Using Analytics to Gain a Competitive Edge

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Introduction

During the past decade of the IT infrastructure explosion, manufacturers have amassed large amounts of data about their products, supply chain, employees, customers and services. Increasing global demands and round-the-clock operations have led many executives to expect and need shorter response times to their business-critical questions. At times, when and how well these questions can be answered can affect not only performance, but the viability of an enterprise.

1. Are our cost structures aligned with customer value measures?
2. What will customers value in the future?
3. Will our supply chains be secure and reliable?
4. Are our leading performers likely to leave for better opportunities?

Drowning in data, but lacking actionable information, many manufacturing executives are turning to data analytics to answer to those “crunchy” questions that drive decision making. Data analytics provides the ability for manufacturers to look upstream into the global supply chain and downstream into the consumer base to better understand the present and anticipate the future. Data analytics, especially predictive analytics, offers a different opportunity to understand how and why certain factors are impacting the bottom line.

Driving Forces behind Analytics

Increased pressure on margins and a global supply chain are just two of the key challenges facing today’s manufacturers. Such business objectives are driving the need to harness the power of the information stored in legacy systems.

In addition, many manufacturers are struggling with labor shortages in critical workforce areas, such as engineering, science, and technology. Data analytics can help by giving insight and foresight into employment and wage growth rates, as well as future employment projections, thus helping manufacturers get a handle on their workforce shortfalls.

The key to getting more effective answers involves bringing the collective packet of enterprise information management, business intelligence and advanced analytics together to get a 360-degree view of the organization. Once in balance, the competitive advantage revolves around a better integrated supply chain, a stronger focus on customer relationships, and new insight into the product life cycle.

Same Story, New Twist

While a small percentage of manufacturers claim to be using analytics as a competitive weapon, the business practice is nothing new. Until now, manufacturers have focused on basic business intelligence and using more sophisticated tools to report what happened. Advanced analytics can provide different insight into:

1. Why it happened?
2. What will likely happen next?
3. What will likely happen if?
4. What is the best outcome for meeting the business requirements?

As an evolved business tool, advanced analytics can pave the way for more predictive and prescriptive decision making. While experience is still a critical factor, manufacturers can no longer rely on “tribal wisdom” and human intuition alone. The harsh business reality is an increasing focus on the analysis of data, which marks a significant change and possibly the most important business culture trend today. The “crunchy” question here is: “Do you think or do you know?” If you know, then where is the data to support your decision?

Trends in the Driver’s Seat

Many trends are driving the adoption of new approaches to business analytics and an overall increase in the demand for analytic capabilities. A convergence of forces and factors are making business analytics pervasive across multiple industries and sectors. It is not a narrow pocket; it is not in just some parts of the world; it’s everywhere — and manufacturing by far is no exception.

1. Key factors driving today’s business need for better data analysis include:
2. Exponentially increasing amounts of data, or “Big Data”
3. An aggressive regulatory environment
4. Increased pressures on profitable growth
5. The quest for new signals and hidden insights

With these drivers in mind, manufacturers need deeper insights into the risks of not being in compliance with new laws and regulations and the ability to be increasingly responsive to the public and other types of stakeholders. The manufacturing sector in particular — with the supply chain becoming increasingly complex and the competition being global in nature — is a tough game. There’s little room for error or assumptions.

Manufacturers also need to be aware of new signals which come from other types of data sources like social media and other unstructured data not found in traditional systems. With the application of new techniques, new tools and better capabilities, hidden insights are coming to light. The good news is today’s technology can meet the challenges of answering the why and substantiating the facts.

The Spread of Analytics within Manufacturing

Given the current demands on manufacturing, there is no single “best place” to getting started with data analytics. In some companies, CFOs are the driving catalysts for implementing analytics initiatives. However, many leaders in supply chain, customer relations and production, as well as risk and regulatory issues, are beginning to steer analytics initiatives in their organizations.

Research & Development

For example, R&D data historically has been isolated from the actual manufacturing process. By paying more attention to this data with their next wave of products and services, companies can reduce time-to-market, better define their client niche, and improve overall production quality.

Value-Based Pricing

Manufacturing companies can realize improvements around their efficiency by driving analytics into their operations to put critical information together. Combined with design and supply chain, value-based pricing differentiates product features as being more or less important by incorporating an understanding how production costs affect the bottom line. Effective pricing also cannot be sustained without customer analytics.

Customer Service

Because of the rapid pace of product development and increasing competition, customer service is becoming a key differentiating factor amongst manufacturers. Tied to customer focus, many companies are looking at how they integrate service information into product design, which involves leveraging R&D data to anticipate the ever-changing consumer base. Thus, no area is isolated in manufacturing data analytics — the key is pulling it all together.

Overcoming Barriers

While many business leaders understand the inherent value of using high-quality information, many companies sometimes fall short of achieving the capabilities they want and need. Lacking the level of information management automation and analytic tools they desire, these companies make do with manual processes and fragmented solutions, working outside of the existing enterprise systems. Pockets of analytics innovation may be drowning in a sea of spreadsheets.

Why is this happening when the benefits of improved information management and enhanced analytic capabilities seem clear? Some barriers that companies face when trying to become more proficient with analytics across the enterprise include:

1. Lack of a compelling business case
2. Concerns about quality of data

3. Organizational silos
4. Insufficient executive sponsorship
5. Acceptance of the current state

The business case can be made in that the leading analytics investments are actually self-funding. Concerns about data quality, while often justified, are typically addressable and sometimes merely serve as excuses for not moving forward. Leadership itself is the key ingredient to moving forward, overcoming the inertia of silos, motivating the team, and setting the vision for the future. Clarity on both the opportunities and the risks of not acting is essential.

Linking Analytics to High-Impact Areas

A full-scale shift toward analytics is underway today in virtually every domain of the manufacturing company. From product design to customer relations, finance, risk, supplier management, sales and marketing — virtually every facet of the manufacturing operation is on a quest for more accurate and accessible information. No area is more relevant than another. In fact, an effective data analytics initiative requires symbiosis amongst divisions.

The opportunities, needs and drivers may vary in a particular organization. However, the overall goal remains the same: a search for better analytic capabilities across each and every one of these functions. So if you are thinking that maybe there is just one place where this happens, that wouldn’t be true.

The more challenging issues focus on pricing and profitability, commodity volatility and ensuring product safety in the global supply chain. An expanding global economy has taken a once siloed view of the world far beyond the four walls of the manufacturing entity. The high-impact areas tend to define the basis of the crunchy questions, and thus dictate what kind of data is needed. Questions, such as:

1. How do I bring external data into an architectural framework?
2. How can I better understand the effect of actions taken to improve the overall functioning of the organization?
3. How do we stack up when compared with what other companies are doing?

Many manufacturers are still in the experimental phase of data analytics. No one company is doing everything well or “has arrived” and has finished its implementation. They may have made good progress in one domain or another, but are still on the analytics journey. Business leaders desire to have more and better information quickly, but it is not just a simple reporting matter. Advanced analytics uses data mining capabilities to unearth uncommon insights, such as the risks of supplier failure and the future of products.

Conclusion

Getting started on the analytics journey requires first identifying where you are. Highly fragmented organizations typically struggle the most in getting started, but

it’s a recursive process no matter where you need to begin. Today’s business objective in data analytics is anticipated to become tomorrow’s new beginning.

A good starting point is often a place of pain where the benefits of implementing a data analytics initiative can be obviously seen. Success can lead to success, and the focus is on being value driven. Once established, data analytics can be built outward throughout the organization.

Regardless of where it begins, the analytics journey is a dynamic and ongoing one. If you decide to take this journey, it is not business as usual. A fact-driven manufacturing company has a pervasive and persistent focus on what the data is revealing. Some long-held beliefs may be proven untrue by the data. Agility and open-mindedness are essential. In the end, the hindsight, insight and foresight the analytics journey brings to your organization can be invaluable. So embrace the journey, and let analytics transform your business!

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