close, and you’re unlikely to generate much excitement.

Efforts thus far to engineer creative machines have largely fallen flat—as Toubia reminds us, creativity “requires intuition, connecting the dots, seeing the big picture, and taking novel perspectives,” all weak spots for computers. Big Data, however, may be able to help in a more prosaic way. “The first step in idea generation—coming up with a list of ingredients—is really just information retrieval,” an area where computers, with their vast memory and speed of recall, excel.

As a first step, then, existing technologies could be used simply to help innovators develop that initial set of ingredients. But, as techniques like text mining and semantic network analysis mature, data could be leveraged to evaluate an idea’s creativity and aid users in refining it. “If an idea is too familiar, Big Data could suggest ingredients that would make it more novel. And if the idea is too novel, it could suggest ways to make it more familiar.”

Such an application of Big Data would have benefits for entrepreneurs and multinational corporations in almost any industry, Toubia says. But given the breadth of information available, expanding the use of data could have benefits for all of us—from helping individuals learn more efficiently, to better organizing our time, to helping us make better choices about products and services. Such interventions are not merely good for consumers. By fostering trust, they can spur loyalty that’s essential to companies’ bottom lines. “There’s a huge waste of data out there,” Toubia says. “There’s so much more that firms could do to help peoples’ lives.”

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Can Big Data make business more ethical?

With just three commonly available data points—zip code, gender, and date of birth—87 percent of Americans can now be uniquely identified. With the massive stores of data compiled by major aggregators like Google, Facebook, LinkedIn, and Yelp, that number—and the level of detail that can be obtained—skyrockets.

This trove of consumer data has been a boon to business, allowing companies to target the right offer to the right consumer at the right time. But, as Bruce Kogut points out, data science also presents businesses with major ethical quandaries. “If I predict someone’s credit worthiness by where they live, that’s illegal,” he says. “But if I use their Facebook data and predict their creditworthiness based on who their friends are, that’s legal. But that’s the same thing, right?”

While much of the public debate on privacy and information collection has focused on consumer data like this, businesses increasingly collect similar information on the behavior and communications of employees. That shift, according to Kogut, represents a fundamental change in the nature of the workplace, leading him to assert, “data science will make or break our world.” Concerns over privacy, data mining, and the use of algorithms can only be amplified when the use of data turns from serving ads to determining fundamentals like who gets jobs and how much they’re paid. Rather than correcting for human biases, algorithms might further exaggerate them. Noting, for example, that gender might predict success in an organization, an algorithm, mistaking correlation for causation, may suggest more male candidates for promotion,
increasing gender imbalances in leadership. “A good predictor isn’t necessarily a good causal identifier,” Kogut points out, “and is often neither true nor fair.”

Even when these programs work as they’re supposed to, however, they can still create problems. “Going back to the 1800s,” Kogut says, “the thinking has been that people who are highly productive should be matched with higher-paying jobs, and those who are less productive should be placed into lower-paying jobs. But, that’s a very brutal world.”

Worse, it may be bad for business. In a recent study with Jerry Kim, Kogut found that a retail chain that took a data-driven approach to identifying high performers and rewarded them with valued benefits, like scheduling priority, experienced higher employee turn over, at substantial cost and without any increase in productivity. By placing higher pressure on individuals for short-term growth, these policies can turn co-workers into competitors, impeding information sharing and learning, and ultimately handicapping productivity growth in the long run.

If today’s unprecedented access to troves of data presents us with ethical quandaries, however, it might also provide solutions. “Because of these tools, we’re actually now able to do what I call forensic ethics,” Kogut says. “We can go in, take large amounts of data from a company, and we can very quickly isolate abnormalities that suggest ethical problems.”

By utilizing what data teaches us about individual workers and the connections between wages, productivity, and performance, Kogut believes we can foster greater collaboration within organizations while promoting diversity and greater pay equality, which will be as good for business as they are for society. What is needed is not less data, he suggests, but richer data, and a more sophisticated approach to the challenges it presents.

It’s a critical time for action, he says, as the workplace is undergoing a “dramatic change,” led by shifts in the economy at large. “Is this sharing economy a good thing or a bad thing?” Kogut asks. “Is Uber good or bad for drivers? We need to analyze these questions and how they affect other problems like the wage stagnation for middle class workers over the last 20 or 30 years.”

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