Data-to-insight-to-action: Taking a business process view of analytics to deliver real business impact
Despite the significant hype around big data and analytics, success in harnessing them for material business impact is often elusive. Based on our experience with hundreds of clients, we have reason to think that’s because a critical aspect is often neglected; data-to-insight and insight-to-action are business processes, and to generate material business impact, they require scale, as well as appropriate design, related to change management, incentives, and people accountability.

A new yet often elusive competitive battleground

Industry leaders increasingly surpass laggards by generating, embedding, and leveraging insight into their organization and ecosystem—and this trend is no longer confined to marketing and online retailers. Business leaders strongly believe that big data and advanced analytics will be the next frontier for innovation, productivity, and competitive advantage.

However, many enterprises are still too slow in adopting advanced analytics. Years of relying on intuition and experience mean that only 4% of enterprises rely on data for decision making. In our own experience with hundreds of large organizations, many, perhaps most, companies struggle to scale the analytics effort beyond pockets.

People scarcity and technology complexity challenges abound. Data velocity, quantity, and the complexity typical of unstructured data, as well as the quest for predictive analysis have added dimensions to the problem.

However, this perspective misses a major point. The challenge is not just about a few data scientists and the right big data IT tools. Our experience and analysis show that the problem is organizational; the process of analytics (the arc of data-to-insight) is not robust enough, and insufficient science is applied to embedding analytics-driven insight into the actual business process (insight-to-action) to generate a material impact. The analytics challenge is generating insight (the data-to-insight process) and embedding (insight-to-action) that insight so that it can be used at a scale.

The first group of processes provides management visibility. This traditionally has been the first space where descriptive analytics has supported executives. Some actual examples: Chief financial officers and sales and marketing leaders monitor the profitability of clients by segment. Chief operating officers monitor and predict their portfolios’ overall risk profiles, whether industrial assets aftermarket services (through failure rates and cost of repair within contract terms), commercial loans repayment and residual asset values, or retail mortgage repayment delinquencies. Machine data, such as on industrial or healthcare equipment, is collected, automatically categorized, and compared to similar data sets, and the exceptions classified and preliminarily interpreted by people (e.g. in remote operations centers).

The second group of processes uses insight for informing the specific, granular actions that affect company effectiveness.

Some actual examples: Execution of discounting to trade or clients’ order to cash collection process, based on delinquency and history; appropriate reaction to clients’ feedback and the triggering of assistance or repair at increasing levels or complexity; correct rotation speed of industrial equipment and its measurement of critical parameters such as temperature, energy consumption, mechanical stress, output volume and quality, etc. This is where the business logic that drives organizational actions is decided and altered through metrics that are modified, set, and made ready to be cascaded through systems such as business rules engines (BREs) and decision management systems (DMSs). Much of the analytics performed at this level is predictive, informing broad groups of actions by forecasting the future.

Given the importance of using the right metrics, at the right level of granularity, in shaping the behavior of large and complex organizations, it is clear that

1. Analytics: The real-world use of big data
this area is incredibly important, but in our experience, it is not sufficiently optimized by cross-functional experts who understand the implications of peoples’ reactions or technology complexity. The results can be problematic, for instance metric fatigue for field agents.

The third group is where the actions are executed

This is where, typically, technology projects are focused and often start with an objective of efficiency.

However, according to one study, only 46% of companies are effective at using the data they have.2 This is a major issue since this part of the process is where the proverbial rubber meets the road, and affects thousands of front lines.

This set of processes can include the so-called prescriptive analytics, which granularly and in a timely manner (often in real time) guide people’s and machines’ actions in detail. Embedding insight and related, modified business logic into BREs and DMSs—and making their rules pervasive—is critical for business processes to perform intelligently at scale.

The end-to-end process view across data-to-insight and insight-to-action can help design effective analytics solutions and provide targeted change management to embed them into business processes (Figure 1). Effectively instrumenting the process and measuring and keeping people accountable for their actions are three crucial factors that an end-to-end view can facilitate. In many respects, this is the real basis of enterprise performance management. This aspect is even more indispensable as analytics becomes the real-time foundation of business offerings.

Organization design: The operations of industrialized data-to-action

In our experience, enterprise impact cannot be achieved just through technology or a precious few, quantitatively minded people with off-the-scale IQs. Competing on analytics3 is about creating a scalable (we call it industrialized) foundation for data-to-action processes. It means decoupling parts and delivering them from where the right resources exist, as well as leveraging decades-long experiences of running operating centers, shared services, and outsourcing units.

Moreover, although the traditional approach to information problems has for some time been one of cementing a solution into an IT deployment. In these times of volatility, organizations increasingly need fast ROI and flexible solutions that can be evolved to accommodate the possible (and likely) changes to their business models.

In our experience, there are four pillars to a scalable, agile, cost-effective solution, which we call industrialized analytics: Data, technology, governance, and people. Achieving maturity across these pillars is an organizational journey,

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2. MIT, Fall 2012.
3. Thomas Davenport and Jeanne Harris, Competing on analytics — the new science of winning 2013
often requiring a different operating model for many functions, not just the central analytics group where it exists.

Three steps enable progress toward the maturation of these pillars. First, dissect your data-to-insight-to-action process and visualize its assembly line. Second, set up an analytics center of excellence (CoE). Third, ensure stakeholders are aligned around an agile, fast-ROI strategy.

**Conclusion: The road to data-driven impact**

Our analysis shows that data-to-action is not just about finding enough data scientists and accessing the most advanced technology. Data-to-insight and insight-to-action are large, complex decision making processes that feed into action processes. Optimizing them begins by asking the right questions, not of one person but of an organization (which often requires collaboration between teams), investigating the answers, and then embedding the policies derived from those answers into a business process, and running the resulting, more intelligent process at scale.

The impact of these two processes can be materially enhanced by analyzing them end-to-end as the first step to a robust, scalable, and flexible solution. The second step is the formation of an organizational strategy that uses advanced operating models such as CoEs and their respective targeted technologies—not just analytical but also collaboration tools—to power up those processes.