



## A new intelligence for a smarter planet.

Every leader makes decisions. And every decision depends on information. That's been true whether someone has led a company, a government, an army or a household.

Over the past 50 years, leaders have experienced a revolution in the quality and quantity of information available to them. The Industrial Age was supplanted by the Information Age largely because the basis of competition shifted to knowledge, expertise and intellectual capital. Indeed, the ultimate value of the information technology industry has never been about chips, computers and software. The industry has always sought to help leaders know with confidence all that has happened, is happening and might happen to every aspect of the enterprise. Can you spot the key patterns? Can you extract critical insights from data? Can you take latency and cost out of making and implementing a decision?

By any measure, these kinds of questions can be answered with more accuracy than ever before in history. But the ante is about to be upped by the volume and variety of information, and the velocity of decision making, on a smarter planet.

How much? Digital information is growing every day at a rate 350 times the volume housed in all the U.S. university research libraries.

What kinds? Information is being authored by billions of people—and flowing from a trillion intelligent devices, sensors and all manner of instrumented objects. Fully 80% of new data growth is unstructured content: e-mail, documents, images, medical records, video, audio and more.

How fast? To keep up with the speed of transactions today, systems may have to take in all types of event information in real time, correlate it, analyze it and take an action more than 60,000 times a second—or 300 times faster than a hummingbird can flap its wings.

So, must we simply resign ourselves to blind spots that keep growing larger? Are we doomed to more needles lost in bigger

haystacks, to more “garbage in,” to opportunities missed because of knowledge latency?

Happily, no. The technology exists to help capture and process all this data, and turn it into not just organized information, or even knowledge, but actual intelligence. We can spot patterns with unprecedented detail. We can capture and analyze changes in markets, trends and consumer preferences faster than ever before. And highly complex systems and large organizations can now be optimized in entirely new ways.

New approaches like “stream computing” use advanced software algorithms to track new stimuli, analyze data-in-motion, correlate it with other relevant information—and plug directly into operational and logistics systems, closing the gap between thinking and doing. Indeed, advanced analytics built on heavy-duty mathematics are starting to move us from “sense and respond” or “real time” decision making to something like prediction.

This has the potential to change how the world literally works. Already, insurance companies are seeing the patterns in billions of claims, and can better identify the few that are fraudulent. Police departments are correlating street-level information from myriad observations and devices to identify crime patterns—helping prevent crime, rather than just punishing it. Retailers are optimizing inventory and transport systems by linking what's in stock with weather forecasts—which are better than weather itself as an indicator of consumer behavior.

The list is long—and the change is just starting. Imagine how it will transform all the things leaders of business and society seek—the ways we pursue economic growth, societal progress, environmental sustainability and cures for disease. The way we interact with each other, and with the world.

Let's build a smarter planet. Join us, and see what others are thinking, at [ibm.com/think](http://ibm.com/think)

