeks, the manager received the call from girl's father and he confirmed about the girl's pregnancy and this time he apologized to the manager. How did target find out that the girl is pregnant? Target used to store the customer information such as their contact details, products bought by them by issuing them a unique id. Usually this data is collected by the retailers to send information to the customer about various sales promotions. But Target was able to build a historical timeline of purchases by each customer. By analysing and reviewing the data with the help of analytics software, the retail giant was able to discover the behavioural patterns of each customer.

### BIG DATA IN E-COMMERCE:

Big data is used in e-commerce for personalization. Are you a pizza maniac? If so, you are one of their customers for personalization. For example, Dominos uses big data to study the customer behaviour for rolling out the personalized sales promotions. All of a sudden you receive a text message on your mobile saying 'Buy 1 get 1 free. Offer valid only for today'. It is not necessary that your colleague sitting next to you also receive the same message. It may be because you would have not visited their store for a long time and by analysing your records dominos have come to know about this. They will entice you by rolling out such personalized 'only for you' promotions. Similarly frequent customers will have other promotions to keep them more loyal.

Another area in e-commerce where big data plays a crucial role is pricing. The products are listed on multiple e-commerce sites. In price comparison websites like Amazon's junglee.com, the customers can compare the price of products listed on various sites. If your competitor changes the price on his product, then you have to know about it with in seconds to adjust your price setting. Big data helps in this dynamic pricing by comparing various sites at a time.

## BIG DATA IN TELECOM:

According to a new study by mobile network giant Ericsson, global mobile subscriptions will be 9.4 billion by 2019 and out of them 5.6 billion will be smartphones. The applications running in smartphones create a vast amount of data. The telecom service providers sell the customer data to third parties for additional revenues. These data can be used by marketers to study in-depth about the consumer. Location data that the user generates by using applications like foursquare play a vital role in localized targeted advertising. T-Mobile, one of the service providers in USA, used this big data effectively to reduce the churn rate of customers by 50% in just one quarter. T-Mobile studied the patterns of phone call by each of its user. The study had the following analyses. If more and more calls are going to a different service provider, then the social network of the customer might influence to change the service provider. Customer Lifetime Value (CLV) of those customers were calculated by using predictive analytics technique and a special attention was given to them who had a high value of CLV. If a customer moves to a new location and also there is a sudden fall in the phone usage, an alert is made to the T-Mobile to find out the reasons. Such predictive analytics helped the service providers to provide 'just in time' offers to prevent the customers from joining the rivals.

## BIG DATA IN AVIATION:

In Aviation, one major headache that the consumers face is when to buy tickets to get the right deal. Understanding this need of the consumers, farecast was

developed by an annoyed traveller with the help of his professor. This farecast used predictive analytics to find whether this is the right time to buy ticket. If the prices are likely to drop, then farecast will ask the customers to wait. Nearly 75% of the time farecast's prediction turned out to be right. Farecast was eventually acquired by Microsoft and it is now integrated with Bing search engine.

Another area where airlines have to concentrate is their loyal customers. Airlines have to roll out personalized services to these loyal customers. British Airways uses permission- marketing and the targeted offers are sent to them only if they agree. The app 'know me' of British airways works by sending messages about specific customers to their cabin crew so that extra attention can be given to loyal customers. All these tailor made offers are provided by analysing vast amounts of data.

### CONCLUSION:

Traditional data analytics is predictable by analysing the past trends as it highly structured. But big data is highly unstructured and marketers has to use sophisticated technological tools to study the patterns. Marketers cannot neglect big data as it is emerging in every other sector. The actual benefit is likely to come in the future years as the enterprises have realised its importance in the highly competitive environment. It is still in its nascent stage of adoption. We have to wait and watch to know how it evolves.

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## BUSINESS, SOCIAL AND BIG DATA ANALYTICS (BSBDA)

Perhaps the most profound potential of digital technology is its ability to change the focus of business from process to people. One definition of human ability is the range of a person's acquired or natural capacities and talents. This builds on the historical role of technology in raising human performance. Digital technologies, such as mobility, analytics, big data and social are essentially human centred technologies. By that I mean that they can raise the individual and collective ability of human beings. Technology has augmented human ability from writing to eyeglasses to the internal combustible engine and the world-wide-web. In each case, technology helps us to do something better: remember, see and communicate. Rather than automating or amplifying what we do today, what if digital technologies give people new abilities individually and collectively to create new sources of value, new outcomes and new results?

Raising human ability is one of the twelve truths I believe will become self evident in the digital decade. This belief goes beyond simple statements of rising consumer expectations and demands. It seeks to recognize a broadening and deepening of the role of people as individual human beings and groups of human beings in a digital world.

People are objects in an industrial business system. Human resources are inputs in the production process. Customers or consumers are the objects of the business model. People are categorized, segmented, targeted, classified etc., to fit into the standards and structures of products, markets, services and operations. IT systems manage the work of generic users. Such classifications were necessary to standardize human talent, energy, time and knowledge and integrate it into production methods with substitutable resources in an industrial process model. People are on the comeback in a digital world.

Look at your smart phone, your online profile, your

browsing history, your connections with others, your social media page and one thing becomes clear. They are yours. Concerns regarding personal privacy and security are another example of the evolving emphasis on the individual. They are important because we not only know more about each other, but that knowledge is about us as individuals, it's personal and we now know it matters.

Human ability matters. People demonstrate and place demands on human ability every time you use an app, activate a personal relationship, or convey information to reach a goal or accomplish a task. Human ability comes to the forefront the more people use digital technologies to craft their own solutions in their own situations. Human ability is what makes products viral and sticky because it replaces product features and functions with personal outcomes and results. Market solutions are no longer the only solutions. We are all 'makers' in the sense that digital technology extends our human ability to do it for ourselves. This is inherent in open, generative and human centred technologies and distinct from transaction processing technology.

Increasingly, people are using digital technology as a means of choosing solutions that raise ability without requiring conformity. This is one of the sources of 'big bang disruption' a term coined by Paul Nunez and Larry Downs to describe new entrants that outperform established players. Raising human ability and recognizing individual diversity is one of ways a newcomer outperforms an incumbent. Focusing on specific tasks is one approach to this type of disruption, for example location based services apps that call a taxi. Another approach is to provide the platform for personal expression and connections and collaboration.

What is a business model to do when it can no longer classify individuals into market segments? Many are matching digital human ability with digital marketing. Making products and services more usable or being easy to do business with or creating a customer experience are some responses. Others include increasing the configurability and personalization of products or services, exploding the number niche markets and affinity groups and markets of one.



These responses cope with the individual by getting them back in the business model bottle. This will work, but there is a price to pay in complexity, fragmentation and constantly playing catch-up. It is true that the same technologies that raise human ability can also raise business abilities. Digital technologies enhance market insights, accelerate organizational agility and extend the range and reach of products and services. Understanding how digital technology applies to further digitize and automate current business models is important, but it is not the only focus for the future.

Executives looking to create value and realize growth need to expand their view of business. For a start, change the language used in the business. There are no users, customers, or associates. Only people. People who look to improve their lives by raising their ability. People who will often seek to do so on their own and in their own context. Markets are becoming places of diversity rather than conformity, peopled by individuals with diverse needs, ambitions, tasks, etc. How you support those needs, how you support people becomes an important part of the company's value proposition. That will become self evident in the market as digital technology moves deeper into products, processes and services. Human ability should be a source of value

for digital technology. Digital technologies that do not raise human ability are worth less than those that do. This requires expanding our view of people in our business models. We have been customers, consumers and users. It is time for us to be human beings and it is time for us to use digital technology to raise our capacity and talents. Human ability should be a source of value for digital technology." I loved this line. You just made my point here; human ability is the source, so let's ensure it's augmented, nurtured and not superseded. I am totally with you- digital has indeed simplified lives, improved businesses, and raised our collective ability (productivity), it is an easier point to prove with a simple analysis of digitally mature companies/processes. I know we are not policy makers/charity, but as advocates of digital we must also think about the downside. If we give every kid a smart device (wiki, google), I bet we will make the next generation dumb (it's just a good food for thought, not good in business context I know). Aside to this, I agree with the sustainability of the ideas which are generated every day in the business world.

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## BIG DATA: IS IT THE FINAL FRONTIER

“IN GOD WE TRUST.  
ALL OTHERS MUST BRING  
DATA.”

– W. Edwards Deming.

Businesses across the world are driven by the needs and wants of customers and the ability of these businesses to address these by means of innovative products and services. The Marketing function, being at the forefront to unearth these needs and wants, is constantly faced with the question “What do my customers want?” This is a question that has been haunting marketers since the start of the twentieth century and continues to do so even today. With the advent of Social Media and tools that enable analysis of Big Data, experts proclaim that we are getting closer to cracking the question. This article seeks to examine this argument by attempting to understand the nature of marketplace, understanding the role social media and data analysis has to play in the current marketplace and determining if indeed they are the Manna from Heaven as they are proclaimed to be.

### THE CHANGING MARKETPLACE:

If one was to cast a glance of the history of Marketplace, one would not be wrong in concluding that the Marketplace has been broadly classified into three phases:

#### MARKETPLACE OF PRODUCTS:

This was pretty much the phase before the 1960s where the customers had limited choice in terms of the products companies made. Marketing was viewed as merely advertising the features of the product to gain and regain customer loyalty. One could say that marketing in this era was more focused on marketing the present, with products addressing needs of customers that were here and now.

#### MARKETPLACE OF IMAGE:

This was the period after the 1960s where Marketing as a function came to be taken very seriously. The concept of Branding evolved during this period. The focus during this period was differentiating between customers for various products depending on brand image and brand equity associated with the product. The Marketing in this era was based on marketing the past to one's consumers- the idea being that one could sell based on a customer's positive association with the brand.

#### MARKETPLACE OF IDEAS:

This is the period that started during the late 1990s. The widespread existence of the Internet altered the purchase behaviors of the consumers. The customer in today's marketplace are vocal about their needs, most of which happens via the Social Media. With an increasing number of these customers being young, the past does not matter much to them (though brands do evoke trust and integrity- but the customer has moved on surely from 'what the brand means to me' to 'what the brand can do for me') nor do they look at products merely as a means to solve a particular problem. In fact their needs change pretty fast and this new customer values only those brands that provide a platform to express their Voice, understand and anticipate their needs and provide solutions. Thus the Marketing in this era is based on marketing the future to one's consumers.

In such a scenario, it is extremely critical for businesses to:

**Build Mass:** Create marketplace value through establishing a strong value proposition (brand's ability to solve customer's problems), creating an ecosystem where all stakeholders profit and dominating the category the product is in (by focusing on problems critical to customers and solving them time and again)

**Gain Speed:** Have the ability to be agile in the face of market disruption and transitions

**Set Direction:** Have the ability to anticipate and execute market opportunities

When such is the case, it is interesting to know the role that the Social media and Big Data Analytics has to play.

## THE ROLE OF SOCIAL MEDIA AND BIG DATA:

While marketers have always been the kinds that have played around with data for customer insights, it is for the first time in the history of the marketplace that so much of data has been unstructured. Twitter, YouTube, Facebook, LinkedIn, the websites you visit, your credit card data etc. are some of the new sources of data about the new age customer in addition to the structured, traditional sources of data (such as a Point of Sale transactions) that have been traditionally been captured via Online Transaction processing system before being fed into Data Warehousing and Business Intelligence systems that then churn out insights. Thus Big Data has come to mean data in both its structured and unstructured forms, which when analyzed together produce real time insights into customer buying behaviours.

Given this definition, Big Data analysis surely enhances a companies' ability to anticipate customer demands (sometimes even before their close ones- the US retail chain Target knew a teenage girl was pregnant even before her father knew it. They had devised an algorithm that analyzed credit/debit card purchases to recognize purchases of zinc, calcium supplements and correlated that with pregnancy) and customize solutions for their benefit (in this case coupons for baby products)! While this may sound creepy for some folks, it is clear that Big Data Analysis has the potential to change the marketplace by enabling companies to gain especially in setting Direction.

In addition to serving as a source for Big Data, Social media presence helps companies build Mass by acting as a platform for customers to express their voice. This would help companies in identifying the problems that matter the most to their customers, help companies understand how customers perceive them as different from competition and help in developing a strong value proposition around it. The analysis of the social media data would yield further insights on the population (such as demographics, interests), help tailor social media content on the basis of the insight gleaned and strengthen the value proposition of the product by helping companies identify the right segments to focus on. In addition to all this, digital presence creates something that is extremely critical for companies- creation of an Ecosystem. While in the case of digital products it would mean the potential for other companies make money (e.g. Android has a created a pretty strong ecosystem around itself), in the case of conventional products (say Shampoos), it would not only mean creation of physical ecosystems (distributors, retailers etc.) but also virtual ones where

customers profit by making their voices heard (e.g. My Maggi Story, Sunsilik Gang of Girls etc.) and have the pleasure of seeing their ideas come to reality (through an improved product experience). With customers increasingly asking 'what more can this product do for me?' social media chatter could help companies come up with brand extensions to existing products to meet customer demands.

## BIG DATA, THE HOLY GRAIL?

Sure Big Data and Social Media analytics have the potential to enhance business revenues but merely installing the right tools to enable analysis is going to get you nowhere. The nature of the unstructured data Big Data analysis brings in requires a great amount of rigor to identify the apt sources given the business content. It is easy to get lost in a sea of data in the absence of good management vision (in articulating what they think the future is going to be) and strong leadership (the ability to sell the future proposed by the company to all its stakeholders). This will help generate hypothesis which will then serve as a basis for classifying and analyzing data. In the absence of this, one would tend to 'use statistics as a drunken man uses lamp posts – for support rather than for illumination'.

In addition to all this, the nimbleness of the organization is critical- insights gleaned would be lost if adequate mechanisms do not exist in the organization to support faster responses to changes in the marketplace. After all, the value of an idea lies in using it. While this is especially crucial for digital products (which are characterized by a 'here today, gone tomorrow' phenomenon), this is also becoming important for conventional products.

## CONCLUSION:

While it is clear that Big Data is one of the best things that have happened in the field of marketing so far, it would be wrong to assume that it is the solution to all business problems. Companies which have the required tools and systems in place still struggle to make effective use of Big Data in the absence of a clear vision and leadership. At the end of the day, you can have all quantitative data at your disposal, but it would be useless in the face of poor intelligence and judgment.

Steve Lohr, a writer for the New York Times, puts in pretty aptly in this quote," Listening to the data is important... but so is experience and intuition. After all, what is intuition at its best but large amounts of data of all kinds filtered through a human brain rather than a math model?"

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## TRANSFORMING BUSINESS TO SOCIAL BUSINESSTHROUGH BIG DATA ANALYTICS ENGINE

Big Data as the name conveys is lots of data. Gartner has defined it with three V's: Volume, Variety and Velocity. It is the convergence of Volume, Variety, and Velocity of data. The ability to access both structured and unstructured data, from every possible source, such as social media, web, transactional logs, blogs, sensor data etc., available at a speed, which is not possible with traditional means, is what defines Big Data. Some of the industry experts have also included a fourth variant to it: Veracity, relating to the credibility and consistency of the data. Other experts have included another V: Value, the value big data delivers. Objectively, there are implicit and explicit relationships in data but until we know or have a plan as to how to use it, what is its value? Big data gives the outside-in along with inside-out view of the data and provides a cohesive approach to understand more about the business.

Gartner has reported that 64% of organizations are looking at Big Data projects this year. But why are organizations chasing big data? Because big data is big business and whoever ignores it stands a chance to be left behind. Data is growing at a phenomenal rate and the digital universe is expected to grow by a factor of 300, from 130 Exabytes to 40,000 Exabytes, from 2005 to 2020. Where is all this data coming from? The answer is simple. Everywhere. Comments and likes on Facebook, posts in a blog, tweets posted on Twitter, videos uploaded on YouTube, the transactional data of a website and even the machine data gathered from instruments, they all make the big data.

However, having access to such volumes of data is not enough but the value comes from being able to access accurate, insightful and real-time data. This data is perhaps meaningless and un-usable on its own. Real value is derived only when this big data is combined with the traditional data to generate new insights,

decisions and actions. Big data helps in optimizing the engagement with individual customers and thus enables catering to individual needs of customers. The insights that are derived by analyzing big data can help in tailoring the marketing efforts for the targeted individuals. Big data can be used in analytics to identify valuable opportunities.

5 years ago, the way businesses received customer feedback involved time consuming and at times expensive surveys. Also, the participation of customers could not be guaranteed. Today there are more than one ways of interacting with customers and getting their feedback. And the most widely used platform today for interacting with customers is through social media. Some figures that confirm the growing reach of social media:

- The fastest growing demographic on twitter is the 55-64 year age bracket
- YouTube reaches more U.S. adults aged 18-34 than any cable network
- Every second two new members join LinkedIn
- 7.93% of marketers use social media for business
- 23% of Facebook users check their account more than 5 times a day
- Social media generates almost double the marketing leads of tradeshow, telemarketing, daily mail or PPC
- Around 46% of web users turn to social media for making purchase
- 60% of consumers say the integration of social media makes them more likely to share products and services
- 80% of users prefer to connect with brands on Facebook

This proves that social technologies have the potential of driving the business. More businesses now need to engage with their partners, vendors, customers and employees over multiple social channels as it enables smooth interaction. Social media has changed the relationship between businesses and their customers, vendors and even employees and has transformed the businesses to become a social business.

## SOCIAL ANALYTICS FOR BUSINESSES

IBM defines social business as the incorporation of social tools and media into an organization's internal and external interactions. Multiple functions of a business can capitalize on the opportunities that social media has to offer. From customer service to marketing, from recruitment to product development, social networks today play an important role in determining the behaviour, opinions and attitude of consumers. With social media analytics it is now possible to make intelligent decisions based on insights gained from social media rather than make them based on gut and intuition. According to a joint study conducted by MIT Sloan Institute of Management and IBM Institute of Business Value, organizations that have excelled in analytics often outperform the companies who have just adopted analytics by a factor of three to one.

Sentiment analysis can help organizations to gain better and actionable insights about their product/service and help in optimizing and designing their marketing campaigns and enhance customer relations. Xerox Customer Care today uses brand sentiment analytics to determine the sentiment of customer comments (confused, pleased, angry) and routes the information to right team. This automation helps them in quickly reaching out to the customer and in much more relevant way.

Social media data in combination with in-house transactional data when used for predictive analytics will help organizations in making informed decisions in the area of marketing and product development. It also takes into account the current sentiment of a product/service. Predictive analytics has helped Southern States, a chain of retail outlets in USA, in identifying potential locations for new stores by studying the demographics and transactional data of current location. They have also been able to effectively direct their mailers to their customers who are most likely to respond with the help of predictive analytics.

Let us have a look at how social media is being used by different functions of a business.

**Marketing** Consumer behaviour is changing constantly and they now expect customized and personalized communication from the businesses. It is required that the messages that they get are relevant and timely. Analytics deployed at correct points in the marketing value chain can help in making marketing decisions that are backed by quantitative analysis. It is now possible to identify the opinion leaders who hold high degree of influence over others. Customized campaigns can be built around individuals that resonate with their likes and dislikes. Ben & Jerry, a global brand of ice-creams, launched a social campaign to promote their free cone day where they used owned as well as paid media to encourage social conversations, amplify word-of-mouth and drive more visitors to their sites. This resulted in social reach of around 700 million and a 48% of re-tweet rate!

**Sales** Social analytics can be utilized to provide better models that meet the need of the buying audiences. It can help in identifying opportunities that will provide maximum benefits. By understanding buying patterns of customers, customer preferences and behaviour, advantages of cross up sell models can be leveraged.

**Product Development** Social media can also become a partner in innovations and product development by using techniques such as crowdsourcing, which also helps in improving brand awareness.

Crowdsourcing is the practice of obtaining needed services or funds by soliciting contributions from large group of people, especially the online community. Enterprises that adopt crowdsourcing have fuelled 730% growth of completed tasks since 2008. Some companies that have used crowdsourcing to their advantage include the following: Bosch had used crowdsourcing to get a logo designed for one of their newly developed product line; Parle Agro utilized the platform of Twitter to find the areas where its brand "Hippo" was not available; Hero Motocorp improved their brand awareness with the jingle "Hum Mein Hai Hero", which was used by many YouTube users as a background score for their videos. This shows the trend of brands getting more comfortable in using crowdsourcing as a medium to get their requirements delivered.





# SCOPING BUSINESS, SOCIAL & BIG DATA ANALYTICS: CHALLENGES FOR FUTURE

Before going directly into the topic let us try to visualize the theme of the article on a broader perspective.

Let's test our visualization from the point of organizational transformation. All of us know how important & how critical the process of transformation for a corporate is. Basically the contemporary process of industry transformation can be studied & analyzed as if it is based on 4 main pillars i.e. Cloud, Mobile, Big Data & a social value proposition statement (Deriving value from social business data).

When it comes to defining 'Big Data', it is recommended to use the most sustainable definition given by Gartner Inc. i.e. 3V model (Velocity, Volume, and Variety). Keeping this 3V model as the base, a 4th V (Veracity) has also been added as a spread by some organizations now-a-days.

On the theme of Marketing, the use of Big Data & Big Data analytics has a vast application. If you are great follower of 'CMO.COM', then you must be aware of the recent comments of Michael Pain, Analytics practice lead, Accenture Australia. He has cited 'Sales, B2C transactions and Marketing' to be 3 most attractive & active areas of any organization as far as the Big Data analytics is concerned. As per Pain, the 3rd V i.e. Velocity plays a very important role in bringing success to the analytics application in the organization and this V can further be studied on 3 flavors i.e. Velocity of insight, Velocity of application and Velocity of iteration. To illustrate this more, let us take an example of selling the soft drink of any brand in a specific Indian market & let us see what these 3Vs (especially the 3rd V : Velocity) mean to us.

## VELOCITY OF INSIGHT:

The soft drink company has to assess the right speed with which the business can use the data to develop the right sales model so as to maximize its profit & market share. The Internet and high end technologies can be considered to be the best sources for collecting these data points.

## VELOCITY OF APPLICATION:

This section defines how fast the previous insight developed by the soft drink company is being applied in real sense in making the real business process effective.

## VELOCITY OF ITERATION:

This defines how quickly & efficiently the business process & insights can be improved, measured & restructured further so as to gain the desired competitive advantage.

Upon studying the success of Big Data in the respective areas, it comes to our note that mostly it is a failure.

Definitely there are a variety of reasons those contribute to this failure.

Some can be listed as below:

- Culture & Data Velocity (3rd V)
- Poor data management
- Poor application
- Lack of microscopic view of understanding the underlying data

And the list continues.

In response to this, there are a lot of models being developed by a lot many authors & organizations. Out of all those, I think IDC's Big Data & Analytics maturity model framework is kind of better model. In short, this model suggests a framework that identifies several critical stages, measures, outcomes & actions for the corporates to develop BDA effectively. The scope of my article does not allow me to explain this model further.

Hence we have discussed the business aspects of the Big Data in a brief manner. Now let us consider the social values the Big Data and application of the same in various social causes. You can very well apply this concept of Big Data in variety of field i.e. Indian education sector, nationwide nutrition level, dynamics of recent urbanization trend, factor analysis of mobile crowdsourcing, crime level, social security level and many more. The Big Data has enabled the researchers to put forth their valuable insights in such social causes so as to enhance our social values further. Similar to the fact that how the Big Data can create sufficient opportunities for the future entrepreneurs & investors in the business domain, there lies another fact which enables Big Data to create similar growth opportunities in the social sector development. Even the government of various countries has already started utilizing this vast

application to analyze various social issues and methods to eradicate those social problems.

On a convulsionary note, I can say that Big Data is currently one of the largest stakeholder of the efforts being put for overcoming the global sustainable development challenges.

Happy to note here that the world is able to understand the underlying implications of Big Data and slowly moving to discover even the untapped potential of the same. This is well evident from the step taken by the UN's Global Pulse initiative (established in 2009). This initiative in fact focuses on a large set of worldwide issues those are currently existing.

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# INTEGRATION OF BUSINESS & SOCIAL DATA FOR FULL CIRCLE BUSINESS INTELLIGENCE

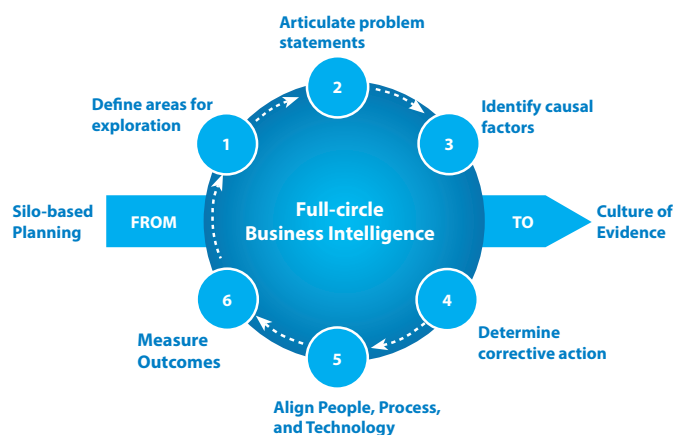
Business analytics (BA) and business intelligence (BI) have become indispensable part of the business realm. When it comes to business accomplishments, it becomes imperative to have access to reliable data. From tackling competition and understanding the customer needs to driving innovation and reducing the cost of operations, the paramount decisions that you make are the ones based on solid data. Organizations should understand the need of timely access to the right data so that they can deliver insights and support the strategically aligned decisions that will ultimately improve the organization's business.

BI has become an integral part in data management, analysis and reporting. BI today goes beyond traditional data warehousing and data mining. It provides the business with the real time information that helps the business to increase its revenue and monitor the cost. BI solutions also allow companies to manage customer relationships thereby retaining them so that they become profitable over a period of time.

BI is all about quickly making sense about the vast amount of data collected and then making smart and sound decisions that will generate value for the business. Clearly, the technology has undergone a paradigm shift over the last few years, but the business requirements have endured remarkably similar procedures like cost cutting, beating the competition, getting closer to the customers. The need of the hour is to put robust BI solutions in place. It is a fresh wave of technology that holds the promise to make the visualization of complex and multidimensional data much simpler and interactive.

Someone has rightly said, "BI is just like a camera. You just need to focus on the things in the right way and you can explore the minute hidden details in your data".

BI includes various major components like Predictive analytics, Social penetration, and Cloud in real time sphere. BI models identify the vast heaps of data, find associated generalized and peculiar patterns and analyze the observations to produce futuristic demands/patterns. The refined data can help the organization devise marketing strategies as per the target customer group. BI can provide the risk management solutions. It will be able to deliver the ultra-precision futuristic projections. One can unleash the power of BI in almost any domain. It can prove to be a boon for the advertisers who can shape their campaign more efficiently if the real time data stream is continuously fed to the BI tools in place. The moment a spike is observed in the transactional data, advertisers can introduce new pricing mechanisms; offers, discounts etc. to woo the customers. BI can also help in prevention of frauds. Real time monitoring tools can act as a shield against the fraudulent actions of the miscreants. Any misuse of credit cards can be instantly noticed by the BI tools which can send instant alerts to their genuine owners. BI tools can also be deployed in the hotel industry to provide customers with live occupancy data and projected vacant suites or dining tables. It will enable customers to plan outings accordingly.



## THE SOCIAL ASPECT:

BI tools will redefine the ways businesses around the globe reap the benefits of social networking media. Different ways to do so can be by observing new trends on Twitter, creating Business to Business and Business



to Consumer relationships on sites like Linked In and Facebook. Much will also depend on the type of metrics/ model being used by a firm to get the maximum inputs out of the social networking data received. This will further strengthen and make more robust the decision making and future strategies to be adopted by marketing personnel. Collective decision making is another aspect arising out of the social networking tree in the context of BI solutions. A consumer while shopping online for a product will be able to know the exact amount of buyers eager to purchase the same brand, buyers' geographical locations and their live tweets/reviews on the product just purchased, via different social networking sites but all consolidated in a single web page. So they can instantly chat /share with each other their past experiences with brand and other product specifications. This whole cluster of online consumers will be a potential mammoth revenue generator for the business stakeholders involved.

### THE ANALYTICS ASPECT:

It is obvious that to make BI financially viable across business platforms, almost million terabytes of data need to be stored, modified, analyzed at every moment leading to creation of huge data marts, warehouses and thus investment worth billions of rupees. Cloud technologies can help the businesses especially those in the lower strata to mitigate the huge expenses involved in maintaining the expensive data warehouses and the related hardware. Cloud computing alters the way computing, collection (storage) and networking resources are distributed. With the help of virtualization, the general server centric architecture model, which had applications coupled to the hardware systems in them, is now being altered to service-centered cloud architecture. Since the applications are no more coupled to the hardware, this means that in the cloud computing environment, the services are very dynamically allocated to the on-demand requests. In addition to better utilization of IT resources, hardware cost reduction and eco-friendly computing, cloud computing provides a swift infrastructure to respond to business needs in a flexible and faster manner. Firms need not create their own data marts.

They can simply outsource the same to Cloud

Computing vendors to maintain their data on the lines of another successful concept –SaaS (Software as a Service). Depending upon the extent, criticality and type of usage, Cloud vendors can be asked upon to store, modify and refine the data. Moreover, firms with shoestring budgets will also be able to save on the Data security front by leveraging the Cloud services. They will need just to upgrade their BI expertise and ETL (Extract, Transform, and Load) tools to derive the maximum benefit out of BI technologies as the consumer base expands. This will enable firms not just to optimize their resources but also to focus on their core product line.

Your business does not stop when you are out of the office. In today's mobile business environment, it is more important than ever to have complete access to critical business statistics. Accessibility to Mobile Business Intelligence solutions can mean the complete integration and interfacing from the front end to back end. Today, Mobile business intelligence applications have evolved themselves from being an option to a necessity. It is to the wisdom of the business professionals to understand that today's rapidly growing and fast-paced business environment demands immediate access to data and information. Strategy is no longer limited to a three to five year long term planning and review.

To provide cut-throat competition in your choice of market; to acquire and retain customers; to find and train the best resources; and to manage production, finances, products and services, and customer relationships, the enterprise must ensure that all users have access to intuitive Mobile Business Intelligence solutions that function seamlessly on mobile and tablet devices.

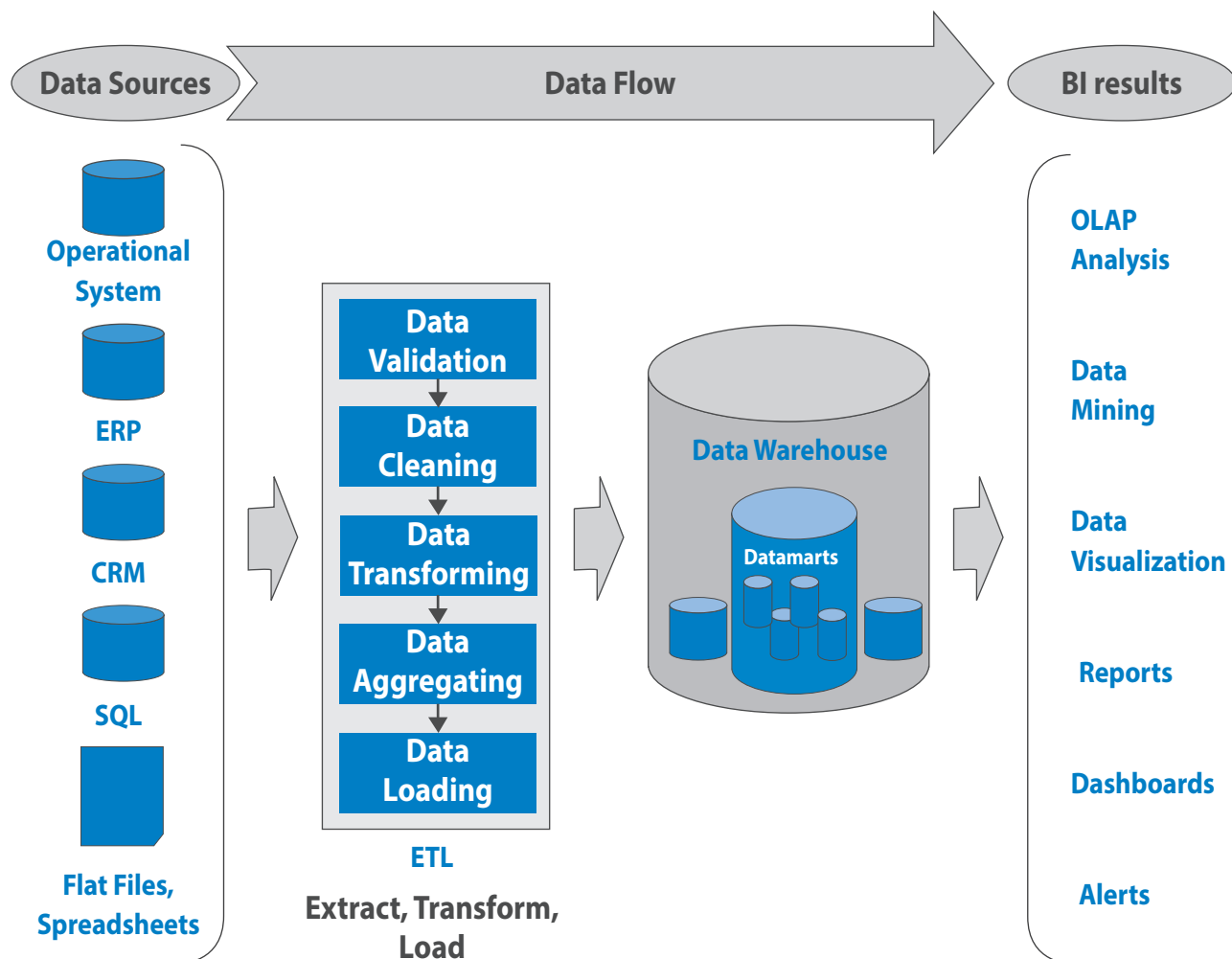
One of the most popular BI tool in market these days is SAP (System Application and Products) BI. The more complicated a tool is, the fewer users it will have. Keeping this in mind, it is designed with simplicity and intuitiveness. With just a few clicks, business users can gain access to timely, highly relevant business insight that can help them make more informed decisions. The users can slice and dice the information to reveal business insight as needed. The end users can also drag and drop the elements into an excel spreadsheet and play around with data to perform further analysis. Its

self-service data analysis solution puts greater power in the hands of daily business users who need insight urgently. This makes less dependency on the technical team, who can refocus their energies on more value added services. SAP users can also export their analysis to power point presentations as live elements so that data is updated every time they open a presentation. While SAP makes the organization's future better, it also delivers tangible business benefits and in the end, you will enjoy greater ROI.

Other tools include Tableau, QlikView, Birst, Informatica, Microstrategy etc. These all are powerful ETL and visualization tools.

Every business user needs to have access to latest

and relevant data. If this data is to enhance efficiency and increase the effectiveness of business decisions and process changes, it must be presented in a way that it makes sense to the user. With BI dashboards, every organization can enable its employees, clients, managers and executives to create and use personalized dashboards and present data in summary and detail form with immediate, dependable results. BI reporting tools in market helps to design the dashboards which provide a lot of insights at a glance. Dashboards can provide a customized snapshot of day to day functions, and assist the user in identifying glitches and the source of those problems, as well as providing good, up-to-date statistics about financial results, sales and other critical information– all in one place!



Source: Intechopen.com



# TRENDING OF BIG DATA: THE KALEIDOSCOPE TO FUTURE

Not more than a few years ago, the trend was to hold data and to try to derive some patterns within them to facilitate decision making. Though it still stands valid in many cases, when it comes to social data the idea kind of topples over. Because there is just so much complex and unstructured data generated every day that it is impossible to house it. Getting valuable insight from social data is like digging through the sands of the Sahara trying to find rocks of data that you need. This is where big data analytics comes in.

Historically, marketers have chosen markets and made sales budgets based on past results and intuitions. Managers, now with the help of big data, can identify micro-markets and better allocate resources to maximize profits. These can be done at a substantially low expenditure (compared with an extensive market research). Companies can get all sort of telemetric information from social media users. Even information such as the amount of time a user is looking at a photo or any page can be obtained. Information such as who last purchased a product, feedback from users, modes of purchase, etc. can be used in making decisions on how to market the product.

To comprehend the magnitude of social media generated in the world, let's look at some statistics. In sixty seconds, 138 million mails are sent, 695,000 Google searches are done, 700,000 Facebook statuses are updated, 100,000 Tweets are tweeted in Twitter, and 370,000 Skype calls are made and over 20,000 posts are done in Tumblr. But are all these data useful? Take Twitter for example where an active user receives ~1000 tweets per day. Approximately 36% of these tweets are worth reading, 39% being neutral and the rest junk. Marketers are burdened with the task of identifying which data to choose and analyze which in itself is daunting.

It is known that the young generation are the main proprietors of social media. Does this mean that data from social media does not hold information about the older generations that marketers would need? No! A report on Big data by Mckinsey Global Institute in June 2011 talks about a survey on users of people using social networks which revealed a 7 percent increase in 2009 in use of social networks by people in the age group 25-34, a 21-22 percent increase among those aged 35-54, and an astonishing 52 percent increase in usage among those aged 55-64. Good news for marketers indeed!

There are various tools in analytics with which a marketer can analyze big data. **Natural language processing** done on data from social media can be combined with real time sales data to determine the impact of a marketing campaign on consumer behaviour. Another method called **Association Rule Method** can be used to find out products frequently bought together, information which can be used for marketing complementary good. **Classification** can be used to predict segment specific consumer behaviour. **Cluster analysis** can be used for target marketing. And **Data Mining** can be used to map consumer behaviour.

Big data is the future. It is the path to competitive advantage, productivity and innovation. It is understandable that some marketers are intimidated by the amount of data at hand and in finding ways to handle it. But those who are brave enough to harness it can reap large rewards. With a mountain of data in front, it is quite evident that a marketer would be faced with the problem of identifying the right data that is required. It is necessary that the marketer must be skilled enough to analyse the data. It is not uncommon to see big companies fail to get any returns from the investments in big data. The reason is the fact that companies do not know what to do with the core data already embedded in their systems. They fail to manage and analyze the core data to understand it in order to gain new insights. It is necessary for companies to first learn how to analyze their own data to improve their



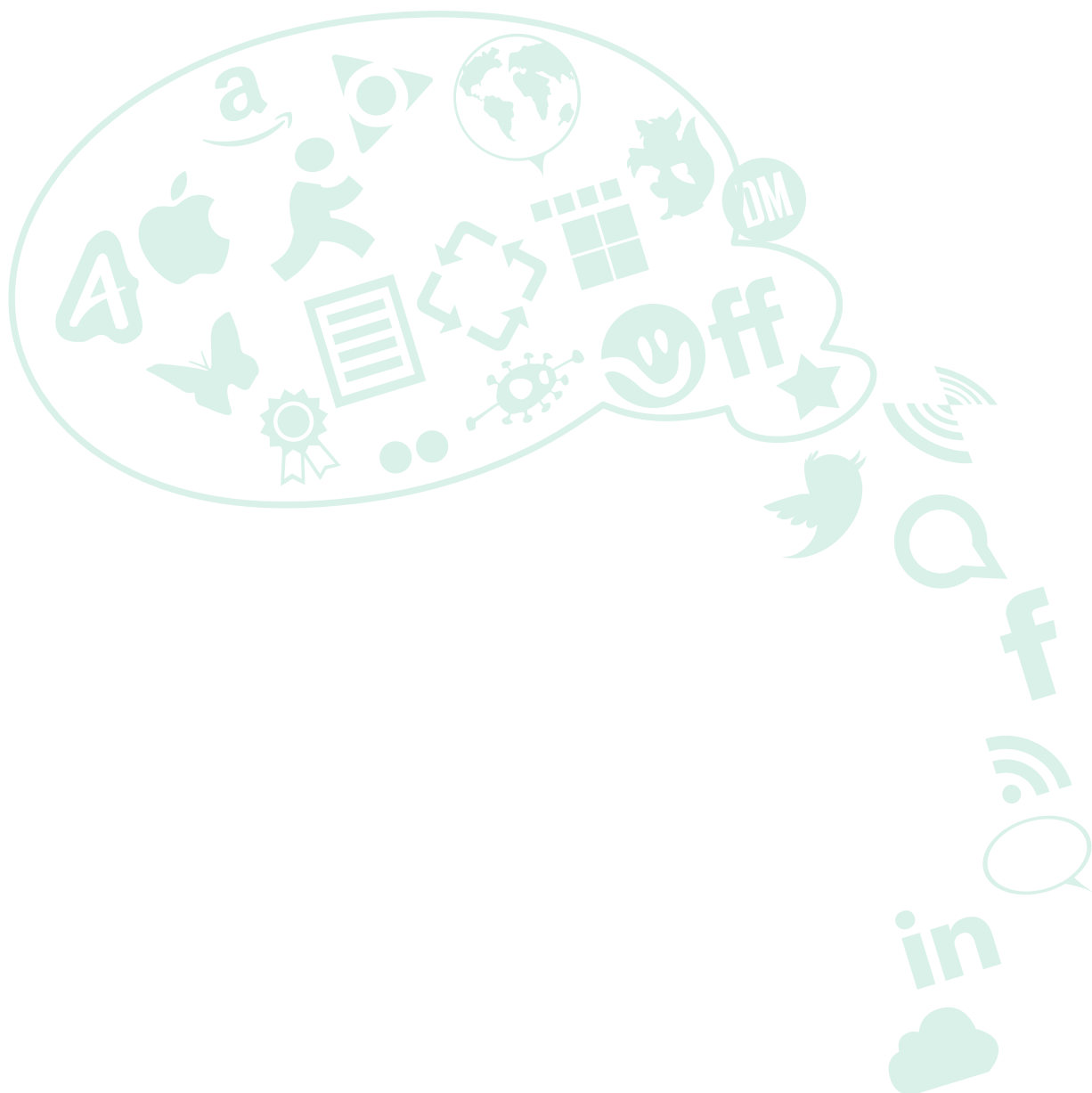
operations before getting into big data. Just because the company has invested in big data doesn't magically produce results.

Before capturing the full potential of big data, there are certain policy issues which need to be addressed. Liabilities, intellectual properties, privacy and security are some of the concerns. Of these privacy is the most serious one when it comes to social data. People share data in social websites which are usually very sensitive and highly personal. Consumer attitudes toward the use of personal information like location data and

social network data are changing. But many people are still uninformed about how the information they generate is being used in targeted marketing and marketing strategies. It is necessary for the marketers to learn how to trade-off between privacy intrusion and utility. Marketers should work in common interest towards effective privacy policies and adhere within its boundaries.

**Issac Solomon**

*(Indian Institute of Management, Raipur)*



# CREATING BUSINESS CONTEXT IN BIG DATA ANALYTICS

“SMALL DATA IS GONE. DATA IS JUST GOING TO GET BIGGER AND BIGGER AND BIGGER, AND PEOPLE JUST HAVE TO THINK DIFFERENTLY ABOUT HOW THEY MANAGE IT.”

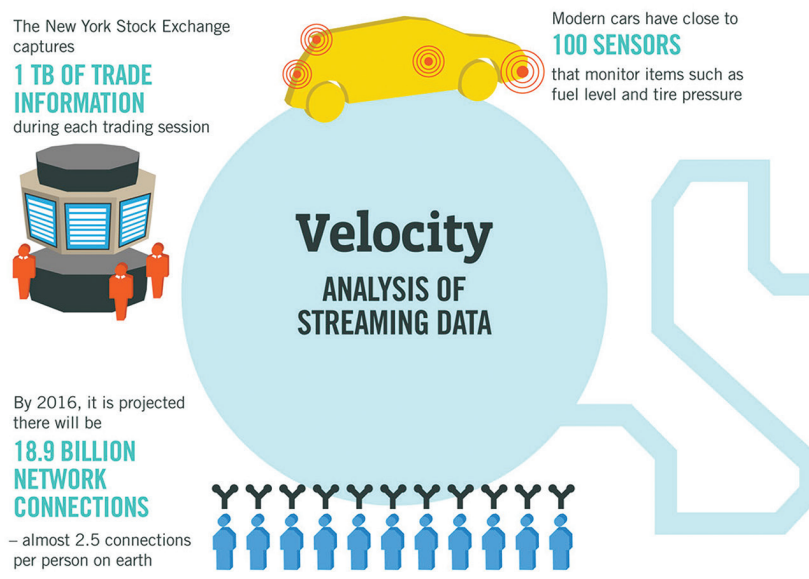
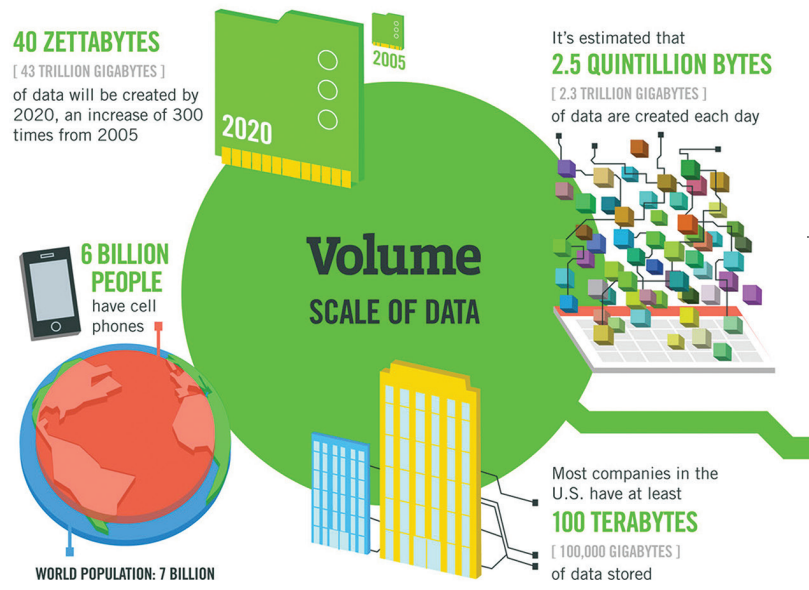
- SCOTT ZUCKER, FAMILY DOLLAR



Big Data, the buzzword which is now attracting the attention of everyone, is believed to be the future. So what is Big Data? In layman terms, big data can be defined as lots and lots of data which is a combination of both structured and unstructured data and notably almost 80% of the data is unstructured. By unstructured we mean data is not available in a pre-defined format. It can be in the form of images, videos, mobile data and website contents. If you have data, the next step is storage. Big data, being highly unstructured and voluminous, cannot be stored using traditional storage methods and uses the object storage technique where the data is managed as objects as opposed to file systems in the traditional method.

Big Data has two branches which are interrelated and impacts each other namely, **Big Data Informatics** and **Big Data Analytics**. The informatics part deals with the process of generation, storage and retrieval of data. Almost all companies, including those who have not laid out a well-defined plan, have started collecting data. The reason is simple, fear of losing out on a

competitive advantage. Informatics also includes the process of identifying and removing the unwanted data that occupies space which can be saved. Also, unwanted data increases the overall processing time of the information and reduces the efficiency of the process thereby leading the organization to end up making a suboptimal decision. Organizations world over have realized that the smartest business decisions are based on facts and not on intuition and this is primary purpose of big data Analytics. Analytics can be defined as the application of computer technology, statistics and operational research to solve problems in business and industry. It is the process of working on the stored data and analyzing the same to gather insights and identify the patterns in the data which can be used in making highly effective and efficient business decisions.



# BIG DATA CAN BE DEFINED AS "HIGH-VOLUME, HIGH-VELOCITY AND/OR HIGH VARIETY INFORMATION ASSETS THAT REQUIRE NEW FORMS OF PROCESSING TO ENABLE ENHANCED DECISION MAKING

— GARTNER

## Data Characteristics – The 4 V's

Like the 4P's in Marketing, the 4V's define the characteristics of data.

### The FOUR V's of Big Data

From traffic patterns and music downloads to web history and medical records, data is recorded, stored, and analyzed to enable the technology and services that the world relies on every day. But what exactly is big data, and how can these massive amounts of data be used?

As a leader in the sector, IBM data scientists break big data into four dimensions: **Volume, Velocity, Variety and Veracity**

Depending on the industry and organization, big data encompasses information from multiple internal and external sources such as transactions, social media, enterprise content, sensors and mobile devices. Companies can leverage data to adapt their products and services to better meet customer needs, optimize operations and infrastructure, and find new sources of revenue.

By 2015  
**4.4 MILLION IT JOBS**  
will be created globally to support big data, with 1.9 million in the United States



As of 2011, the global size of data in healthcare was estimated to be

**150 EXABYTES**  
[ 161 BILLION GIGABYTES ]



By 2014, it's anticipated there will be

**420 MILLION WEARABLE, WIRELESS HEALTH MONITORS**

**4 BILLION+ HOURS OF VIDEO** are watched on YouTube each month



**Variety**  
DIFFERENT FORMS OF DATA

**30 BILLION PIECES OF CONTENT** are shared on Facebook every month



**400 MILLION TWEETS** are sent per day by about 200 million monthly active users



**1 IN 3 BUSINESS LEADERS** don't trust the information they use to make decisions



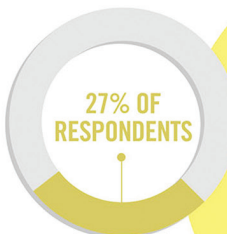
Poor data quality costs the US economy around **\$3.1 TRILLION A YEAR**



**27% OF RESPONDENTS**

**Veracity**  
UNCERTAINTY OF DATA

in one survey were unsure of how much of their data was inaccurate



## VOLUME

Today we talk about data in terms of Exabyte, which is equivalent to 1 billion Gigabytes. This is the volume of data that is getting accumulated every day and in similar lines with Moore's Law which states computing power continues to double every couple of years, this volume of data is expected to double every 40 months. Every hour Walmart collects more than 2.5 petabytes (1015 bytes) of data from transactions. As stated in the beginning, big data is lots and lots of data. However, the huge transaction costs involved in storing the data made it an unfeasible option. With the advent of new cost effective techniques the focus has now shifted to identifying patterns and getting insights so as to shape their business processes and add value to the same.

## VELOCITY

Data analysis is being done by companies for a long time now. Initially batch process was employed, where the available data would be processed and new data will be accumulated in the mean-time. This occurs when the incoming data speed is slower than the batch process being followed in companies. With the advent of new sources of data, most notably the unstructured data like mobile and social media content, the batch process breaks down. Data is now being processed continuously in real time and the results will also shrink to reach real time in the near future.

## VARIETY

Less than one-fifth of the data are only structured and the remaining unstructured data includes text, audio, photographs, video, web, GPS data, sensor data, documents, pdf, sms and flash contents. Companies no longer have control over the type of input data, and with the advent of new applications – new data formats are created. The role of analytics is to comprehend such data, remove the noise portion of the data and identify the underlying pattern in order to assist in decision making.

## VERACITY

The biggest challenge in data analysis is the veracity of the data being used. By veracity we mean the noise, bias and abnormality in data. The entire findings of



the analysis will be valid only if the data conforms to the facts. One in three business leaders do not trust the information they use to make decision as it is hard to know which information is accurate and which information is out of data. The only solution is cleaning and organizing data. This will not only positively impact the accuracy of the business decision but also reduces the cost and space associated with the data which is the need of the hour considering the amount of money organizations are spending for data analysis.

### SOME FACTS ABOUT BIG DATA:

- According to McKinsey, a retailer using big data to the full can increase its operating margin by more than 60%
- Zuckerberg noted that 1 billion pieces of content are shared via Facebook's Open graph daily
- Every minute, 48 hours of video are uploaded into YouTube resulting in approximately 8 years of content every day
- By 2015, globally 4.4 million IT jobs will be created in the stream of big data
- 70% of the data is created by individuals, enterprises are responsible for managing and storing 80% of it.

## SOCIAL MEDIA AND ANALYTICS:

Social media is one of the biggest sources of data and the same is increasing in a very fast pace. They provide enormous streams of data related to people, activities and locations. The services of IT companies and the digital products like Google, Facebook, Twitter and Apple have induced new modes of interaction and communication and in a very short span they have radically changed the functioning of social life and businesses.



Today, Facebook has been identified as the world's largest community serving more than a billion people. Social media has become so dominant that it can no longer be ignored. As per the latest statistics, on an average a person spends more than 3 hours online of which most of the time is spent in social media and each action of the individual be it a tweet, like, comment, post, upload or download produces data and this is used in market research for identifying the insights and needs of the customer. This has in turn got rid of the traditional techniques like poll, questionnaire and interviews which are prone to a lot of errors. It all boils down to the fact that we are now living in the era of Big Data.

#### **BUSINESS APPLICATION OF BIG DATA AND SOCIAL MEDIA:**

##### **TARGETING THE RIGHT CUSTOMERS:**

As per the Pareto Analysis also known as the 80 – 20 rule, 80% of the profits come from 20% of the customers and organizations have had a great difficulty in targeting that top 20% of the customers. One of the traditional methods that is being used for the same is the RFM analysis which identifies the most recent, very frequent and monetarily most spending customer. However the drawback in this approach is that this technique depends on the past data alone and companies keep on spending to attract such customers in spite of the fact that there is a possibility that the customer might not return back. This is eradicated by using big data analytics where the analysis is done based on the ongoing stream of data which results in faster and more accurate insights.

##### **CALCULATION OF ROMI:**

The most difficult job of a marketing manager is calculating the ROMI (Return on marketing investment) and the same can be exactly calculated using social media and analytics. In case of an online advertisement, using analytics we will be able to calculate not only the exact number of clicks on the ad but also the number of clicks that has been converted into orders. In addition to this, we will also be able to track the movement of the users to identify whether our ad is good enough to attract the attention of the customers. We will also be able to calculate the values for metrics like Impressions, Rating point, gross rating point, Click through rate, cost per click and cost per order associated with the banner ads.

##### **SALES FORCE MANAGEMENT:**

In today's business scenario, SFM plays a crucial role and the same needs to be optimally utilized to maximize both the top and bottom line. By predicting the behaviour and insights of the customer we will be able to predict the potential and fix the sales goals accordingly. We will also be able to calculate the break even number of employees region wise. By implementing analytics GE was able to increase its rate of conversion by 19%.

##### **EFFICIENT PRODUCT DEVELOPMENT PHASE:**

Instead of getting to know the response for a new product in the market post launch, with the help of social media and big data analytics we will be able to accurately predict the same during the development phase and the same can be modified as per the needs of the target segment in an efficient way thereby making full utilization of the first mover advantage and reduced wastage costs.

##### **CROSS SELLING AND UP-SELLING:**

The two fundamentals of loyalty are Cross selling and Up-selling and the same can be done only if you understand your customers. By leveraging social media analytics we will be able to get a broader view of the various preferences of our customer and the same can be utilized in increasing the customer's share of wallet. Using this data we will also be able to customize the login page of the customer in our official website which will help us establish an emotional connect with the customer.

##### **CONCLUSION:**

There are many such business applications and real time examples relating social media, big data and business. It all depends on how well organizations make use of the available opportunities and try to make the most out of them. Big data is going to have a greater impact over the future. Currently we have very few data analytics experts and this is the right time for organizations to train their employees in the field of big data Analytics and establish a strong competitive advantage over other organizations.

**Vignesh Manoharan**

*(Great Lakes Institute of Management, Chennai)*

# GREAT LAKERS ACHIEVEMENTS

Name	Position Won	Name of the Competition	Organizer Name
Vibhati Sharma SanyamGarg	3rd	12th All India Management Students Convention 2013 - Business Plan Competition	Madras Management Association
Vijay Krishnan A	2nd	Sponsor Trivia	NMIMS, Paragana
AnupamSabat DivyaMehrotra SachSehgal	1st, National Winners	Srijan, National Marketing Competition, Quo Vadis 2013	IIFT Delhi
Nitesh Awasthi Sanyam Garg VibhatiSharm	National Finalists	On the Mark case study competition (Backwaters)	IIM Kozikode
Monika Chakravarty Amit Sarkar Shreya Gupta	National Finalist	AD-verb : Indian Advertising League 2013	NMIMS, Paragana 2013
Paripurna Pandey Monika Chakravarty ArpitSisodia	1st	Gone in 60 hours!	Great Lakes Institute of Management, Chennai
SanthoshVaidyanathan AnirudhNilakantan Shantosh Mohan Anirudh PK	National Winners, 1st	LaRascasse, Sports Management Event	DoMS, IIT- Madras
MainakSankarMaiti	Global 10th rank, only Indian in Student's category	International Drucker Challenge - Essay Contest 2013	Peter Drucker Society, Europe
Aashima Sharma Monika Sharma	1st	Human Impact : Emergon'13	Great Lakes Institute of Management, Chennai
Monika Sharma	National Finalist	Phalanx : Flagship event of Imperium'13	MDI, Gurgaon

Name	Position Won	Name of the Competition	Organizer Name
Kalash Pastaria	National Finalist	AD-verb : National level Article writing challenge	NMIMS, Mumbai
Abishek P A	3rd	GLADIATOR : A cross-functional event	XIMB, Bhubaneswar
Nikhil Jain Suvra Mallick	1st	Imperium - Know My India	MDI, Gurgaon
Hanoch M Tauro, Mohit Agrawal	1st	EMpression - The article Writing Competition, Emergon'13	GLIM, Chennai
Hanoch M Tauro, Mohit Agrawal	2nd	EMbound Logistricks - Operations Event, Emergon'13	GLIM, Chennai
Prateek Tewari	2nd	Literati - National Picture Story Writing Competition	XIMB, Bhubaneswar
Anjali Attri Rahul Sachdeva	National Finalist	Mbryo case study competition (Backwaters)	IIM Kozikode
Nitin Tekchandani Prakash devara	National Finalist	Pratimaan, Business Analytics Case Study Competition, Avenues13	SJMSOM, IIT Bombay
Giridharan V Arvind J Kirtana S	1st	Bull-Z-EYE	GLIM, Chennai
Panchanan Mishra	Article considered to be published in December'13 issue of HR club magazine of IIM-S	Article name: The Human Resource and the sustainable development of an organisation	IIM - S
Raunaq Raje Dron Malhotra	1st (Won the rolling trophy)	ELIHU YALE INTER - COLLEGIATE ELOCUTION COMPETITION - 2013	Indo American Association

# GLIM INTERNATIONAL CONFERENCES & EVENTS

## 3<sup>RD</sup> INTERNATIONAL CONFERENCE ON BUSINESS ANALYTICS

December 24, 2013



### BUSINESS & CONSUMER ANALYTICS

Linking Customers With Profit

<http://www.greatlakes.edu.in/conferences-research/business-analytics>

This conference is planned on the theme of "Linking business analytics with consumer profitability". It will help in bringing cutting edge research and methodology to give a direction towards profit centric decision making in organizations.

Yale-Great Lakes Center for Management Research

announces

## 8<sup>TH</sup> INTERNATIONAL RESEARCH CONFERENCE

Monday, 30th December 2013



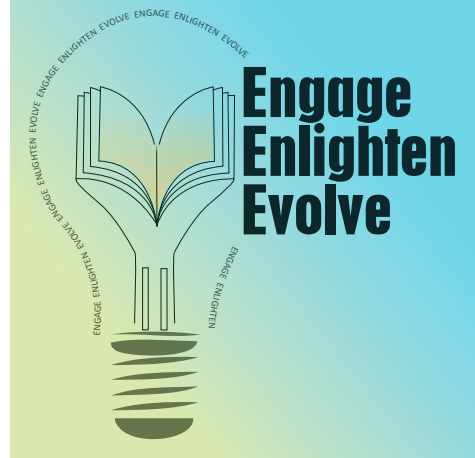
<http://www.greatlakes.edu.in/conferences-research/yale-about>

Yale center aims to promote, facilitate and advance India-centric management related research which contributes to the development of basic and applied knowledge in the field of management.

## 7th NASMEI CONFERENCE 2013

An International Marketing Conference in India

December 27 - 28, 2013



<http://www.greatlakes.edu.in/conferences-research/nasmei-about>

NASMEI (North American Society for Marketing Education in India) marketing conference is an annual conference held at GLIM organized by the Kotler-Srinivasan Center for Research in Marketing

## L' ATTITUDE 13°05'

L' Attitude 13°05' is the annual inter B-School festival of Great Lakes. The festival features a potpourri of events and competitions that encompasses various spheres of management education in the field of marketing, finance, operations, strategy and Human Resources. Great Lakes host this event every time at their campus and ropes in an esteemed guest of panelists to judge the respective events based on the current theme for every year. L' Attitude 13°05' from its humble beginnings in 2007 has made a mark in the annual B School festival arena. Great Lakes organized L' Attitude this year on 29-30 Jan 2013. <http://www.greatlakes.edu.in/lattitude1305/index.php>

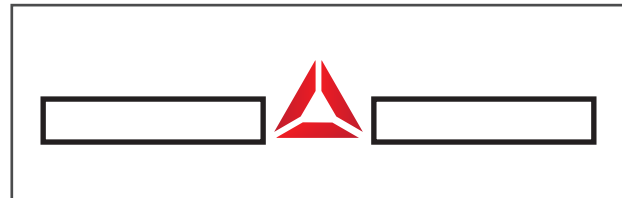


## VISUAL QUIZ - Suhas Cadambi

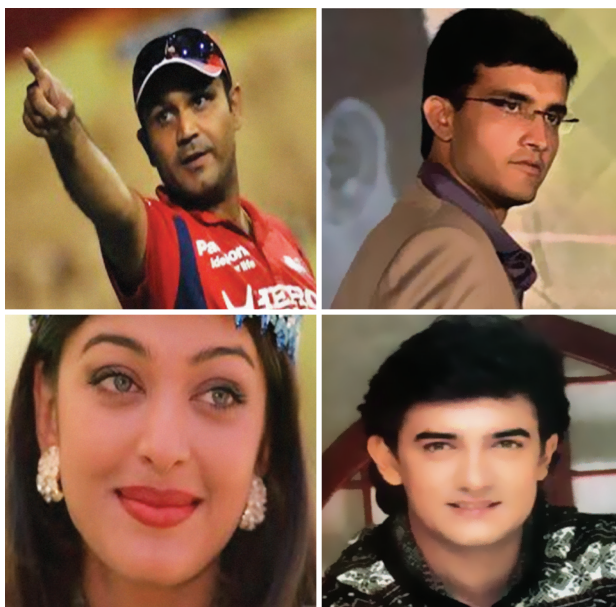
**Q1. The Original was composed in 1902. However, it has gained prominence in the last two decades, and is today estimated to be heard nearly 2 billion times a day worldwide. Identify the tune for which the sheet music is given below.**



**Q3. The logo represents collaboration between a leading apparel manufacturer and a fitness company (names blanked out) that was realised in the recent past. The collaboration has even lent its name to an annual sporting event held which pits the USA against the rest of the world every summer. Identify.**



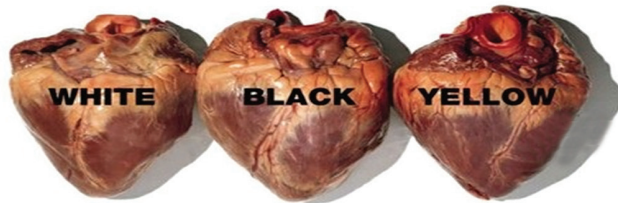
**Q2. Occasionally, cricketers and Bollywood stars think alike. What do these four have in common?**



**Q4. What's the connection? Be very precise.**



**Q5. This ad generated a lot of controversy when it came out. Identify the brand.**

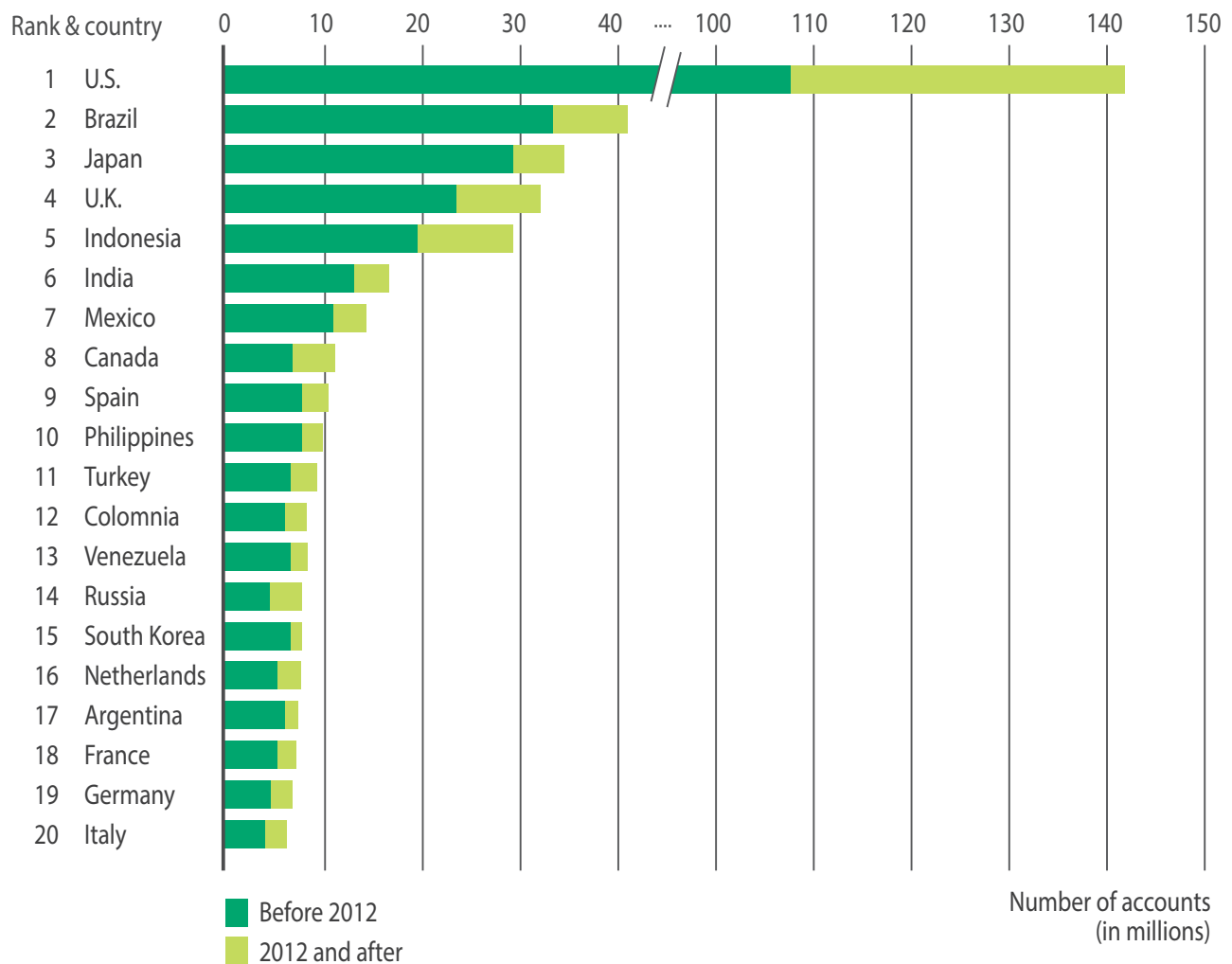


**Q7. What is the cartoon below depicting?**



**Q6. What worldwide distribution does the chart give us a picture of?**

**Top 20 countries**



**Q8. Identify the brand which links these cricketers.**



**10. What is being sold here?**



**Q9. These logos are the original incarnations of what?**



**CHECK OUR NEXT ISSUE FOR ANSWERS  
@ [WWW.GLGRAVITY.ORG](http://WWW.GLGRAVITY.ORG)**

**Issue 19, Sep 2013, Answers**

- Q1. Jose Maria Figueres Olsen, foundation of sustainable development of Costa Rica was led by him, in which they develop and implement telecenters for villages in remote areas**
- Q2. Anita Roddick, CEO Body Shop, who focused on research to identify local practices and principle to focus on needs of the bottom of pyramid**
- Q3. BP and Environmental defense fund: who worked together to develop worldwide strategy for lowering greenhouse gas emissions**
- Q4. Muhammad Yunus, Founder-Grameen Bank**
- Q5. Casas Bahia has developed an innovative business mode that successfully serves the BOP population throughout Brazil**
- Q6. Arvind Eye Care System, BOP in Health Sector**
- Q7. Voxiva, BOP in using information and communications technologies in health care system**
- Q8. Cashport Micro Credit, partnered with ICICI in BOP: innovation in finance**
- Q9. CEMEX, Mexico – innovation in bop cement manufacturing**
- Q10. Sudha Chandran lost her leg in the age of 14 and replaced with artificial leg from Jaipur Foot**



## WRITE TO WIN

### CALL OF ARTICLES

*Inviting articles for Gravity Issue 21, March 2014*

Next issue of Gravity will focus on “**Innovations in Emerging Markets**”. This issue is dedicated to product, services and technology related innovations in emerging markets. We will attempt to showcase how business and product innovations are influencing and altering life of emerging market citizens.

The articles are invited in the following topics:

- **Product innovations in emerging markets**
- **Innovations and digital technology in emerging markets**
- **Mobile marketing in emerging markets**
- **Innovations at micro enterprise level**
- **Service innovation & capability in emerging markets**
- **Social media led innovations in emerging markets**
- **Innovations and bottom of pyramid markets**

So, Gather your thoughts and start typing! Spice it up with the marketing mantras and win a cash prizes of ₹ 3000/- and ₹ 2000/- for the two best articles.

Font & Size : Arial, 11, Word Limit : 600 – 2000, File format: doc or .docx

File naming convention <article name><\_author name>\_<institute>. The last date for submission of the article is **31<sup>st</sup> January 2014**

Articles along with a high resolution image and full postal address of the author can be sent to [gravity@greatlakes.edu.in](mailto:gravity@greatlakes.edu.in) (or) can be posted online at <http://www.glgravity.org/>

Warm regards,  
**Gravity Team**



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**Gurgaon Campus:** Plot No. 815, Udyog Vihar Phase V, Gurgaon - 122 016.

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