

The  
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## Business

# The year of the smarter enterprise

**A new model for the firm is on its way, says Virginia Rometty, chief executive of IBM**

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We are witnessing today an accelerating transformation of business and society, driven by an historic convergence of major technology shifts. In 2014 this will begin to transform not only the operations but also the model and purpose of the firm.

Our world has become pervasively instrumented and interconnected, with computation infused into things nobody would think of as a computer. There are more than a trillion interconnected and intelligent objects and organisms—including a billion transistors for every person on the planet. About 2.7 billion of those people are now connected to the internet, a number that is growing rapidly in every part of the world, thanks to the spread of mobile technology.



The result is a planet awash with information. It's known as Big Data, with good reason. By one estimate there will be 5,200 gigabytes of data for every human on the planet by 2020. And powerful new computing systems can store and make sense of it nearly instantaneously. A new generation of "cognitive" systems, built for Big Data, can keep up with the flood because they aren't programmed, they learn—from their own experience and from our interactions with them.

These systems can interpret not just the structured information in databases, but the unstructured data that make up 80% of what we generate—from medical images, video, sensor data and handwritten notes to the social data generated by people blogging, texting, posting and tweeting. And all of this is happening far more efficiently, effectively and with broader access

thanks to the new computing architecture known as the cloud.

We call this a Smarter Planet, and over the past decade we have seen it transform industries and cities. In 2014 we will see the rise of a new model of the firm. Call it the “smarter enterprise”. These firms will do the things that organisations have always done: make decisions, create value and deliver value. But they will do them in new ways.

**1** Smarter enterprises will make decisions by capturing data and applying predictive analytics, rather than just relying on past experience. We see this today in advanced decision-support systems like those enabling Rio de Janeiro, Singapore and other cities to become smarter. We also see the power of cognitive systems starting to transform cancer diagnosis and treatment at Memorial Sloan-Kettering Cancer Center in New York. In my own company we are applying analytics to acquisitions, employee retention and real-estate decisions.

**2** Smarter enterprises will create value by infusing intelligence into what they produce and how they produce it. Familiar products will become smarter, from cars to crops. But we will also see many new services and business models, such as self-driving cars covered by pay-as-you-drive insurance.

**3** Smarter enterprises will deliver value not to demographic segments, but to individual human beings. This signals “the end of the average” in a firm’s relationships with customers, as we are seeing with forward-thinking marketers in industries from retail to telecoms. It will also transform relationships with patients, students, citizens—and employees, spawning a new workforce compact and redefining the science of management.

## Firm foundations

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Such a company will be built on a new kind of foundation. Its infrastructure will be based on analytics and the cloud. Its operations will be run via a social fabric, optimised for a mobile-first world. Its management systems will aim at individualised engagement with all constituents. And its leadership will be guided by the imperative of continuous reinvention.

Some today are daunted by the sheer scope of Big Data and the changes it is driving. Many are concerned about the issues it raises regarding privacy and security. Those questions are serious, and require serious technology and policy responses.

However, I believe the overall import of this new era is enormously hopeful. Data constitute a vast new natural resource, which promises to be for the 21st century what steam power was for the 18th, electricity for the 19th and hydrocarbons for the 20th. And the emerging smarter

enterprise, tapping this resource, has the potential to be a powerful force for global economic growth, sustainability, democratisation and societal progress.

In the 20th century the firm's purpose, according to the late Ronald Coase, was the reduction of transaction costs. But now transaction costs are rapidly plunging towards zero. The firm's role will be less about co-ordinating work with greater efficiency and more about using the new natural resource of data to innovate with greater transparency and authenticity. That is a kind of enterprise, and world, that I am eager to see. It will take a big step forward in 2014.

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