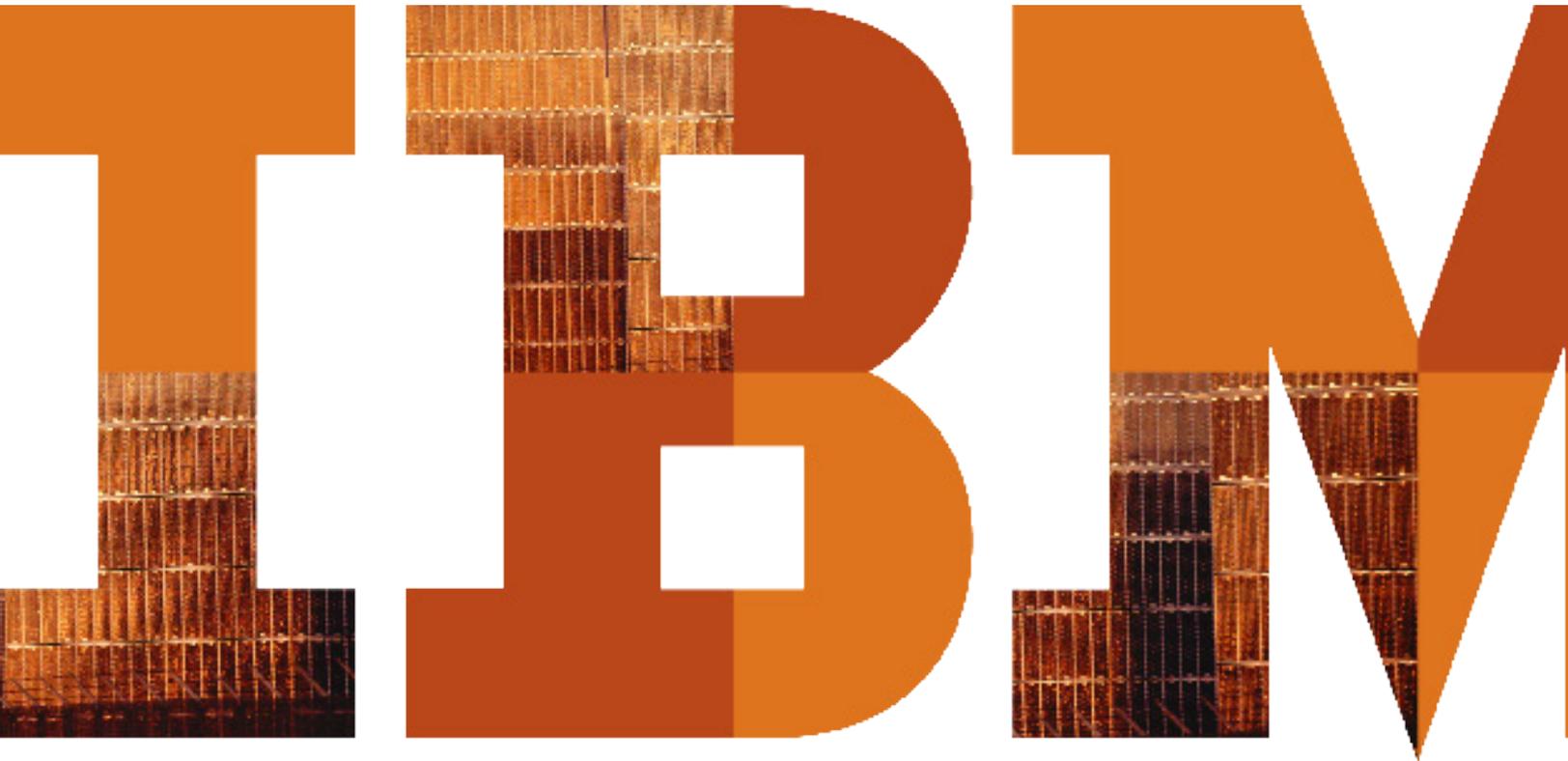


# The state of smarter energy and utilities

*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.**

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“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.<sup>1</sup> 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**

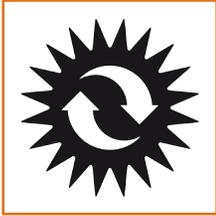
Having the design point of the customer is important because without it, all the innovation in the world has no purpose. John Kao, Chairman of the World Economic Forum’s Global Advisory Council on Innovation, explained it to symposium attendees like this: “Creativity and innovation are not the same thing.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



### **The state of smarter energy and utilities: Enhanced collaboration and customer engagement**

The IBM Smarter Industries Symposium occurred at a time of unprecedented opportunity in the energy

and utilities industries. The recognition that energy and utility systems must be modernized and reduce their environmental impact, along with policymakers' elevation of energy to a top national priority in many nations, have created fertile ground for change. At the same time, increased investments in the industry by legacy energy and water providers, governments, technology companies and venture capitalists are creating optimism that rapid progress is achievable.

While utility systems of the future will be composed of many different elements – from the traditional generating plants and delivery wires to newer technologies like storage, electric vehicles and home energy management networks – the conversation at the symposium focused primarily on intelligent utility networks (for electricity networks, these are popularly known as “smart grids”). And rightfully so, as these more intelligent networks will serve as the critical underpinning for the ongoing transformation of the entire energy value chain.

Within this context, two major themes recurred as experiences were shared: 1) enhanced collaboration and 2) engagement with customers. While the conversations focused on the electricity segment of the industry, many of the lessons learned are applicable to gas and water utilities moving forward on the path to becoming “smarter.”

### **The collaborative mindset**

Collaboration across the industry is essential to fulfill the promise of today's technologies. This is not a new concept in the electric power industry: major technological introductions (such as nuclear power) and high-profile events (such as the East Coast blackout in the United States in 1965) underpinned the creation of many of the collaborative forums through which utilities share best practices today, such as the European Atomic Forum (FORATOM) and the Electric Power Research Institute (EPRI) in the United States. Indeed, as mentioned in the opening discussion of the energy and utilities sessions, groups such as the Global Intelligent Utility Network Coalition and the Global Smart Grid Federation are already bringing the industry together to address smart grid issues worldwide.

What is new today is the variety of other organizations with which collaboration is needed. As Mark Carpenter, Vice President and CTO at Oncor, a U.S. electricity transmission and distribution company in Texas, said in a panel session, “If any of us try to do this in a vacuum, we're in trouble.” And though the current goals of symposium participants varied considerably – from preparing infrastructure for the large-scale introduction of electric vehicles, to meeting energy efficiency and climate change targets, to integrating additional new sources of production, such as renewable energy generation – each considered collaborating for wider benefit an important part of their strategy.

For instance, two speakers from Europe described projects that linked renewable power generation and electric vehicles to balance the intermittent nature of wind power with the demand profile for charging electric vehicles and to take advantage of the potential electrical vehicle batteries have to store power – an intersection of two industries that a few decades ago would have been difficult to envision but now is poised to bring a variety of benefits.

### **Focus on the changing customer**

The momentum toward smart grids is changing the relationship that utilities have with customers. “Customers” in this context generally means both intermediate customers such as retail electricity providers and also end-user residential customers, or “consumers.” Historically, utilities’ focus often had been concentrated on the largest users of energy, generally industrial and commercial users. For example, around 1950 in the United States, industrial consumption was twice that of aggregate residential consumption. Today, this relationship is nearly reversed. In 2009, residential usage was 1.6 times greater than industrial – an all-time high for that ratio. With the rise of more conservation-minded consumers and greater attention being paid to the role of consumer behavior in helping meet efficiency and sustainability goals, residential customers are becoming more of a force in the industry, and providers are taking notice.<sup>1</sup>

For example, Oncor’s Mark Carpenter described the company’s successes in providing household historic energy consumption information through the Smart Meter Texas Web portal and in near-realtime through wireless interfaces between the company’s smart meters and customer’s in home devices. As part of educating consumers on the significant promise this information has for helping them better manage their use of energy – and the resulting potential for cost savings – Oncor created a thousand-square-foot Mobile Experience Center. The Center is essentially a “smart home” on wheels that travels throughout the state, allowing customers to experience first-hand how they are now able to make more informed choices about their energy consumption and expenditures than ever before.

Although not all consumers will embrace smart grids, many will. Indeed, IBM’s 2008-2009 Global Utility Consumer Survey showed that 70 percent of respondents are willing to experiment with how they interact with energy providers.<sup>2</sup> These are the households that will create an expanding base of customers for new products and services related to energy. New capabilities, such as those offered by the Smart Meter Texas portal, can provide tools for these interactions and, provided concerns around data privacy and security are addressed and communicated, give electricity providers the data needed to provide more personalized and differentiated services.

### **The path to possibility**

Globally speaking, smarter energy and utilities networks are still “works in progress.” New technologies are at various stages of deployment, and the new business models and customer behaviors that leverage them will emerge over time. Many of the initial efforts are limited in scope and scattered geographically, though the pace is accelerating. But throughout the three-day symposium, every discussion highlighted the importance of enhanced collaboration and engagement of customers as two elements that are needed to bring all of the efforts successfully together.

This will take substantial effort and compromise on the part of a wide spectrum of stakeholders. In the words of Marco Cotti, who leads business development activities for the network technologies unit of Italy’s largest utility, Enel: “All stakeholders of the value chain – customers, retailers, network operators, generators, technology manufacturers and regulators – will have to work in unison for smart grids and for a sustainable energy model.”

## Reference

<sup>1</sup> IBM Institute for Business Value analysis of data from Annual Energy Review 2009. U.S. Energy Information of the U.S. Department of Energy. August 2010. <http://www.eia.gov/emeu/aer/elect.html>

<sup>2</sup> Valocchi, Michael, John Juliano and Allan Schurr. "Lighting the way: Understanding the smart energy consumer." IBM Institute for Business Value. 2009. <ftp://public.dhe.ibm.com/common/ssi/ecm/en/gbe03187usen/GBE03187USEN.PDF>



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