Our Now World

Everything Connected and Predictive

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SalesChoice

What's Inside

1.0   Introduction

As humans, we have an insatiable appetite for deriving insights from data. The development of Big Data and the promise of connecting the dots, the appetite for consumption and securing insights is now big business.

We rely on data for movie recommendations, gift purchases, climate patterns, transportation foresight, predictive healthcare, fraud detection, mining consumer behavior, predicting future sales outcomes, and finding us ultimate mate. Even our running shoes connected to our smartwatches can track our fitness levels. We live in an always on-now world, where everything is connected and predicting future outcomes.

The data feast romp is accelerating, and it is offering us smarter insights from diverse sources: blogs, social channels, product review aggregation sites, online videos, sensors, content databases, documents, collaboration tools and the endless containers where data, information or knowledge is stored.

The challenge of the data explosion is finding productive pathways to process the data, identifying patterns and then through this analytical "sense making" process glean new insights for effective action.

> *Did you know that data has become such a significant economic factor that it is almost at par at labor and capital (the Economist, 2014). The market facts also bear this out.*

A few factoids:

- By 2020, over 1/3 of all data will live in or pass through the cloud (CSC, 2013); · Data production will be 44 times greater in 2020 than it was in 2009 (CSC, 2013);

- Individuals create 70 percent of all data. Enterprises store 80 percent. (CSC, 2013);

- 80% of Big Data is unstructured in nature (CSC, 2013);

- 75% of companies say they will increase investments in Big Data within the next year (Avanade. 2013);

- 70% of data is created by individuals – but enterprises are responsible for storing and managing 80% of it (CSC, 2013);

- 65% of companies deploy Big Data technology to boost the speed and quality of business decisions (CIO Magazine, 2013);

- 40%-60% annual growth increase is occurring in the volume of data available every year; in media intensive sectors and financial services, the increase in 120% (Fathom, 2013);

- 38% of the organizations don't understand what Big Data is (CIO Magazine, 2013);

- 34% of organizations say they have no formal strategy to deal with Big Data (Information Week, 2013);

- In 15 of the US economy's 17 sectors, companies with an upward of 1,000 employees store, on average, more information than the Library of Congress (McKinsey, 2013);

- IBM analyzes over 500 million daily call detail records in real-time with Big Data to predict customer churn faster (IBM, 2013);

- By increasing the usability of data by just 10%, the average Fortune 100 company could expect an increase of $2 billion dollars (Fathom, 2013);

- $300 billion could be saved if Big Data was used effectively in the US healthcare sector; thereby reducing expenditure by 8% (McKinsey, 2013);

- It is predicted companies will spend $16.9 billion on Big Data by 2015 (CIO Magazine, 2014);

- 140,000 to 190,000 people with deep analytic skills as well as 1.5 million managers and analysts will be needed by 2018 to fill jobs in Big Data (McKinsey, 2013);

- Lack of insight- 1 in 3 managers frequently make critical decisions without the information they need (IBM, 2014);

- 1 in 2 managers don't have access to information across their organization need to do their jobs (IBM, 2014);

- 3 in 4 business leaders say more predictive information would drive better decisions (IBM, 2014); and

- 90% of the world's total data has been created just within the past two years(IBM, 2014).

The world of "Big Data" is changing dramatically right before our eyes. The trend of "Big Data growth" presents enormous challenges, but it also presents incredible business opportunities.

2.0 New Data Approaches

The approaches to data are now different as well. In the past, we would ask "what questions do you want your data to answer" and then build a data model to solve the problem set. Now we just ingest the data and surface patterns of discovery. In other words, we let data lead us. Of Course defining problems still has relevance, the analytical process shift is what is different.

Our entire world is simply a massive storage reservoir of data types. Eventually all data sources that we are collecting and processing will be connected into a powerful central core. This extra sensory intelligent network pipe will further evolve our now world in ways we have yet to fully fathom.

Smart Analytics should be looked at as a massive sensor probe to peer into our patterns from our brain, our weather, our nanotechnologies, our business processes, our stars, and our universe. IBM thought they had it right in framing Smarter Planet in their marketing branding positioning, but the reality is Smarter Universes is more

accurate. The one message they got right is we are living in a more connected and smarter world.

With the vast reservoirs of both structured, and unstructured data sources, these sensory data probes will manifest into smart API probes piercing through the layers of data connecting the dots that will move us further to actionable data. Like Microsoft created a standard operating system binding enterprises together with Apple and OpenSource O/S's adding competitive alternatives, these major O/S' platforms created the majority of the global footprint for collecting, data patterns.

Analytics is no longer confined to a few people working with a subset of data on a small server in the back-office. Now analytics is on the power stage. Today, predictive analytics is moving to center stage as more people can access the tools and analyze all the data, leveraging data from multiple sources and unleash the power of a distributed grid of computing resources to do the heavy computational analysis.

Today, predictive analytics is moving rapidly into business operating processes and practices. This new field is being coined as machine-to-machine process intelligence and its core is predictive pattern recognition, using advanced artificial intelligence, bayesian statistics, etc.

What fascinates us as Data Scientists is the analytics beyond the simple. Our focus on analytics is on the "predictive analytics edge," where the analysis is based on real-time results and continues to learn from a baseline predictive model that morphs as each business heartbeat moves into play.

3.0   Financial Services Shifts

Consider insurance fraud analysis that was traditionally run, say, every two months. At that point, the damage was done – the fraudulent insurance claim had already been paid. This approach was slow and passive. Now insurance companies run a database fraud analysis twice a day, catching fraudulent claims within hours, and increasingly in minutes. Whereas traditional systems were fine-tuned for transactions and batch processing, and today we need to sense and respond to changing conditions immediately. Even correlating criminals living in neighborhood(s), can add to risk insights for insurance providers.

In banking, every transaction you place, becomes a permanent record of your customer buying profile, ranging from your credit purchasing trends, to investment profile, etc. The banking industry has been working diligently to integrate their internal walls between retail and wholesale banking to get a more consolidated view of customer profiles. Further advances develop triggers on customer service

experiences to provide alternative service offers. For example, predictive analytics on credit card purchases can detect a stream of purchases over three months on baby products, and correlate there is no bank mortgage so a predictive trigger could recommend that a call from a mortgage advisor is in a potential purchasing propensity range. More advanced solutions will also crawl obituary information and also correlate risks in particular in wealth management portfolios.

In the past, we focussed on structured relational databases, predefined relationships between the data, and new data coming in all the time. Hence, we have more dynamic data, with multiple contexts, from many sources, both people and machines.

This shift in how we handle data reflects the fact that our world is complex and connected in ways we cannot imagine. The internet has brought all of this complexity to us in a flood of data that is massive, diverse, unstructured for the most part, and rich in valuable information.

However, the data flood or tsunami is not just internet based. It is everywhere in corporations and in governments; data has no rules and as we have learned has very limited constraints. Every person can recreate their context or persona not just in days but in minutes, tell a new story, create a new world order, and morph into new bits and bytes.

Further, what happened on the Internet is happening in corporations and governments. There are few rules and no constraints. Some of the data can be defined, as well structured and some is semi-structured. Figure 1.0 provides a summary of the shift we are experiencing.

Figure 1.0 – Shifting Worlds: Data Evolution

PAST REALITY	CURRENT REALITY
Data is a fact of life	Data is a factor of our supply chain
Collecting Data	Connecting Data
Analyzing and interpreting data	Predicting data and Perpetual Insights

Data bits to source Information	Data streams to predict outcomes
One version of reality - Black and White World	Multiple sources of perspectives - The Endless Grey World
Structured	Unstructured
Relational	Non-Relational
Centralized processing	Distributed parallel processing
Terabytes	Petabytes, exabytes, …
Analytics for Select Few, Niche Focus	Analytics Everywhere for Everyone
Limited Experimentation	Endless Innovation and Agile Experimentation
Information Scientists	Big Data Scientists

We have learned that in this vast data reservoir of diverse sources, the most important driving force is making the right connections. This means that predictive analytics approaches are critical to be applied. Methods from artificial intelligence, advanced statistics and continual machine learning methods are needed to enable these smarter connections.

One of the most powerful data connectors is the use of links or hash tags as this codification method can be used to mine and detect early signals or pattern inferences. We also have learned that linking allows us to connect diverse data sources and that the combinations, together, tell a story; further the same story can be told in many different ways. In addition, others can keep adding to the story patterns, so the predictive models continue to shift like different waves.

There is no longer room in our world for rigid data; rather complexity in data being agile enabling free pattern detection will increasingly become the new norm. With this shifting world context, data pattern detection with data scientists that know how to mine data effectively will increasingly enrich our sense making.

Today with so much data coming into organizations, the majority of companies are challenged to source new insights. Increasingly out world operates in near real time, and we expect our data and our patterns to unfold at the right point in time..

4.0 Science becomes Mainstream Business

The discipline of advanced sciences is increasingly more relevant to business. Words like ecosystem, networks, colonization, viral, etc. are all less than 50 years old in business vernacular. We have learned that as a result of the increasing vast amounts of data, we are able to explore and analyze some of our world's most challenging questions, how to shift the impact of climate change to reduce its impact, the DNA sequence for replication, the reduction in clean water supplies; reinventing farming practices to increase supply by 60% using aquaponic farming.

For each of these challenges, the large surge in data volumes is shifting the world of science as we have known it to be more closed to now be more collaborative in open forums. This shift to "open science" is one of necessity, as data sets are too large and the problems are far too complex to be analyzed by a single discipline.

5.0 The Rise of Data Scientists

Thomas Davenport and D.J. Patil said it right when they wrote their HBR Article on *The Sexiest Job of the 21st Century is a Data Scientist.*

Data scientists are the people who can understand and provide meaning to the reams of data sources both structured and unstructured: information about customers, products, consumption patterns, in order to help solve big challenges or surface new approaches to market to increase top line revenue growth. With data coming in from so many diverse sources, analyzing monitoring/interpreting to see the patterns emerging or predict risks is the next holy grail in technology careers.

Businesses are trying to make sense of more than "250 billion…likes," and social data; furthermore, they are trying to untangle over 2 billion bits of "data points" each day. This increase in data drives new skills to advance businesses forward.

Between 2010 and 2020, the data scientist career path is projected to increase by 18.7 percent, beat only by video game designers. The big data industry is expected to be

a 53.4 billion industry by 2016, so organizations cannot avoid stepping up to the requirement for data intelligence (IDC 2014). Fortunately there are few degrees which offer data scientist career paths. In particular, Northwestern University, UC Berkeley, University of Waterloo are offering new programs in data sciences. According to a USA Today Report on technology trends in the job market, if you're deep into data analytics, you'll be well positioned in the tech world as it moves into the "next frontier."

6.0 Will Data Scientists become Future CEOs?

We have added to our enterprises Chief Revenue Officers replacing older items like VP of sales, to now add to our CEO suite roster, Chief Data Scientists. I do envision these types of skills will in time become a future sourcing pool for Chief Executive Officers, as type of resources will be mired into the depths of the data in their respective organizations, and will have an uncanny sense to guide their organizations through what will increasingly be murky pathways. The new business fuel I have come to the conclusion is data intelligence leveraging predictive analytic tools to provide future insights. Collecting knowledge from the past to learn how to improve in the future and continually mine data patterns to become stronger is the new competitive advantage. And, data scientists will have a major place in this future roadmap. The movie, Minority Report with Tom Cruise is a good foreshadowing of what is yet to come.

7.0 SalesChoice Experience Highlights

At SalesChoice Inc, we have invested heavily to develop a predictive analytics platform to support the demand to crunch diverse sources of data to find patterns about the future. The initial use case we decided to solve was in large global sales data sets, as we knew there were historical patterns that could help predict futures for large multinationals. Sure enough after testing large global sets from leading brands, we are finding unique patterns in their sales workflow.

By analyzing these patterns in real time, we can determine risks in sales cycles for management intervention, or help our clients focus on opportunities which have a greater likelihood of closing. Focus is everything in sales. This is the first time that these advanced sciences have been integrated into Sales practices. At this time, we are working only on SalesForce.com large global data sets, as we felt this was the best entry point into the market for our advanced sciences.

We have on our core team, a Chief Technology Office, a Chief Data Scientist, and Junior Data Scientists who collectively understand advanced mathematics, advanced statistics, and computing sciences (artificial intelligence and machine learning, sentiment/text mining). Bringing together these different linguistic languages from advanced mathematics has been a real eye opener as when you are leading brilliant scientists you realize how important collaboration is to enable them to learn from each other.

8.0   Conclusion

One takeaway that we need to understand is not all Big Data is useful data. Data with human interpretation and validation by making inferences is needed for a reasonable diagnosis. Inferences are powerful as it transforms data into knowledge.

As the National Research Council of the National Academics states, even naïve users should be able to carry out massive data analysis without a full understanding of systems and statistical uses.

McKinsey further says that sophisticated analytics solutions must be embedded in front line tools so front line employees can use them effectively. Without a solid simplified user experience, these tools won't have the impact that is needed.

Another key learning we always say to our clients is Give Your Data Time-Critical Situational Awareness. In most organizations, data must be pulled from disparate and distributed sources and then processed to yield actionable intelligence. Analytics help a business line identify potential points of improvement. Corporations need to make changes not only in real time as events unfold, but also within the constraints posed by the increasingly distributed nature of modern data sets.

The power of the cloud allows for the extraordinary processing power made possible by distributed computing. Now, statistical inferences can turn data into actionable intelligence that supports reasoned decisions.

Our company SalesChoice specializes in the Science of Selling, using advanced big data and predictive analytics approaches.

We have learned in our journey into advanced data approaches that our world is simply one massive data set, waiting for deep sensor probes for us to make intelligent inferences. Our world will forever morph and make new connections with data. Our human footprints will be forever tied to machine learning as hunger has been unleashed to create a predictive and forever connected now world.

Join us at SalesChoice to take advantage of The Science of Selling; and together we will increase your business foresight and your topline revenue growth. Our accuracy rates are consistently 89%+ in predicting future sales outcomes. Why would you not join us?

Author Bios

Dr. Cindy Gordon is the CEO & Founder of SalesChoice Inc. a Canadian company, focused on Sales Enablement Solution(s), leveraging Predictive Analytics. Dr. Cindy Gordon, CEO, is well recognized as an innovator in Canada, and she is a recipient of the Governor's General Award for Innovation. She has also held senior executive roles at Accenture, Venture Capital Firms, Xerox, Citicorp and is active in commercializing early stage software companies. She has been an angel in commercializing companies like Eloqua, sold for $1.2B to Oracle in 2013. Other early stage software companies she is leading or is and angel in include: AcceleratorU, Corent Technology, CoursePeer, GetKula, Medworxx, and Touch Down TV, to name a few. She is also the Founder of Helix Commerce International Inc., a company that specializes in Innovation Strategy based on leveraging new growth acceleration methods. Cindy is also the author of 14 books in: Big Data, Collaboration, CRM, eCommerce, Innovation, Knowledge Management, Portals, Software as a Service (SaaS), Social Media.

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Dr. Yannick Lallement, is the Director of Analytics & Predictive Intelligence for SalesChoice Inc. Yannick is responsible as a Data Scientist to solve complex sales intelligence challenges. He holds a Ph.D. in computer science from the French INRIA (National Institute of Research in Computer Science), with a specialization in artificial intelligence and parallel computing. Prior roles include research associate at the Human-Computer Interaction Institute, at Carnegie Mellon University, for a few years, honing his data-mining & predictive analytic expertise. He then went on to design enterprise customer-service and e-commerce software and intelligent agents at a leading Canadian web-development company. Additionally, Yannick was a member of the Google Human Evaluation Team, and has been consulting on SEO and website analytics for companies like American Express. Yannick's passion is uncovering and making sense of the evidence hidden in all sorts of complex data patterns to improve business intelligence.

About SalesChoice

SalesChoice Insight Engine™ is an Artificial Intelligence (AI) driven sales forecasting platform that predicts sales outcomes reliably at up to 95% accuracy.

Benefits

✓ In an age where 40%-60% of sales professionals are wrong in predicting accurate sales forecasts, driving huge negative impacts on a company's financial performance, our software reduces your forecasts risks by predicting sales much more accurately.

✓ Insight Engine™, SalesChoice's Artificial Intelligence (AI) forecasting solution for your CRM, tells sales leaders whether they are at risk of not meeting the numbers in any chosen time period while allowing them to run a What-If analysis to explore how the prediction changes with change in target quota.

✓ The software forecasts which opportunities are most likely to be won or lost with up to 95% accuracy, while guiding account executives on accurate close date estimates and on controllable and uncontrollable factors determining sales outcomes, to help them take corrective action and ensure more efficient forecasting.

Targeted Users

The solution is geared towards sales leaders and account executives in both mid-market B2B organizations and large B2B enterprises using Salesforce or NetSuite. SalesChoice has an open API and can work on other CRMs too.

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