



Connect what matters

Harness the power of the internet of things

Transistor by transistor, the electronics industry is literally changing the world. Consider this: today's fastest computer can achieve 33 quadrillion calculations per second¹, and by 2020 there could be more than twenty-five billion devices in the world consuming and generating massive amounts of data.² Even now there are more than one billion transistors for each person on the planet.³

With innovations like these, it is no surprise that the electronics industry continues to be a leader in research and development investment across the world.⁴ However, despite an impressive track record of pioneering technology, today's electronics industry is in a state of disruption. Product life-cycles are compressing, emphasizing the need to create products and services faster and more cheaply than ever before. Competitive pressures are at an all-time high, with a continuing need to contain operational costs and aggressive new entrants appearing in the market all the time. With the Internet of Things, everything is connecting, industries are converging, and change is accelerating. Creating innovation that customers actually want remains the principle business imperative across all segments of the electronics industry, whether it be for network and industrial equipment, office products, medical devices, and semiconductor makers, or consumer electronics and home appliance OEMs. And, though profits for some of these segments are higher than others, all are under constant margin pressure.

Together, these trends are driving electronics companies to find new growth opportunities. Many believe that the best way to do this is to transform their business models and get closer to their customers. In fact, an IBM CEO survey revealed that 86 percent of global electronics CEOs are implementing extensive changes in their organizations to deepen their



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understanding of individual customer needs, while enabling faster, more relevant responses to markets and individuals.⁵ CEOs realize that innovative products and services are only successful when they deliver on customer needs.

At IBM, we believe a key route to gain this customer intimacy is through the data that electronics devices, media, and equipment create. With billions of people connected by billions of objects and devices, this data represents a wealth of untapped resources that electronics companies are just starting to understand. It is not just the volume of data that is exploding, but also the variety, velocity, and veracity—the percentage of the data that needs to be reviewed and addressed—that is growing exponentially. However, a majority of electronics companies are unprepared to manage the impact of all this data and make use of social media as a strategic business tool. Now is the time for electronics companies to convert data into insights, and create the new products and services that will continue to change the world.

Courting the customer

In the 21st century, innovation for its own sake is not enough. The key to success is not just bringing new products to the market, but enhancing business-to-business interactions and people's lives. Greater customer intimacy means a shift in the traditional relationships between buyers and sellers. It becomes one of partnership—a mutually beneficial feedback loop in which customers are active participants in the business, and companies use customer insight to innovate.

Insight resulting from analysis of data can be used to redefine product development and customer experiences. Investing in an array of capabilities that create deeper insights and promote smarter products and services can pay off in terms of faster and higher returns. Most electronics companies have already invested in some form of customer information and product lifecycle management, and while investing in these individual capabilities can produce good returns, an end-to-end approach

offers systemic benefits that can yield exponential returns. For example, the value of customer data can be greatly enhanced through investments in analytics that drive deeper insights. Tying these insights to product development can shorten time to market and produce offerings that are more aligned with customer needs. To this end, a four-phase roadmap, with each phase building on the one before, can help improve an electronics company's cumulative cash flow and innovation capabilities. At IBM we call this the C.O.R.E model⁶

- **Capture the data:** Collect, integrate and standardize data to make it more useful.
- **Optimize insights:** Apply analytics to the data to yield deep customer and operational insights.
- **Revamp development and operations:** Increase credibility in the marketplace through quicker introduction of more intuitive and relevant products and services.
- **Enhance the experience:** Extend the value of products through value-added services.

Capture the data

The first step is focused on gathering as much useful and relevant information as possible, whether from product usage, mining social media or tracking customer interactions with service personnel. All relevant sources of data should be tapped. As consumers connect more and more of their devices, from the living room to the kitchen, data can be collected, with permission, at a level of detail never before possible.

Optimize insights

In the second step, companies analyze the data they captured to spot hidden trends, predict outcomes and lend certainty to decision-making. It is a critical capability, because it creates a basis for action—something that raw data alone cannot provide. Analytics can help reveal the most intelligent and profitable

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course of action, based on answers hidden within the data. As an example, TP Vision, which manufactures the Philips TV brand, uses a cloud-based environment to manage and collect customer usage data for its smart TV service; by being able to quickly analyze the data, the company can constantly update the user home screens, effectively personalizing every interaction.⁷

Revamp development and operations

Insights from analyzing data must be used to transform how products and services are created and managed. The ability to achieve rapid time to market with intuitive and—more importantly—relevant offerings is a major factor for market credibility. The integration of social networking, open source hardware and software, 3-D printing and crowd-sourced development funding are transforming every element of product development and value chain processes. The result is the emergence of a whole new collaborative, global and transparent development and operations processes for electronics companies.

Enhance the experience

Today's consumers respond to direct, continuous and high-touch connections to trusted brands. Offering real-time, pervasive service execution, as well as device and subscriber management, is critical for creating brand preference and customer loyalty. Adding new services does more than boost product sales, it also provides opportunities to interact, partner and gather information to enhance experiences. Electronics companies such as Ericsson, in network management, and Ricoh, in document management, are shifting their business models from products to services. Ericsson now offers managed services that help companies design, build and manage entire network infrastructures. Once mainly known as a copier and printer manufacturer, Ricoh now offers professional services to help companies manage document-intensive business processes.

Conclusion

The idea of creating experiences that matter to the customer lies at the heart of competitiveness in today's electronics industry. It is actually not a new concept. Decades ago, companies like Kodak and Polaroid understood they were really in the business of creating memories, not just selling cameras and film. However, with the technology available to them at the time, they were unable to truly deliver on the promise of differentiated experiences. Today, the focus on customer experience has grown to the point where it practically overshadows the products themselves. That context is essential when considering new ways to innovate and generate revenue. In today's age of data explosion and information overload, companies need to be able to process and understand all types of data. We estimate that about 4/5th of the world's data is unstructured.³ Audio. Video. RFID data. Blogs. Tweets. All of these represent areas to harvest that can be used to help nurture and accelerate business growth. It is applying analytics to the data that enables companies to gain new insights that drive innovation. As stated by IBM CEO, Ginni Rometty, "Data is the world's great new natural resource. What steam power was to the 18th century, electromagnetism to the 19th and fossil fuels to the 20th... data will be to the 21st."³

The Internet of Things era is fraught with many obstacles and challenges, but it also provides vast new business opportunities and ways to engage with customers and consumers; now is the time for electronics companies to really embrace and harness the power of the Internet of Things. Ultimately the electronics industry will need leaders that accept the challenge to transform their companies and the industry at large. As an electronics company, IBM has not only helped support such a transformation for other companies, but has undergone a similar transformation itself. Years ago, IBM remixed its portfolio toward services and software, investing in solutions that foster communications with clients. These shifts not only saved IBM from the grips of commoditization, they also positioned the company for the services economy of the 21st century. That same transformation is what is required for other electronics companies today.

For more information

For more on how to build a smarter electronics industry, please visit: ibm.com/electronics

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