

The state of smarter electronics, automotive and aerospace

Smarter Industries Symposium, Barcelona, November 2010



The possibility of smarter industries

Two years ago, IBM first introduced the concept of a Smarter Planet, a world in which collaboration, systems thinking and data analytics improve the efficiency and effectiveness of the many systems that facilitate life on earth. It was a bold idea, but one that resonated within the business and government communities because it is rooted in a deep understanding of what's possible with today's technologies and capabilities. For this reason, our clients and business partners immediately embraced and echoed the concept.

Two years later, IBM has collaborated with more than 600 different organizations worldwide that are each doing their part in making this vision a reality. In November 2010, we brought many of these world leaders in government and

business to Barcelona to share their stories of a Smarter Planet. We called the event Smarter Industries Symposium because while the notion of a Smarter Planet may be global in scope, the work of building it happens industry by industry, company by company, government by government, and process by process.

Representatives from ten different industries attended the event, including banking, communications, energy and utilities, healthcare, government, insurance, oil and gas, retail, transportation and electronics. And though each of these industries faces unique circumstances in today's economic environment, the most advanced organizations in each field share a common outlook. They are the organizations that have stopped seeing change as a threat and started seeing it as an opportunity. They have changed the conversation from one about problems to one about possibilities.



IBM Smarter Industries Symposium

Smarter Industries. Smarter Business.

“We are climbing out of a global downturn in an environment of accelerating complexity and uncertainty, with an explosion of data all around us,” said Frank Kern, Senior Vice President and Managing Partner at IBM Global Business Services. “Yet the question on the mind of global business leaders is shifting from ‘What’s my biggest problem?’ to ‘What’s my greatest opportunity? What are my prospects? What’s available to my enterprise now that wasn’t before?’”

Analytics, ROI and the customer

During the course of the Symposium, attendees saw many examples of how organizations are answering those questions with action. In particular, they saw the power of data and analytics in making smarter industries a reality. “Analytics: The New Path to Value,” a study jointly conducted by IBM and the *MIT Sloan Management Review*, found organizations that utilize analytics outperform those that are just beginning to adopt analytics by a factor of three.¹ They use them to understand historical trends, to model current conditions and to predict the return on investment of different courses of action.

And though the approaches to analytics vary, every organization shared a remarkably consistent design point: the customer. From Fundacio TicSalut, an institution of the regional healthcare administrator in Spain that has built a shared electronic medical records system to improve health services for its citizens, to Best Buy, the electronics retailer that is listening to its customers across multiple channels and engaging them over social networks, smarter industries are being built around serving the needs of the customer.

“Our customers are asking us to know them, empower them, offer them and support them,” said John Thompson, Senior Vice President and General Manager at BestBuy.com. “We’re inclined to listen to them.”

A path to possibilities

Having the design point of the customer is important because without it, all the innovation in the world has no purpose. John Kao, Chairman of the World Economic Forum’s Global Advisory Council on Innovation, explained it to symposium attendees like this: “Creativity and innovation are not the same thing. Creativity is the ability to generate new ideas. But innovation requires a goal to move forward.”

Kao advocates having a plan, or a system, when pursuing any innovation. And smarter industries are no different – which is why IBM has produced more than 30 industry-specific progression paths that identify key transformation milestones, outline the return and benefits of each step, and simplify the journey to getting smarter. The progression paths address specific aspects of various industries, from building a collaborative care model in healthcare to meeting regulatory requirements for municipal water systems.

Not surprisingly, some consistent patterns emerge at each stage of transformation, which Ginni Rometty, Senior Vice President and Group Executive for Sales, Marketing and Strategy at IBM, noted to attendees of the symposium:

- 1. Instrument to manage** – The collection of data to measure, monitor and understand a system
- 2. Integrate to innovate** – The analysis of that data to see patterns and identify opportunity
- 3. Optimize to transform** – The action of reaching system-specific goals and redefining what’s possible.

Throughout this report, you will read about what was shared at the Smarter Industries Symposium and the stories of how many organizations in your industry are applying this progression path. It’s a path that is helping improve the efficiency and operations of hundreds of IBM clients and business partners around the world. It is a path to possibility. And it’s a path to a Smarter Planet, one industry at a time.



Smarter electronics, automotive and aerospace: Leveraging data for customer insight and service innovation

Electronics. Automotive. Aerospace.

On the surface this industrial-based grouping appears to be a collection of three tangentially related industries. However, these three product and manufacturing-based businesses increasingly share a common set of issues and goals. As we heard time and again at the Smarter Industries Symposium, they are each looking to use data to achieve greater product innovation, develop services-based solutions and attain greater customer intimacy.

They also share a common set of concerns and questions about attaining those goals. For one thing, the pace of change is a concern. Industry leaders at the symposium questioned whether these companies have done enough to change their culture toward one of rapid innovation. And they wondered whether leadership is allowing enough freedom to test new ideas, even if that means occasionally failing.

Ultimately, however, whether the company is building consumer electronic devices, high-end automobiles or jet engines, there was some agreement among participants that evolving into a smarter industry requires some basic transitions:

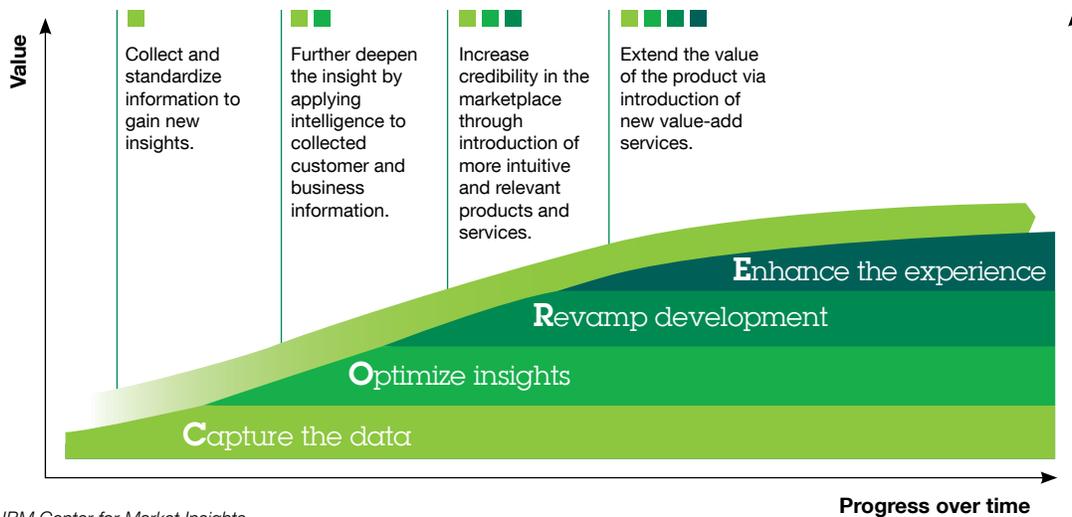
- From “point” products with simple functionality to IP-enabled products with sophisticated embedded and secure software
- From engineering-driven product development to leveraging user insights and analytics to drive new product innovation
- From a hardware focus to developing complete solutions that include a service focus
- From a vertically integrated supply chain to a focus on core capabilities and alliances
- From a winner-takes-all approach to relationships to an ecosystem based on mutual sharing of risk and rewards.

From data to insight

At the outset of the electronics, automotive and aerospace track, IBM presented a four-step progression path for developing smarter products and services innovation known as CORE (see Figure):

1. *Capturing* the data is the starting point for collecting and standardizing information to gain new insights.
2. *Optimizing* insights applies intelligence to collected customer and business information.
3. *Revamping* development increases credibility in the marketplace through introduction of more intuitive and relevant product and services.
4. *Enhancing* the experience extends the value of the product through the introduction of new value-add services.

Executives echoed these themes and focused on the potential for data analytics to change the ongoing relationship with the customer, from product development to point of sale and beyond. One automotive executive explained it this way: “We can really understand how customers are using the vehicle, so that it’s not just looking at it from the engineering perspective. Data is available throughout the lifecycle of the product.”



Source: IBM Center for Market Insights.

Figure 1: Smarter products and services innovation requires CORE capabilities.

An example discussed at the symposium was a manufacturer that is applying analytics to warranty data to understand and try to fix issues during the development cycle. It is also engaging customers earlier in the design phase in a proactive way using a portal to allow customers to collaborate directly with the manufacturer.

Along these lines, the advent of social media is allowing increasingly sophisticated interactions with customers. But these technologies place a great importance on the ability to synthesize unstructured data. The volume of both traditional transactional data and unstructured data continues to grow. However, that growth is now being driven by unstructured data.² This is leading companies to pursue the opportunity to integrate and structure information from various sources to

create new insights. One automotive representative said that “the goal of data mining is to obtain a consolidated view of the customer (soft facts) and the technical perspectives (hard facts).”

Insight to innovation

The insights gleaned from data can enable product manufacturers to deliver innovative new services. Manufacturers that previously were able to focus just on product and engineering can couple their offerings with new solutions and apply them at a global level. These offerings might include product-centered services, such as improved warranty and maintenance services, or richer information-based services that leverage all of the information to create a new value proposition.

One example discussed at the symposium was that of an equipment manufacturer using predictive analytics to help guarantee availability of mission-critical equipment. In this way it can offer performance and uptime guarantees to clients through a services contract, rather than simply selling a product. This was a significant leap beyond providing better warranty terms.

The new value chain

Another important area of discussion among participants at the symposium was that of building a connected value chain. The explosion of data and demand for services are pushing companies toward new service-based business models, creating a need for more connected value chains. An executive from an electronics company said: “We need to do a better job at finding a way to use this information. The value chain needs to be connected to bring the most value to our customers.”

While the concept of collaboration is understood, at its core is the sharing of information. But many acknowledged that there is a problem in this regard, as not enough companies want to share data. Manufacturers are faced with limited trust across their ecosystem. As one electronics manufacturer put it: “There is a data problem. No one wants to share data. There is a failure of trust in the ecosystem.”

This underscored the fact that while announcing alliances is easy, making them work is more difficult. Important factors for alliance success include: 1) assessing complementary capabilities, 2) customizing those capabilities to the benefit of the partnership and 3) activating knowledge sharing and effective governance. The focus must be on finding the right working relationship, not just plugging together a business arrangement.³

The world that is instrumented, interconnected and increasingly more intelligent is exploding before our eyes. Product companies in industries such as electronics, automotive and aerospace are already transforming but need to move faster to break through the boundaries that previous business models imposed. While change is rapid and sometimes daunting, customers are often changing with even greater speed. In Barcelona, we found companies that were eager to embrace a Smarter Planet, excited by the progress they have already achieved and optimistic about the opportunity they see ahead of them.

References

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