Transforming Big Data Into Big Value

An enterprise-wide approach to improving profitability

By Emcien Corp.

In this white paper, you will learn:

- Why databases are fundamentally flawed
- Ways to optimize the value of patterns in Big Data
- How to better manage increasing product complexity
- How companies are already utilizing Big Data
Introduction

McKinsey & Company calls it the next frontier for innovation, competition and productivity. It’s Big Data, and for most corporations, it exists as an unruly mess of sales, products, forecasts, markets, customers – all spread across a wide range of business functions and silos.

Technology megatrends are driving unprecedented data explosions and as the volume, variety and velocity increase, data gets more complex. Add to this the tendency of functional silos to hoard data, and you have a perfect storm where leaders don’t know what they don’t know. As a result, organizations are unknowingly underutilizing their big and small data assets, thereby missing insight and significant opportunities to capture unprecedented value.

There is a lot more data, all the time, growing at 50 percent a year, or more than doubling every two years. It is called unstructured data and is not typically grist for traditional databases.”

II. THE FAILURE OF DATA AS STRATEGIC ASSET

The reality is that Big Data is rich in critical connections between data points. These connections reveal how elements are connected and how they will behave when conditions change. Current tools break these natural connections that define their relationship to each other by separating data into silos. As a result, contexts and market opportunities remain hidden from view, forcing enterprise level decision-making to rely more on gut-feel and intuition rather than data-driven certainty.

Pattern-based analytics reveal these critical connection patterns, allowing organizations to see a more complete picture of its customers as well as how to align resources according to the greatest business value.

III. VOLUME AND VARIETY: ONLY THE TIP OF THE ICEBERG

Volume and velocity of data – what the business world is beginning to understand as the “Big Data Problem” – are becoming less of an issue than the variety of data. Each silo within the enterprise – operations, supply management, sales, marketing – faces its own data variety challenges, where bits exist in a multitude of formats and types.

Due to the variability of data within silos and among them, systems can’t “speak” to one another, and gaining an accurate, enterprise-wide view of demand and performance seems impossible. In fact, most business and IT managers accept the lack of intersystem collaboration as a given, an inevitable limit that must be worked around. As a result, what we know is being increasingly outpaced by the things we don’t know that we don’t know.

Performance within individual silos is clear, but this view does little to inform effective strategic direction.

There is a better way to tackle this challenge and capture the opportunity posed by Big Data.

Yvonne Genovese, VP and distinguished analyst for Gartner, predicts that “by 2013, enterprises using system-based pattern detection in strategic planning and tactical decisions will outperform their peers by 20%.”
IV. ENTERPRISE-BASED DECISION MAKING IS THE KEY TO INCREASED PROFITABILITY

Enterprise decision-making needs to consider all facets of the business, and how each relates to the customer. Managers and leaders need real-time answers to questions like:

✓ What products are customers buying?
✓ How can we do a better job and serve them more profitably?
✓ What does it mean to my business?
✓ Where are my biggest opportunities?
✓ What should I do?

To answer these questions, the enterprise needs to bring down silo walls to reveal connection patterns in the data, and that is the problem that pattern-based analytics has solved.

Pattern-based analytics reveal customer-buying patterns in product sales-related data that includes product detail, customer, demographics, etc., revealing customer buying patterns and the resulting insights are carried across the entire business.

The result is an enterprise that delivers more fully on every business’s fundamental goal, which is to serve its customer most profitably with the right products.

Data related to products typically is complex and is classified as ‘high variability data’ or ‘multi-dimensional data’.

Due to the complexity of data related to product detail, this has been left out of traditional transaction and reporting systems.

However, integrating product detail with sales delivers insight into the kind of products customers are buying – and delivers true insight into understanding customer buying patterns.

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Missing the opportunity to better identify relevant obstacles and capitalize on real-time opportunities, organizations that fail to exploit their data will fall behind.
V. OPTIMIZING THE VALUE OF PATTERNS IN BIG DATA

Pattern-based analytics designed specifically for manufacturers represent a revolutionary approach to converting big data into real, measurable business value. Detecting patterns to reveal important real-world connections within business data provides the ability to read market changes early and better understand the “demand signal.” This in turn enables creation of a feedback loop that helps improve products and customer service, and drives other internal systems for maximum efficiency.

Pattern-based analytics operate on very large volumes of multi-dimensional data, correlating individual elements into connected networks. It then uses efficient network algorithms to identify relevant or surprising information about the critical connections between individual data points, and reveals those connections: Which data elements are frequently found together, which elements behave very similarly, fluctuate in unison with seasons or days of the week and so on. The mathematical algorithms are designed for high-speed computation that allows the user interactive investigation, something that is essentially impossible with the usual brute force database queries, Hadoop processes, or OLAP cubes.

As a result, business-specific pattern-based analytics solutions do all the necessary data crunching – proactively and in real-time – to provide actionable intelligence and impact the bottom line.

VI. CASHING IN ON $210 MILLION TOP-LINE IMPACT

NCR’s greatest competitor is time. Operating in an environment of extreme product proliferation, the enterprise needed to drive differentiation through software and services, all while managing product complexity. This extreme product proliferation inevitably led to longer customer lead-times; and for sales, it translated into a time-consuming prospecting and quoting process. With thousands of different product choices, salespeople had to wade through long lists of product choices with the customer, often leading to a pricing war or pricing conversation as opposed to a managed solution conversation or proactively guiding the customer to the optimal product choice, ultimately helping to shape customer demand.

At the same time, solution managers lacked visibility into demand as existing data warehousing and manual spreadsheets could not proactively analyze the hundreds and thousands of product choices and the customers who bought them to reveal customer buying patterns for forecasting and planning purposes. So, they often resorted to making decisions based on experience and gut instinct, forcing Supply Management to build products that led to higher inventory levels and less profitable sales that eventually eroded profit margins.

NCR needed a way to more accurately sense and shape demand and apply that intelligence across Sales, Supply Chain and Solutions Management. So, NCR selected Emcien's pattern-based analytics solutions, purpose-built for manufacturing companies that offer configurable products with lots of variety. The Emcien solution set breaks down the walls of functional silos that are an impediment to visibility into the quotes to cash cycle, starting with the customer’s first selection all the way to final product delivery to the customer.

“We saw this is an opportunity to bring three disparate departments together on one tool set,” said Mike Groesch, VP of Sales and Operations Planning, NCR Corp. “The idea of Solutions Management, Sales and Operations together in one environment to enhance the performance of our new product introduction, improve our sales enablement, and to give the supply chain a better demand signal was really compelling.”

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Solutions managers can leverage EmcienMix to monitor NCR’s sales with product detail to identify exactly which configurations customers are actually buying, highly popular feature combinations by market segment, and then optimizing the product mix accordingly. This enables solution managers to continually rationalize the product offering while continuing to meet customer demand.

Emcien provides information on actions we need to take – right out of the box – which is superior to business intelligence tools. BI tools are great at throwing more data back at you without telling you much – and you have to work really hard just to get that. Right out of the box, Emcien gets you the information you need very quickly.”

- Mike Groesh, VP of Sales and Operations Planning, NCR Corp.

Looking at a small segment of the market, in China for example, EmcienMix revealed the number of units sold, the number of configurations purchased by product and the consolidation opportunities. The consolidation enables Emcien’s optimizer to satisfy 100% of the requirements of that specific market with far fewer configurations.

This type of data-driven intelligence arms Supply Management with the insight required to build product more cost-effectively with shorter lead-times. In addition, solutions managers can recommend advocated solutions to the sales force in real-time with a rating of good, better and best based on product availability, margin and customer fit – through EmcienMatch.

Salespeople can then guide customers quickly and seamlessly to product configurations that offer the best blend of features, lead-time and price for their needs. The most popular configurations for each market are optimized and can be made available with shorter lead-times, sold at a more economical price point and satisfy the majority of customers in that market.

“Emcien provides insight into what’s actually happening in the market in terms of what’s going well and what’s not going well, allows us to make changes in our product offering and then actually inform and direct our salespeople accordingly,” said Groesch. “It also empowers Operations and Product Introduction teams to challenge the new product introduction process with data as opposed to relying on best guesses and hunches.”

NCR has improved product planning, moving from anecdotal evidence to data driven analysis that reveals which configurations best satisfy the market most profitably.

According to Laneve, these changes save time that sales people can now spend prospecting, selling and building customer relationships.

And Laneve says she expects Emcien’s solution is “reducing the time required for a salesperson to generate a quote from 30 minutes to 10. In total, our improved ability to shape demand is saving us around 5% of a sales person’s time per year.” Applying the opportunity cost analysis above, Emcien is creating a $210 million impact at NCR.
VII. AGCO RETIRES DEALER GUESSTIMATES AND DECIMATES INVENTORY HOLD TIMES

After AGCO acquired an agricultural division from Caterpillar, Randy Hoffman, Senior Vice President of Global Sales and Marketing, realized how cost-prohibitive its high horsepower tractors were to produce: about $250,000 per unit.

Inaccurate forecasts combined with thousands of possible product configurations created a convoluted and expensive process. “It was costing us millions and millions in inventory hold times,” Hoffman says.

Thirty percent of orders were for retail, customer specific product, and those were generally accurate, but the other 70 percent were dealer projections. Dealers would look at last year’s sales and then try to guess what customers might want for this cyclical product. If there was an uptick or expansion, additional inventory was built to meet those needs, but this also was based on estimates. “At the end of the day, we just weren’t meeting the market needs,” Hoffman said. “We ended up with extra inventory in some areas—and the dealers did too, which is an expensive problem for them. And then on the other hand, we didn’t have the right inventory for orders when they came in, and we’d have to custom-build another product.”

The implementation of EmcienMix led to production changes that eliminated the guesstimates.

Emcien’s pattern-based analytics solutions allowed us to reduce product variety by 61% and slash days of inventory by 81%, while maintaining service levels.”

- Randy Hoffman, SVP of Global Sales and Marketing, AGCO

VIII. ESTABLISHING DATA-DRIVEN MANAGEMENT AT DITCH WITCH

In manufacturing, product variety becomes a serious liability as companies work to fit proliferating options and features to customer demand. At Ditch Witch, a manufacturer of underground construction equipment, longer customer lead times — from 30 days up to six or eight months — were a direct result of this proliferation in product variety.

Jacky Williamson, Pricing, Product Structure, and Target Costing Manager for Ditch Witch, describes the “product spec creep” phenomenon they were facing: “We’d think of a feature and just add it to the database, and we’d keep adding and never delete anything. We felt like we were taking something away from customers if we removed a feature. With so many product features, our planning was poor, leading to longer and longer lead times.”
Effective managing and planning in this environment is humanly impossible. The plant doesn’t know what inventory to stock and runs out of some parts while experiencing excess inventory with others. Dealers are unsure of what to stock for customers. Sales teams struggle with knowing – much less presenting – the entirety of available products. Ability to sell is compromised.

EmcienMix is designed specifically to identify buying patterns, optimize the product mix, and guide new orders accordingly, enabling the best configurations for both the customer satisfaction and company profitability.

In the case of Ditch Witch, these applications helped Williamson and her team to understand what customers wanted and to standardize around the right feature sets. EmcienMix delivered insight into complex multi-dimensional product data across data silos, enabling data-driven decision making to serve customers better and with greater efficiency and profitability.

“With Emcien optimizing our product options and standardizing what our customers want, we anticipate that our gross profit will increase by 1%,” said Williamson.

CONCLUSION

It’s no secret that Big Data is more than a passing fad, and whether or not companies can manage the streaming data effectively will determine the winners and pioneers in the space. Relying on traditional data warehousing methods and tools isn’t the key to solving the “big” dilemmas posed by the influx of data.

As the cases with NCR, AGCO and Ditch Witch reveal, optimizing on connections of patterns within data can dramatically improve sales, supply chain and product management, specifically within the manufacturing sector.

Today’s technologies such as the solution suite by Emcien have the capability to equip businesses with the right tools and processes necessary to bypass flawed databases, and optimize on the value of patterns in Big Data.

ABOUT EMCIEN CORP.

Emcien provides first-in-class, pattern-based analytics solutions that enable organizations to convert complex data into actionable intelligence, delivering significant business value in the forms of new sources of revenue, increased profits, and enhanced competitive advantage.

Designed for today’s information explosion, Emcien’s patented pattern-detection platform goes beyond the boundaries of existing BI and database tools to re-shape the way organizations in manufacturing, retail, distribution, law enforcement and intelligence communities leverage data for real-time, game-changing decision-making and execution.