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Beyond Self-Service: How Machine Learning Drives Enterprise Data's Third Wave

What You Need to Know

Enterprises undergoing digital transformations move through three phases of maturity: Commodity Storage, Self-service Everything, and Machine-learning Ubiquity. At each stage, enterprise data technology innovations have served end users seeking to get the most value out of their data.

Many enterprises have reached that second stage—using self-service data technologies to empower end users to access and consume data on their own. But the convenience of self-service data technology is self-limiting: As enterprise data grows, end users' ability to find it, figure out what to do with it, and gain insight from it gets more difficult. And that's a complex challenge only exacerbated by static, technology-reinforced, self-service processes.

An emerging third phase responds to that challenge, and helps enterprises move into a dynamic data operations environment characterized by smart workflows, self-optimizing data workflow orchestration, and an enterprise commitment to maximizing data-derived value. In this new world, enterprises leverage machine-learning technologies to craft DataOps[1] models that learn with iteration, and scale with continuous improvement. Coupling that approach with embedded analytics can deliver insight at the point of its greatest potential impact: where data meets decision.

In this report, Blue Hill Research examines how digital transformations have evolved, and looks at how innovative enterprises are using machine-learning-enabled technology like GoodData to accelerate data flow, shorten communication spans, empower line-of-business stakeholders, and deliver greater bottom-line value (while overturning a few old-school business models in the process).

AT A GLANCE

The Summary:

Data-driven enterprises mature through three phases of digital transformation: commodity storage, self-service everything, and machine-learning ubiquity.

Enterprises not yet to that third wave should dedicate themselves to getting there: Data innovators are applying new machine-learning approaches to revolutionize traditional business operations.

The Impacts:

Machine-learning approaches can accelerate time to insight, embed data closer to the point of action, and create "learnable" processes that continuously improve.

Featured Vendor:

GoodData

Featured Customer:

ServiceChannel

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[1] http://bluehillresearch.com/dataops-the-collaborative-framework-for-enterprise-data-flow-orchestration/

The Evolution of Data-Driven Digital Transformation

Enterprises typically move through three phases of maturity in their digital transformation journey:

| Commodity Storage | Self-Service Everything | Machine-Learning Ubiquity |

The first phase—**Commodity Storage**—evolved from old-school, hardware-provisioned data-warehouse operations. The emergence of Hadoop storage technologies drove down the cost of storage, creating a data-technology-development environment that fostered Big Data deployments—the more data, the better, since storage capability could scale so affordably.

Hadoop cluster architectures improve upon traditional data-warehouse models: Hadoop tends to be cheaper and faster, and provides relatively easy access to data. But many organizations upgraded data storage without adjusting workflow processes. Some enterprise data organizations retain centralized data-access processes that emanated from legacy system/hardware-dictated processes: For example, the business analyst submits a data request, the SQL analyst parses it and hands it off to IT, IT eventually processes the request, then passes data back to the business analyst, who in the ensuing three weeks has moved onto something else. That process is cumbersome, slow, reactive, costly, prone to error, and tediously linear. The data may be utilized, but probably not in a timely fashion. This change-averse workflow stasis highlights a stark reality of enterprise data innovation: The storage technology evolved faster than enterprise processes could adapt to keep up. And that led to data-driven digital transformation's second phase: the rise of self-service data technologies.

Most companies today are in this second phase—**Self-service Everything**. As storage technologies became commodities, data technologies emerged to fill data-workflow process gaps between data curation and data consumption. Self-service data technologies promise end users the right data, in the right way, at the right time, without dependence upon centralized, delay-inducing IT resources. Data access becomes (seemingly) immediate, offering faster time to insight, and the promise of faster/better decision-making.

But here, the curse of good intentions rears its ugly head. Self-service technologies offer data prep, data integration, data curation, even data science. Those capabilities can empower line-of-business stakeholders. But the value that empowerment offers can be short-lived. Ennablement is a double-edged sword: Data accessibility does not mean easy access to data, nor does it provide context for the data being accessed. Self-service convenience can create data-access process "lock-in," where end users become so accustomed to the convenient way of doing things they miss out on access to new data sources or information that might better inform decision-making. In addition, self-service delivery can outpace IT's ability to govern data. As data volume grows (think IoT), business users' ability to consume it in a timely fashion diminishes.

That constructive friction between all-you-can-eat self-service data-access ideals and data-governance compliance has fostered a third wave of digital transformation—call it **Machine-learning Ubiquity**—where automation, artificial intelligence (AI), and machine-learning workflows combine to move data closer to where it offers the most immediate value: the point where it can be acted upon.

Companies looking to mature beyond self-service should pursue three objectives:

Goal	Tactic
Speed time to insight	Embed data-service technology at the point of work
Reduce risks associated with repetitive, manual process delivery	Apply machine-learning algorithms to automate tasks or suggest data-informed insights
Avoid process "lock-in"	Create dynamic processes that employ AI and benchmarking to "learn" as they iterate

Machine Learning in the Real World: ServiceChannel's Data Evolution

ServiceChannel[2] provides facilities managers a single platform to source, procure, manage, and pay for commercial contractor services across their enterprise. Its cloud-based service automation and reporting platform enables more than 450 global brands to track the performance of more than 200,000 locations worldwide. Founded in 1999, ServiceChannel serves a facilities management industry that can seem fragmented. As VP, Marketplace Strategy & Experience, Sid Shetty, notes, the company aims "to transform that space, to modernize it, and bring an immense amount of transparency, efficiency, productivity, and insight."

ServiceChannel's early efforts to operationalize its commercial data delivered mixed results. Making a monumental shift of the way data was being consumed by its customers was a noble goal, but the platform suffered from enterprise solution design constraints—Customers couldn't easily access their data, and adoption lagged. Shetty and team found themselves processing customer requests manually, and facing an untenable future.

ServiceChannel switched tack, and replaced its existing enterprise BI solution with software from **GoodData**[3]. The move was driven in part to create a new ServiceChannel customer-engagment approach around facilities management data. With GoodData powering its platform, ServiceChannel was able to empower its customer base with easily-accessible analytics capabilities.

More than 80% of ServiceChannel customers now access their data on a weekly basis. Using GoodData, ServiceChannel has changed its data delivery and consumption model. But the real potential lies in applying GoodData's machine-learning features.

"We built an easy-to-use platform with GoodData that lets customers get access to insights via interactive dashboards and intuitive data-discovery tools," says Shetty. "Our vision for the future is to insert intelligence and machine learning into our workflows so that our customers can consistently make timely, data-driven decisions instead of just looking at reports in hindsight."

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[2] http://www.servicechannel.com

[3] http://www.gooddata.com

As it moves into its third phase of digital transformation, ServiceChannel is collaborating with GoodData to offer a machine-learning-based decision engine for its customers. The model takes customer data, prepares it, and makes customized recommendations based on historical behavior and learned algorithms.

"Going forward," explains Shetty, "when our customers view proposals from their service providers, ServiceChannel's Decision Engine will recommend an action, as well as provide supporting intelligence so that customers can make the best data-driven decisions possible."

The recommendation engine is already charting where proposal amounts appear relative to benchmarked bell curves, and it also provides quick access to relevant historical transaction data. The next step is automating the decision using the ServiceChannel Decision Engine and sophisticated business rules. Shetty and team are building data models that will enable customer end users to establish business rules around decision-making to automate processing.

"As our customers start adopting decision-engine recommendations and feel more comfortable with the idea of machine-learning, we will then introduce the ability to automate those actions," says Shetty. "This will allow our customers more time to focus on the decisions that truly need their attention. And beyond that, we'll capture and share with our customers the analytics on the ServiceChannel Decision Engine along with the industry benchmarks."

Conclusion

Enterprise data innovators recognize the potential of machine learning to enable customers to progress from gut decisions to data-informed action. Enterprises committed to maximizing data-derived value must move beyond a difficult-to-control and ultimately unsustainable self-service data model, and examine how machine-learning can help their business evolve. That commitment requires moving (and embedding) data as close as possible to the point of action, and ensuring that data workflows are AI-enabled to improve upon themselves with continuous analytics delivery.

ServiceChannel's experience with GoodData illustrates how an enterprise can use machine-learning to speed time to insight, reduce risks associated with manual processes, and ensure workflow dynamism. ServiceChannel partnered with GoodData to get data closer to its customer decision-makers, applied machine-learning algorithms in a recommendation engine, and created a new data-workflow model to automate its customer processes.

Machine-learning-powered software solutions like GoodData are transforming once-staid industry business models from reactive, to proactive. But ServiceChannel's success isn't just about cool technology in practice. The technology enables new customer engagement. But it's vision and commitment that drove enterprise change.

"Our relationship with GoodData extends beyond us buying a solution from them," concludes Shetty. "We are partners, we learn from each other, we innovate together. We're both customer-obsessed and are constantly trying to make our solutions more valuable and our customers more successful. That's just a very good and healthy relationship."

About the Author

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Toph Whitmore is a Blue Hill Research principal analyst covering the Big Data, analytics, marketing automation, and business operations technology spaces. His research interests include technology adoption criteria, data-driven decision-making in the enterprise, customer-journey analytics, and enterprise data-integration models. Before joining Blue Hill Research, Toph spent four years providing management consulting services to Microsoft, delivering strategic project management leadership. More recently, he served as a marketing executive with cloud infrastructure and Big Data software technology firms. A former journalist, Toph's writing has appeared in GigaOM, DevOps Angle, and The Huffington Post, among other media. Toph resides in North Vancouver, British Columbia, Canada, where he is active in the local tech startup community as an angel investor and corporate advisor.

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