Making data simple for the Cognitive Era

Uncover business-changing insights with a collaborative data and analytics platform

IBM

Executive overview

Businesses today understand the competitive advantage of gaining insights from data. However, obtaining those insights is an increasingly complicated task. Most of the work to prepare and analyze data is done by skilled data professionals who work in silos with disconnected tools that can be difficult to manage, integrate and govern. Also, because data is never static, businesses must continually iterate their data models—often manually—to benefit from up-to-date insights.

IBM Watson™ Data Platform helps businesses break down these barriers. A cloud-based data and analytics platform, Watson Data Platform is designed to help organizations integrate all types of data and enable artificial intelligence–powered decision-making. The goal: make it simple for business leaders and data professionals to collect, organize, govern and secure data, so they can get the insights needed to become a cognitive business.

The value of making data simple and available to all

To scale knowledge and meet business objectives, organizations must unlock the value of all their data. The more an organization puts data to work, the better the business outcomes.

But working with today's complex data—coming from diverse sources and moving at high speed—within and beyond the enterprise is challenging. Many organizations have "dark data" that is hard to reach. Integrated services are required to find, access, store and govern data, as well as make it available to all authorized users. Collaborating across multiple functions within the organization to generate new insights from data can be difficult; everyone from executives to application developers wants answers to questions, and wants those answers right away.

Data: Everyone needs it.

- **Executives:** Data provides executive decision-makers—including CEOs, COOs and chief marketing officers as well as chief data officers and chief information officers—with the information they need to make decisions.
- **Other business professionals:** Business analysts and line-of-business (LOB) leaders need data to identify growth opportunities, understand customer preferences and increase competitiveness.
- **Application developers:** Developers need to leverage data continually for innovative new applications—for example, connecting back-end data to the cloud for use in cloud-based mobile apps.
- **Data engineers:** Engineers and IT specialists must manage, integrate and protect data so people throughout the enterprise can use it to generate business insight.
- **Data scientists:** These data professionals discover, explore and analyze data for maximum business benefit.

The new data reality

The rules about managing data and measuring its value have changed. More people throughout the organization need access to data to do their jobs, and generating value from data is now a team activity. Collaboration can spark the insights that help produce better decisions and create smarter applications— if organizations can break down their internal silos to facilitate interaction and on-the-fly conversations.

To sustain long-term value, organizations must be poised to take advantage of innovations and advancements at the right time. That means embracing open source technology, a key driver of innovation, and being able to pick and choose the tools that fit the organization's needs and skill sets without creating an integration burden.

With as much data as organizations have today, it is no longer good enough to use one analytic technique at a time. To maximize the value of all that data, organizations must employ a combination of algorithms, machine learning and cognitive computing technologies that together contribute to the best possible insight. Organizations then need to iterate data models and services quickly, building cognitive intelligence into processes and systems where it will improve outcomes.

Many new technologies seem promising when it comes to unlocking data for increasingly information-driven businesses. But what's needed is a platform that makes data simple and available to all. Even with all data seamlessly integrated in one environment, an organization still must deliver insight to individuals in a context that is appropriate to their roles.

IBM Watson Data Platform: Realize the full potential of data

As the first cloud-based data and analytics platform to support cognitive business, IBM Watson Data Platform is designed for the new data reality. It enables access, collaboration and a path to insight by:

- Connecting all users through trusted access to a variety of data
- Discovering new possibilities and opportunities with built-in intelligence, automation and machine learning
- Accelerating outcomes with rapid deployment of new data models and fast embedding of insights into processes, applications and services

The heart of the new Watson Data Platform is a set of composable, integrated cloud services. Users can capitalize on multiple purpose-built data stores—from relational databases and document stores to stores for graph and Hadoop environments. They can access complete integration and governance services for transforming, cleansing and protecting data. And they can take advantage of advanced capabilities such as natural language-based discovery, machine learning and cognitive analytics services.

Providing the elements for success: Platform, ecosystem and method

Along with a data platform, organizations require a supporting ecosystem and proven methodology to meet new business expectations and extract full value from data. IBM provides all three.
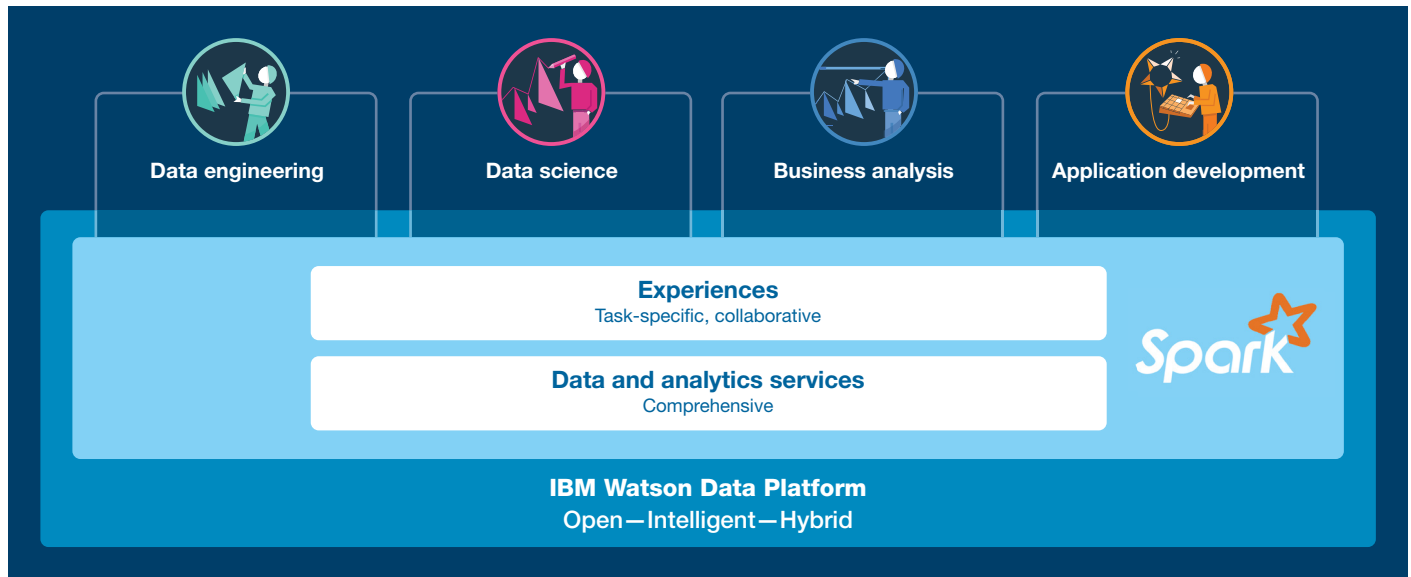
Figure 1. IBM Watson Data Platform architecture.

The platform

Built on a comprehensive set of data and analytics services (Figure 1), Watson Data Platform comprises individual user experiences that are linked to facilitate rapid collaboration. The platform enables access to data in any location on cloud or on premises. It automates the intelligent deployment of data products on IBM® Cloud using machine learning and the open source Apache Spark big data processing framework.

The platform provides one collaborative environment for multiple roles. Within that environment, experiences designed for specific user roles include task-specific elements to further streamline connections and data discovery.

- **Business professionals** can ask questions and get valuable insights without knowing or caring how it all works. Their experience is a business experience.
- For **developers,** the experience reflects their use of application programming interfaces (APIs) to accelerate time to innovation.
- **Data engineers and IT specialists** can access tools that help them more easily manage, integrate and protect data in a collaborative context.
- **Data scientists** have a special notebook environment at their fingertips that includes everything they need for discovering, exploring and analyzing data—the IBM Data Science Experience (http://datascience.ibm.com/).
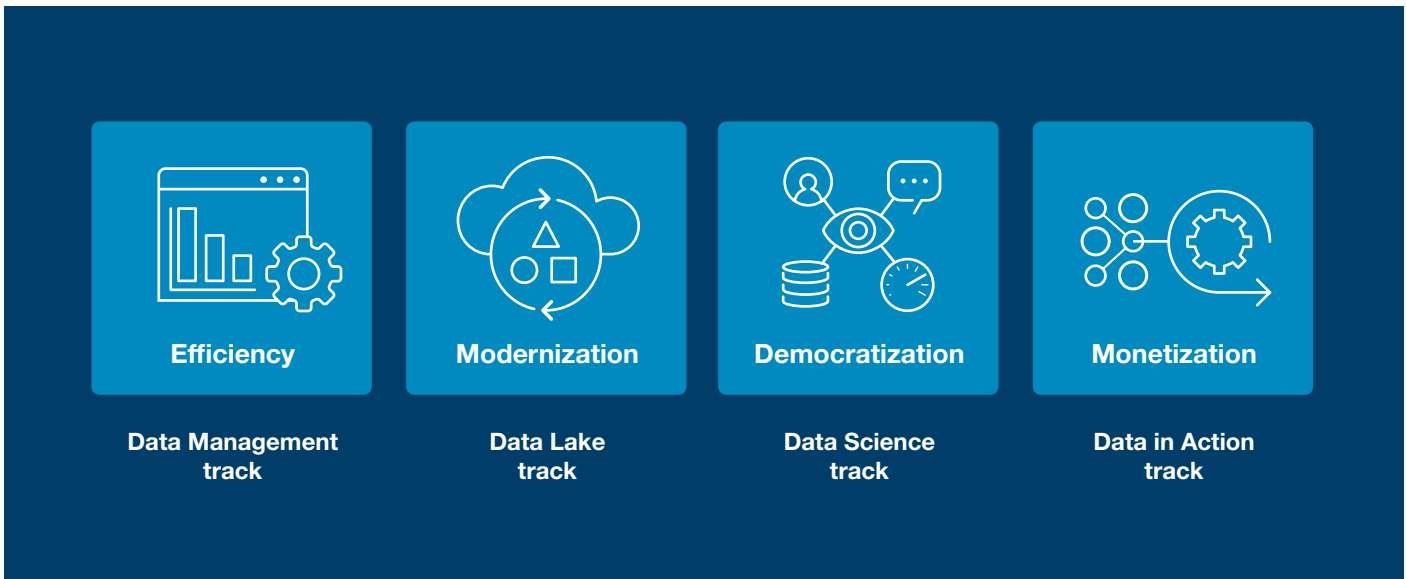
Figure 2. IBM DataFirst Method.

The ecosystem

Partners who build on open source technology can easily interoperate with the platform. Certified partners extend the value of the platform with complementary solutions that help organizations quickly gain insights and deliver business results.

The method

With the IBM DataFirst Method (**ibm.com**/software/analytics/ services_overview/datafirst.html), organizations gain expertise and learn best practices to help ensure they get the maximum value from their data. The method helps organizations develop a tailored data and analytics strategy and logical next steps to put data to work (Figure 2).

The DataFirst Method uses a value model to help teams determine the best starting point based on their organization's readiness and goals, and then apply the accumulated knowledge from thousands of engagements to implement proven patterns. These patterns bridge from the organization's current state to the desired state while making the most of preexisting data investments.

Supporting new use cases and evolving business models

From building a data lake to embedding cognitive analytics into a mobile app, Watson Data Platform helps simplify many of the projects organizations care about most. Examples include:

- **Governed self-service analytics with collaboration for data professionals:** Watson Data Platform meets the security and metadata requirements necessary for a true self-service environment.
- **Internet of Things (IoT) with high-speed, high-volume data ingest and analysis:** The platform is designed to meet the low latency requirements needed to analyze high volumes of data in real time.
- **Rapid infusion of data and analytics into mobile apps:** Organizations can use Watson Data Platform to stand up an analytics mart that has mobile data encoded in the ubiquitous JSON format, for example, with a single click.
- **Data lakes for trusted, cost-effective and flexible analytics:** With Watson Data Platform, organizations gain built-in governance and low cost of ownership in a data lake solution.
- **Monetization of services in the API economy:** The platform helps organizations use APIs to bring new digital services to market faster, open new revenue channels and expand market reach.

Enabling organizations to work faster, smarter and more cost-efficiently

Watson Data Platform is based on Apache Spark technology, which enables teams to conduct complex analytics at high speeds. One of the platform's key focal points is making it faster for analyst teams to find, understand, provision and shape data, so they can spend their time testing their hypotheses. As the analytics team evaluates more hypotheses and questions, it can make more results available to business and IT teams for use in strategic planning—and help improve decision-making.

Advanced capabilities such as cognitive analytics tools are embedded in Watson Data Platform, helping organizations make smarter decisions through natural language processing, machine learning and other techniques. These technologies learn and interact to provide expert assistance in a fraction of the time required for gaining insights and putting them to work with traditional systems.

Watson Data Platform also provides cost-saving advantages:

- Self-service capabilities available in a pay-as-you-go model help lower upfront costs and enable an organization to pay for the services for as long as it needs them, and no longer.
- Fewer compute resources are needed for a given task, allowing organizations to cost-effectively deploy and evolve data models.
- As a cloud-based offering, Watson Data Platform can scale up and down based on fluctuating data volumes and demand. When users need to run analytics against their data, they pay only for the compute resources being used.

New ways to put data to work with IBM Watson Data Platform

Connect
- Work in teams
- Access trusted data
- Use best-in-class technology

Discover
- Combine analytics technologies
- Design data pipelines
- Prototype data products

Accelerate
- Put data products into production
- Continuously improve models
- Iterate rapidly

Conclusion

Great data alone isn't enough. To be truly valuable, data has to be easy to use, available and actionable. IBM Watson Data Platform is designed specifically to simplify the use of data, combining self-service access, a rich environment for collaboration and a strong foundation for cognitive business. Watson Data Platform is part of an open ecosystem that facilitates and encourages innovation. And the IBM DataFirst Method makes it easy for organizations to assess where they are today and identify what they should do next to shift their people, processes and culture into the Cognitive Era.

Available on IBM Bluemix®, Watson Data Platform is redefining how data professionals collaborate and distill value from data. Ultimately, Watson Data Platform enables data-driven professionals to work together in a simpler way to quickly find new and unexpected insights that deliver business-changing results.

For more information

To learn more about IBM Watson Data Platform and the IBM DataFirst Method, contact your IBM representative or IBM Business Partner, or visit: http://ibm.co/makedatasimple