

The Sentient Enterprise





Success Stories and Signposts Toward Automated Disruption At Scale

“What keeps you up at night?” That’s a ubiquitous business question, which—for any 21st Century executive—now has a nearly universal answer: The fear of falling behind the pace of accelerating change and disruption.

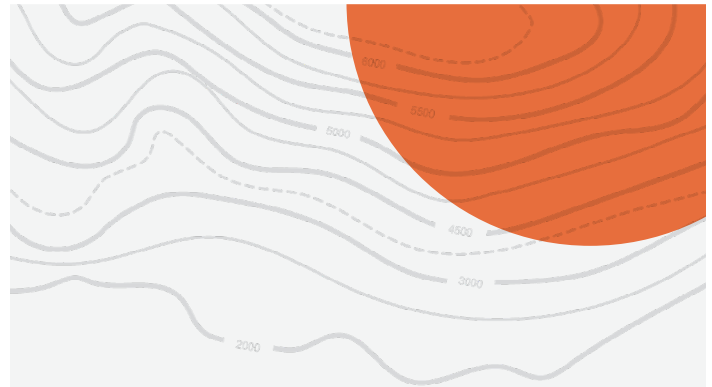
Amid such fear, and in the push to grow business and scale operations, you may be among those ambitious and high-performing insomniacs who now recognize big data agility as the clear and deciding factor between success and failure. However, as in looking up at Mount Everest from sea level, we may have no trouble seeing the challenge—yet still struggle to understand the best route forward, or even how to begin.

Operationalizing the Journey Toward Analytic Agility at Scale

This executive brochure lays out just such a route map for business leaders struggling with the journey toward agility at scale. To do so, we employ an analytics capability maturity model known as “The Sentient Enterprise.”

The Sentient Enterprise is a transformation of people, processes, and technologies to scale and optimize analytics for big business—a blueprint for managing big data efficiently, and using algorithms to automate the vast majority of company decisions. The model is the subject of *The Sentient Enterprise*, a full-length book by Teradata President and CEO Oliver Ratzesberger and Kellogg School of Management Professor Mohanbir Sawhney.

However, our focus here is to operationalize—for you, the business leader—this journey toward a more proactive, frictionless, autonomous, and scalable enterprise by examining a few pioneering, real-world success stories at some of the world’s largest organizations. The companies we’re about to profile—GM, Verizon, Siemens, Wells Fargo, and Volvo—each focused on a different “camp” of achievement. These align roughly to the five Sentient Enterprise stages—or “platforms”—summarized in the accompanying sidebar.



How Sentient is Your Business Today? Introducing the Five-Stage Sentient Enterprise Capability Maturity Model.

1. **The Agile Data Platform**—Shifts traditional data management structures and methodologies to a balanced and decentralized framework built for agility.
2. **The Behavioral Data Platform**—Captures insights not just from transactions, but also from mapping complex interactions around the behavior of people, networks, and devices.
3. **The Collaborative Ideation Platform**—Allows enterprises to keep pace with data explosion by crowdsourcing and socializing insights among analytic professionals throughout the business.
4. **The Analytical Application Platform**—Leverages the simplicity of an exploding app economy for deployment of analytical capabilities and to boost enterprise listening.
5. **The Autonomous Decisioning Platform**—True “sentience” is achieved when the enterprise acts as an organism to make more tactical decisions on its own, without human intervention, freeing up humans to make strategic decisions from those insights and recommendations.

Mastering Data Agility at Scale: GM and The Agile Data Platform

General Motors® is a century-old company that nonetheless learned to embrace a cutting-edge approach to agile management of data. As we do in The Sentient Enterprise, they define data agility as being able to decompose problems into smaller ones, so they're easier to solve and collaborate around—regardless of how big or quickly the enterprise grows. The way to realize this data agility at scale is by building an Agile Data Platform. With such a platform in place:

- All your data is in one master environment—preserved in its most granular and malleable forms—so data becomes transparent, consistent across the organization, and accessible to everyone.
- You give users centralized access to data for decentralized experiments on use cases in a way that doesn't pollute the whole system with experiment-driven artifacts and error.
- You can eliminate excessive governance barriers without opening the floodgates to data anarchy.

GM's challenge was to integrate legacy systems going back decades and involving disparate business units like Cadillac, Chevrolet, GMC, Buick, Oldsmobile, Pontiac, Saturn, and a truck and bus group. From an IT standpoint, each of these parts of the organization operated independently. So, they needed to bring all their data together and provide a unified foundation for people to manage it much more holistically. Unfortunately, that meant consolidating more than 200 siloed repositories and data marts scattered all over the company.

GM's solution involved an intensive, six-week Enterprise Data Warehouse transformation program to consolidate those 200 information silos into one agile data environment, integrating data across the plants to make it more readily available to more people in the company. They first piloted certain capabilities—including how better to share and analyze testing and financial data—and then grew the transformation companywide for diverse benefits such as improved decision-making on profitability, more proactive call center operations, and improved vehicle safety, performance, and quality control. In essence, GM built its own version of the Agile Data Platform.

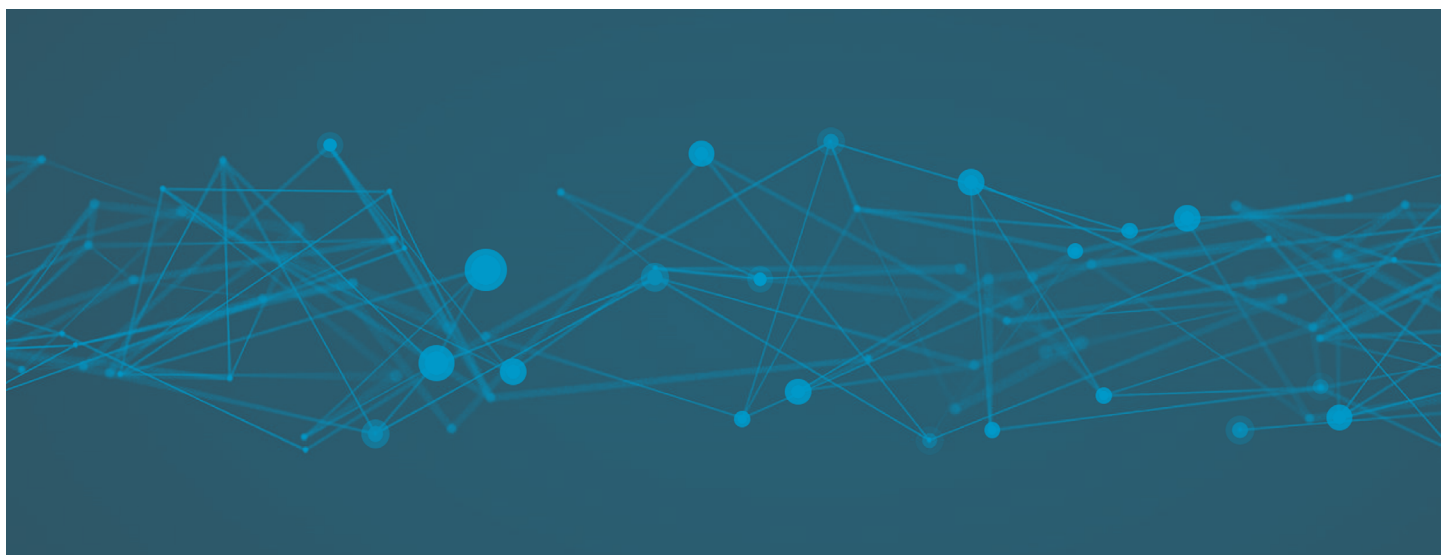
Leveraging Behaviors and Interactions: Verizon Wireless and the Behavioral Data Platform

Verizon Wireless is a telecommunications leader that has pioneered the deft and proactive management of behavioral data. Across all industries, it's becoming clear that business success is now driven by deeper understandings of customer experiences, behaviors, and interactions. This leads us to create a Behavioral Data Platform that delivers:

- Architectures and analytics that can handle the 10-100x higher volumes and increased complexity that comes with behavior and machine data.
- The ability to drive decisions based not just on transactions, but on patterns that emerge from behavioral data representing all those events and data points in between or across transactions.
- Analytics to support a shift away from a pure revenue and transactional mindset, toward a more nuanced and powerful behavioral approach focused on customer-centric key performance indicators.

Verizon faced a critical challenge a few years ago when Apple debuted iMessage, allowing free texting between iOS devices, including iPhones—thus sidestepping the carriers. That was a major change, given that Verizon Wireless had been generating \$7 billion—or about 12 percent of the company's total annual revenue—from text messaging. With very short notice, Verizon had to figure out how customers would react when they suddenly saw unlimited texting options via Apple.

Verizon's solution was to proactively build a monitoring system to precisely measure customer sentiment and actions, so they could anticipate when to adjust pricing without hurting the business. Ultimately, this kind of Behavioral Data Platform helped Verizon time precisely when to phase out metered plans in favor of unlimited talk and text, and decide what the new pricing should be. Even though the whole industry eventually moved in that direction, Verizon figured out how to do it best and fastest—avoiding potential losses of tens of millions annually, and cementing its leadership in the industry.



Innovating and Working Together: Siemens and the Collaborative Ideation Platform

Siemens is a massive company that relies on seamless collaboration among countless partners and clients in a worldwide engineering and transportation services network. For this and any other company hoping to operate at such a scale, the only way to survive is to let many different people collaborate freely in a system that makes data's value and context accessible and naturally clear. This route toward sentience focuses on building a Collaborative Ideation Platform, so people innovate together more easily by:

- Embracing a “LinkedIn for Analytics” approach to collaboration, complete with social media conventions to let people “like” a certain analytic approach, “follow” a particular analyst, or monitor data sets that are popular and trending.
- “Merchandising” insights with systems that automatically promote and recommend questions, people, and answers that an employee might be interested in based on previous queries and activity.
- Maintaining what we call “Analytics on Analytics” to listen, interpret, and optimize everything that happens within the Collaborative Ideation Platform among business users.

Siemens saw a need for diverse internal and external partners to work together on Siemens Mobility's rail systems. The problem was how to do it at scale, given how just one fleet of trains in Europe can fill about 100 billion lines of a table. But with the right people collaborating around the right data, they could become proactive, and even predictive, to the point of knowing a week or two in advance that a component on a train is going to fail—letting them take steps to stop or minimize the problem before it happens.

Siemens succeeded in creating its own version of a Collaborative Ideation Platform to manage connectivity, data integration, and analysis on an unprecedented scale— involving locomotive designers, service people in the field, and external partners and customers.

Today, Siemens can combine engineering and operations expertise from within the company, along with customer details on how they run their operations—ensuring reliability to the point that some passenger routes now offer money back guarantees for anything more than a 15-minute delay.

Turning Insight into Action: Wells Fargo and the Analytical Application Platform

Wells Fargo is an international banking and financial services firm with more than 250,000 employees. Like many companies of that size, there are thousands in the workforce with “analyst” in the job title who must have easy access to analytic processes, without necessarily knowing the complex engineering running underneath those processes. The focus on sentience here, therefore, involves creating an Analytical Application Platform—borrowing a page from the consumer app economy to create a similar ecosystem for analytics in the enterprise. This allows you to:

- Create data engines that “just work” and app tools that can be used again and again by thousands of colleagues.
- Reach zero-cost deployment of packaged-up workflows, like in the App Store, without creating added stress for IT.
- Gather context on who is using which apps, who is making progress, and who is following that progress—which, in turn, fuels better analytics and applications.

Wells Fargo’s challenge was to do root-cause analysis on complaints received via phone calls, text, online feedback, account behavior, in-person interactions, and physical letters. They needed ready-made workflows for analysts to identify common dynamics to problems, so they could be quickly addressed or—better yet—identified proactively and stopped before customers ever noticed or had a chance to complain.

Wells Fargo’s solution involved advanced performance workflows packaged up for the broader analyst community as user-friendly “apps” that can be deployed in accessible, fast, and repeatable ways.

This gave analysts the means to intuitively experiment—investigating spikes, aberrations, and trends—to troubleshoot and mitigate service problems. The company also assigned relationship managers to gauge analytics needs within the organization and coordinate quick development of new apps. Wells Fargo’s version of the Analytical Application Platform is now a model for many other companies to follow.

Self-Decisioning and “Sentience”: Volvo and the Autonomous Decisioning Platform

Volvo is a major player in the push to create tomorrow’s vast network of self-driving cars. Given how “autonomous drive” involves many different complex systems working seamlessly together for an ultimately self-decisioning entity—the self-driving car—it’s a fitting microcosm analogy for our vision of the sentient enterprise that’s able to automate most of its decisions. This can elevate a company to a fundamentally new way of operating, but only if you have the algorithms smart enough to make business decisions independently. That’s what happens with the Autonomous Decisioning Platform, where your analytics can:

- Position algorithms to navigate circumstances and make the bulk of operational decisions without human help.
- See changes in patterns, spot aberrations in data, find the exceptions, make the easy decisions, and flag the more important decisions—along with the most relevant information—for humans to handle.
- Go beyond the simple accumulation of many disparate and uncoordinated smart systems, and instead consolidate a powerful “system of systems” environment for world-changing innovation.

Volvo’s challenge involved a complicated journey toward self-decisioning, built on a series of innovations—including hardware and software systems handling perception prediction and motion planning, as well as car-to-car communication and overarching priorities around safety and reliability. Not unlike a big company seeking to combine agile systems and processes into a unified, self-decisioning and “sentient” enterprise, Volvo needed to combine its many point solutions into a more holistic and powerful “system of systems” innovation: namely, a self-driving car.

Volvo's success is evident in the company's progress to date. Volvo's connected XC-90 SUVs are the preferred vehicles for autonomous drive projects on city streets in Pennsylvania, Arizona, Sweden, and other locations. The company is also on track to have its first fully "unsupervised autonomous" vehicle for sale to the public by 2021.

This progress is a model for what's possible for an entire enterprise: As we follow our North Star aspiration toward a fully "sentient enterprise", Volvo's success shows how we can leverage advanced algorithmic intelligence and harmonize diverse processes for larger, coherent "system of systems" capabilities that put true organizational sentience and autonomous decisioning within reach.

Where Are You on Your Journey?

As you can see from the stories of GM, Verizon, Siemens, Wells Fargo, and Volvo, they each set forth on their own Sentient Enterprise journey in very different ways—but ways that made sense for their business. That's because every company is different and must uniquely tailor the journey to its own unique history, culture, operations, challenges, and goals for the future.

Your own particular journey, regardless of where you start and the path you take, will have its own peaks and valleys—its own landscape of opportunities and challenges. In those situations, remember that the ultimate litmus test is whether you can stay agile as you scale the enterprise. As we said at the outset, this agility is achieved by a comprehensive shift in people, processes, and technologies.

Indeed, the to-do list can—and does—fill an entire book. With the October 2017 release of *The Sentient Enterprise* by Wiley Publishers, along with a wealth of online resources, the big business journey toward agility and automation at scale is clearer than ever. Hopefully, the success stories profiled in this brief—and discussed more fully in the book—will bring context, and courage, to your own business journey toward a more agile, competitive, and "sentient" enterprise.