Worlds Collide as Augmented Analytics Draws Analytics, BI and Data Science Together

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Initiatives: Analytics, BI and Data Science Solutions

The proliferation of augmented capabilities within analytics, business intelligence, and data science and machine learning products is making once-distinct markets collide. To harness the energy released, data and analytics leaders must anticipate big changes in products, investments and practices.

Overview

Impacts

- Owing to the rapid growth of artificial intelligence (AI) capabilities, in the form of augmented analytics within analytics, business intelligence (BI), and data science and machine learning (DSML) products, the formerly distinct markets for these technologies are colliding.
- The combining of augmented analytics and BI, augmented data preparation, and augmented DSML facilitates stronger, more complete and more effective links between data and analytics investments, practices, processes and key business outcomes.
- Organizations that seize the opportunities presented by the newly catalyzed market will be able to dramatically hasten their analytics-related maturation, which could potentially enable them to make competitive breakthroughs in comparison with slower-maturing rivals.
- The rise of augmented analytics accelerates the clustering of new data and analytics capabilities that, in effect, adapt to the skills, needs and problems of different classes of business users, thereby extending the reach of analytics.

Recommendations

Turning the collision of markets, caused by the rise of augmented analytics, into a constructive convergence that propels their organization's analytics program forward is a challenging but rewarding journey. Leaders responsible for analytics, BI and DSML solutions should:

- Incorporate augmented analytics capabilities into the tool portfolio by managing and governing their use while providing comprehensive capabilities across the continuum of descriptive, diagnostic, predictive and prescriptive analytics.
- Extend capabilities by incorporating both data and analytics tools into the analytics stack. In addition, include not only tools, but also people and processes to foster communication and collaboration and to build trust.
- Expand analytical capabilities, roles and processes by focusing on the business priorities and issues to be addressed. Think "end to end" in relation to the analytics life cycle and "top to bottom" in relation to the data and analytics stack.

Strategic Planning Assumptions

By 2023, overall analytics adoption will increase from 35% to 50%, driven by vertical- and domain-specific augmented analytics solutions.

By 2023, 90% of the world's top 500 companies will have converged analytics governance into broader data and analytics governance initiatives.

By 2025, a scarcity of data scientists will no longer hinder the adoption of data science and machine learning in organizations.

Introduction

The proliferation of augmented analytics is transforming every aspect of data and analytics technologies, products and practices. Data and analytics leaders know this and are eager to understand how to exploit the rise of augmented technologies for competitive advantage. This transformative rise is catalyzing a huge shift involving two key markets:

1. Analytics and BI (ABI)
2. DSML

Augmented analytics is driving these two markets together, causing fast and large-scale changes with regard to buyers' needs and sellers' capabilities.

This document aims to define the transformative changes, caused by augmented analytics, that are advancing analytics teams' existing augmented-analytics work and extending it, more definitively, to involve data and analytics capabilities generally and the ABI and DSML markets specifically. It also highlights the implications for data and analytics leaders.

The metaphor of a collision of data and analytics worlds describes the increasing convergence of multiple, related elements, most notably in the analytics and BI and DSML markets. This convergence creates an opportunity to transform the data and analytics ecosystem, as well as the approach to orchestrating the analytics life cycle.

Augmented Analytics Alters D&A Markets

The impact of augmented analytics has altered the courses of multiple elements in the data and analytics markets, causing them to collide in a way that could transform the ecosystems and environments in which we work.

Increasingly, analytics producers and consumers will be able to progress from data to model to insight to model to action in a single workflow. The emergence of cloud ecosystems and their use of data and analytics stacks to sell cloud implementations has not only enabled, but also increased the momentum behind the collision. As such, there could be a move toward new stack vendors, which could lead to organizations becoming locked into stacks that lack best-of-breed capabilities.

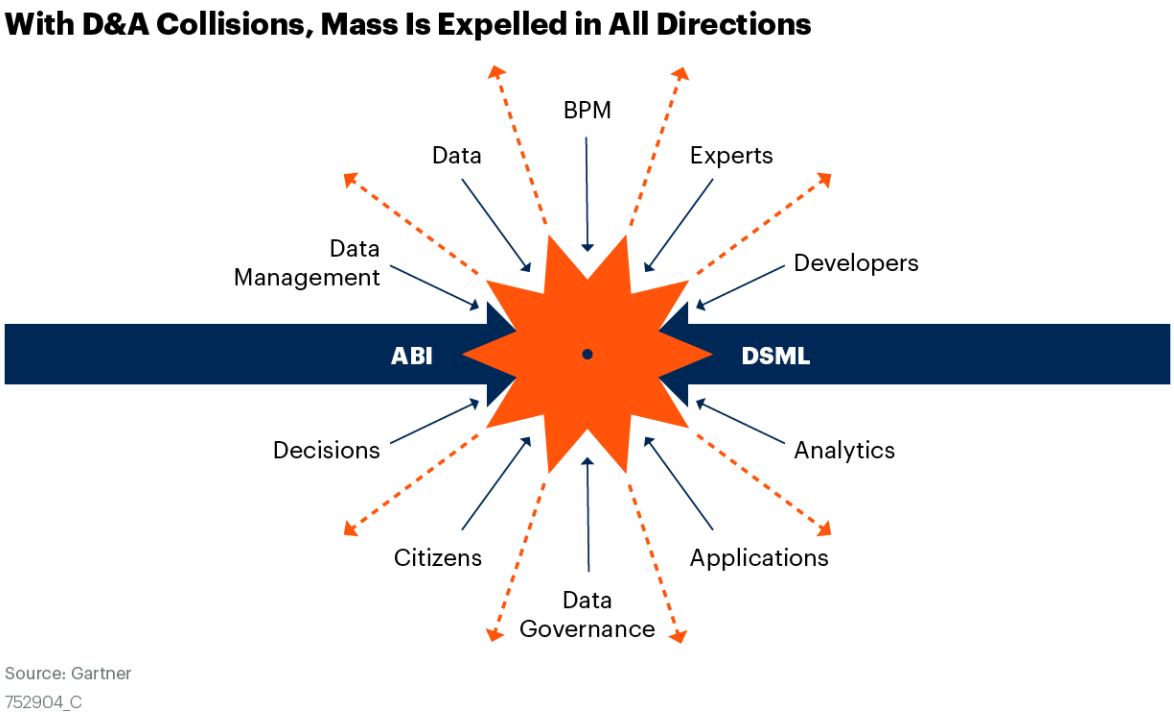
Seize the Opportunities

Organizations that seize the opportunities created by the collision will be able to dramatically accelerate their analytics maturation — a development that could create conditions in which they can make competitive breakthroughs, compared with slower-maturing rivals.

Multiple historically discrete but related areas are now colliding, as listed below and shown in Figure 1:

- Analytics and BI are colliding with DSML.
- Data management is colliding with analytics.
- Analytics is colliding with business process management and applications.
- Citizen roles (including citizen data integrator, citizen data scientist and citizen developer) are colliding with the traditional roles of data architect, data scientist and application developer.
- Data governance is colliding with data management in areas such as data preparation, data cataloging, data quality and master data management.

Figure 1. With D&A Collisions, Mass Is Expelled in All Directions



The collision of worlds causes confusion and misunderstanding about where a market begins and ends, and about what data and analytics capabilities can be exploited and how.

Impacts and Recommendations

Accelerate the Clustering of Data and Analytics Capabilities With Augmented Analytics

The proliferation of augmented analytics is transforming traditional analytics capabilities. Although these capabilities are still called “descriptive,” “diagnostic,” “predictive” and “prescriptive” (see Figure 2), increasingly, they are no longer implemented and used in step-by-step fashion (see Figure 3). They are being combined into new and often unpredictable forms associated with new and different forms of data, throughout the analytical process, in order to drive decisions and actions.

Figure 2. The Traditional Continuum of Analytics Capabilities

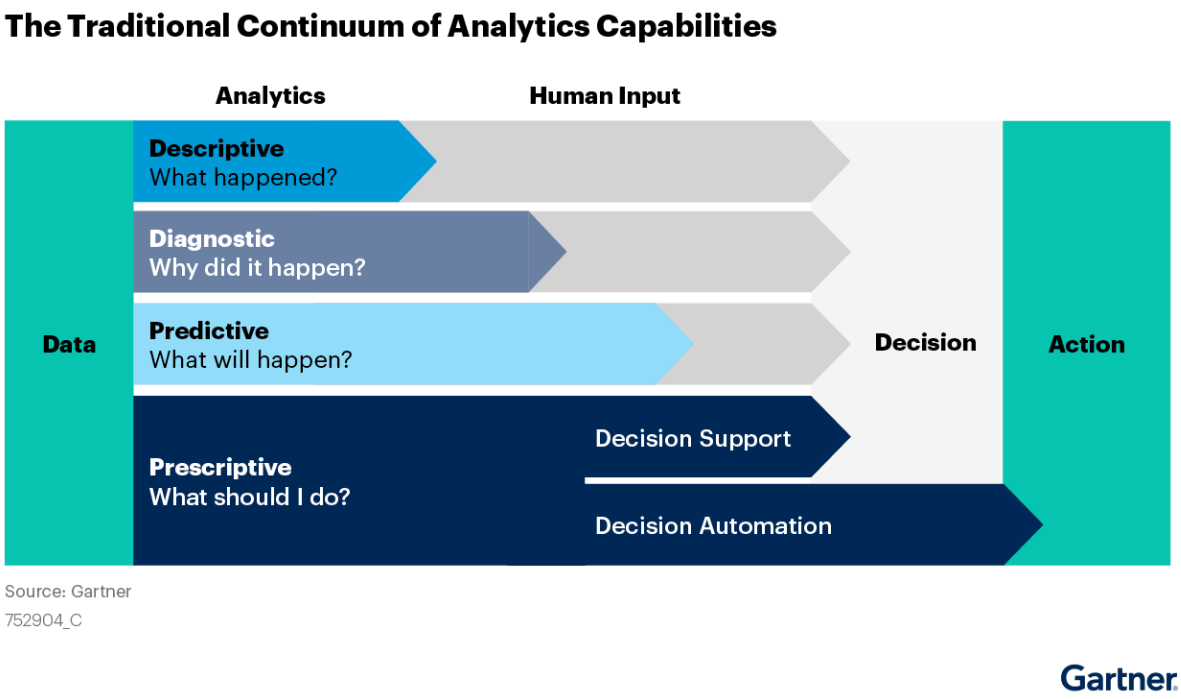
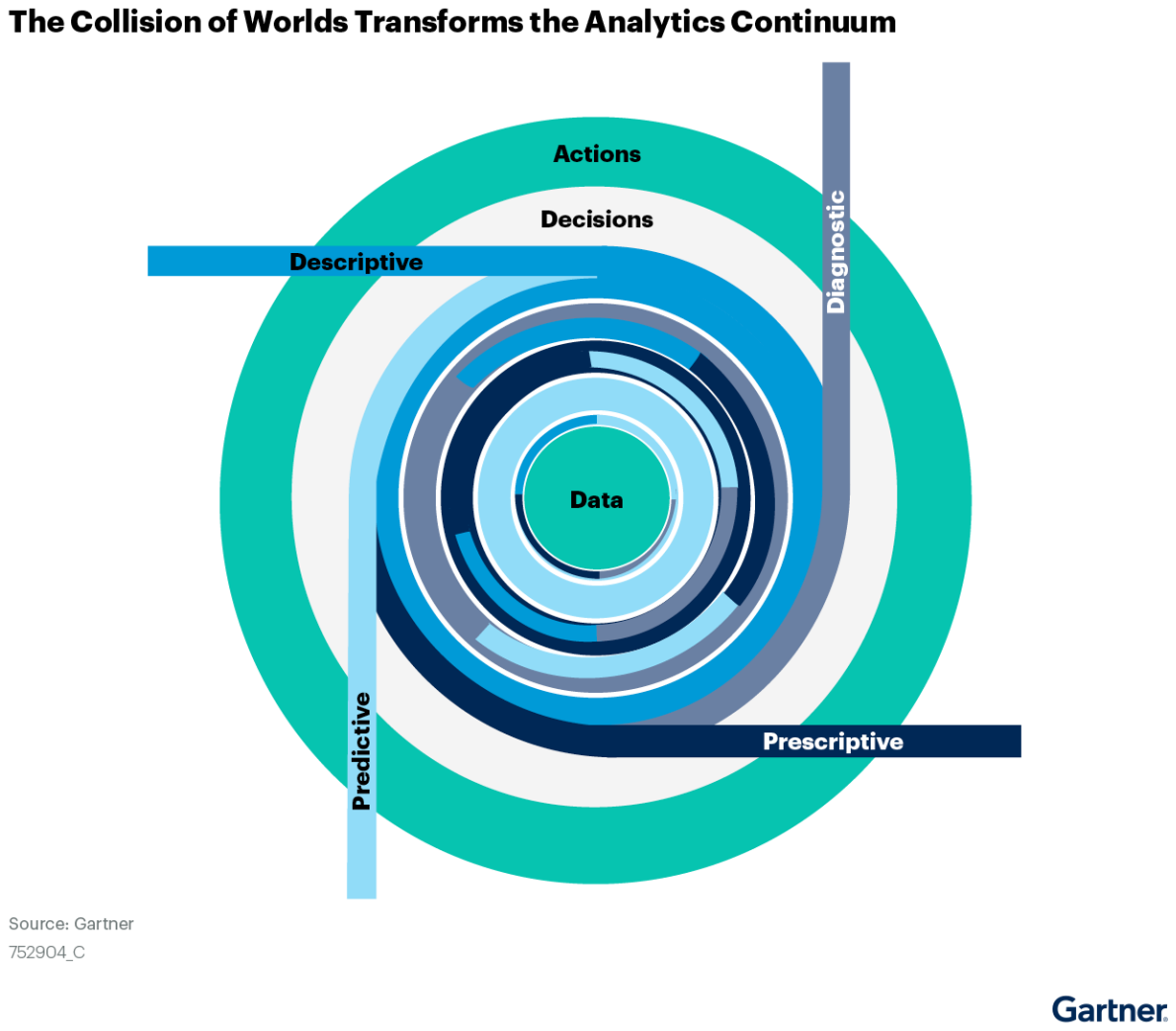


Figure 3. The Collision of Worlds Transforms the Analytics Continuum



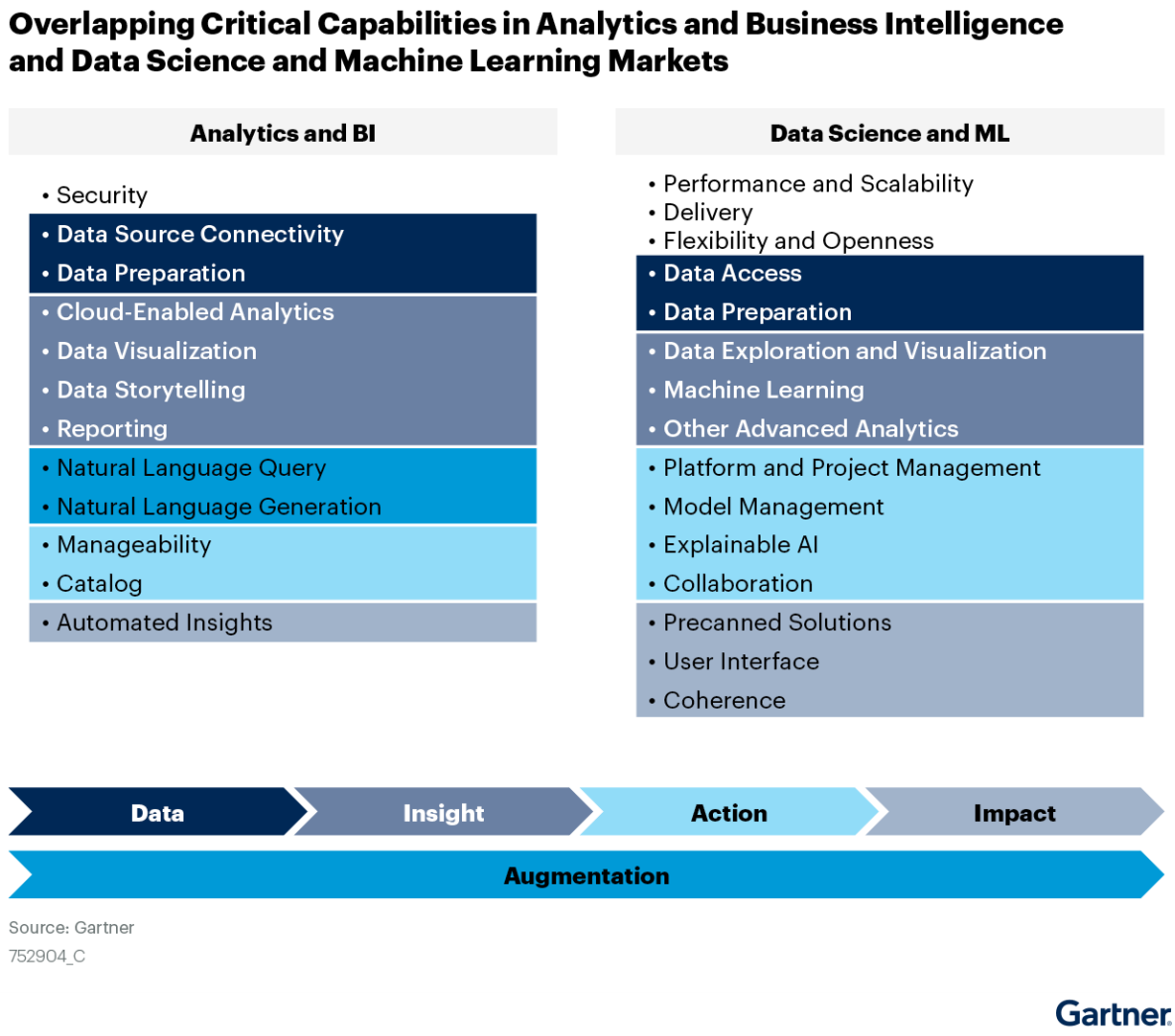
In response, vendors of analytics, BI and DSML platforms are increasingly including capabilities within their platforms that go well beyond their traditional markets.

Analytics and BI platforms increasingly include functionality to perform augmented DSML tasks. Predictive models are executed behind the scenes, and insights are surfaced naturally within the analytics and BI process flow. Examples of vendors taking this approach are Salesforce, SAS and Tellius.

DSML platforms increasingly feature enhanced data transformation and discovery capabilities that, historically, were more characteristic of analytics and BI platforms. Examples of vendors taking this approach are Alteryx, Dataiku, DataRobot and TIBCO Software.

Further evidence of the collision between the analytics and BI and DSML markets becomes evident from a comparison of the Critical Capabilities that Gartner defines for them. As Figure 4 shows, there is much overlap.

Figure 4. Overlapping Critical Capabilities in Analytics and Business Intelligence and Data Science and Machine Learning Markets



Already, the collision is resulting in redefinitions and increased extensibility. The collision does not result solely in combined products. Its consequences include:

- **Unification:** One platform provides capabilities across the entire analytics capability continuum.
- **Overlap:** There is no clear delineation between products as some capabilities are duplicated across what were once historically complementary platforms.

- **Composites:** New products or entities, enabled by the cloud, emerge with distinct capabilities across markets. They are available when and where they are needed, are designed to work together, and are enabled by the cloud.

Recommendations to data and analytics leaders:

- Make augmented analytics platforms the center of your analytics, collaboration and governance initiatives. Incorporate augmented analytics to extend your capabilities to encompass descriptive, diagnostic, predictive and prescriptive analysis across analytics, BI and DSML processes.
- Assess not only the capabilities specifically provided by your current analytics and BI and DSML platforms. Also evaluate partnerships between vendors, as well as new offerings that provide complementary analytics capability. Examine vendors' roadmaps to understand how augmented capabilities will evolve.
- Fortify your data science talent. Talented staff will be increasingly important for validating augmented approaches and explaining them to both the citizen community and business users who increasingly require more transparency and trust.

Combine Augmented Analytics and BI, Augmented Data Preparation and Augmented DSML

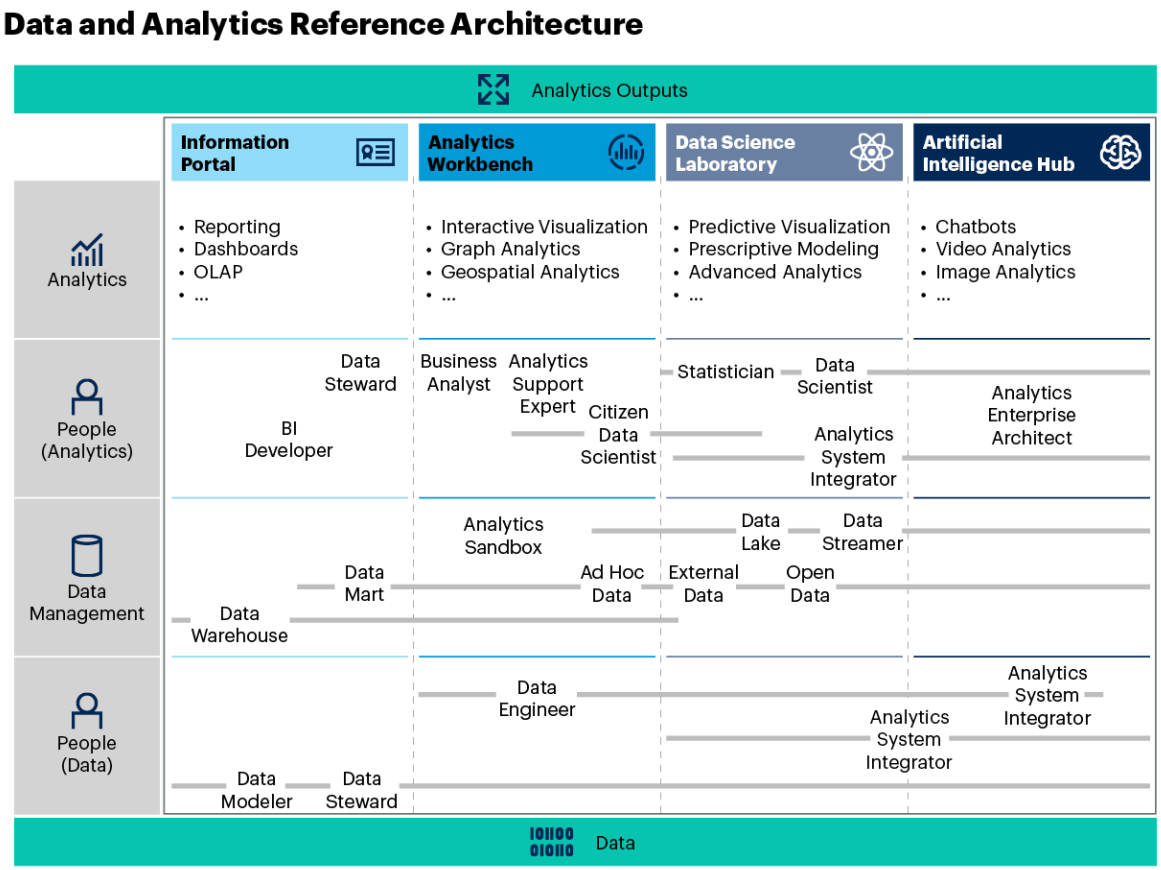
Augmented analytics, in its full context, encompasses automated techniques and approaches at multiple levels of the analytics stack, including analytics and BI, data preparation and DSML (see Maximize the Benefits of Augmented Analytics With a Strategic Action Plan). As such, augmentation drives metamorphosis from top to bottom across the analytics stack.

Augmented capabilities are not only blurring the distinction between analytics and BI capabilities and DSML capabilities. With the incorporation of augmented data preparation capabilities, often directly within analytics and BI and DSML platforms, the data world is colliding with the analytics world.

Whereas data and analytics were traditionally considered separate entities and managed accordingly, they are becoming progressively intertwined and dependent. In addition, data management platforms are increasingly incorporating analytics and, especially, machine learning, as evidenced by, for example, Google's BigQuery ML, SAP HANA, Teradata and Microsoft SQL Server. Furthermore, intercloud opportunities will arise, with analytics in one cloud and data in another, as evidenced by developments such as the IBM Cloud Pak for Data and partnerships between Microsoft Azure, Oracle Cloud, SAS and Databricks.

Gartner's reference architecture in Figure 5 illustrates the importance of considering data architecture in conjunction with analytics architecture in order to take advantage of the convergence of data and analytics capabilities.

Figure 5. Data and Analytics Reference Architecture



Source: Gartner
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As noted earlier, the data and analytics collision also drives increased interaction and collaboration between historically separate data and analytics roles. This impacts not only the technologies and capabilities provided, but also the people and processes that support and use them. Roles now extend from traditional data and analytics ones to newcomers such as citizen data engineer, citizen data scientist and citizen developer, and across traditional tier boundaries, resulting in the formation of data and analytics communities.

Recommendations to data and analytics leaders:

- Incorporate an augmented approach into not only your analytics tools but also your data tools to deliver a coherent stack throughout the data and analytics ecosystem. Incorporate data access and data preparation capabilities in accordance with analytic approaches. Investigate established offerings, as well as new tools that take a more comprehensive approach to combining data and analytics logically within the analytics workflow.
- Facilitate collaboration between data and analytics communities by incorporating new processes and tools that encourage collaboration and communication. In addition, consider relocating or organizing teams to support more appropriately, and align with, the changing analytic approach.
- Adopt XOps as an ongoing principle to reduce the duplicated effort of running ABI and DSML as defined in Demystifying XOps: From DataOps to ModelOps and Platform Ops for AI.
- Establish the data fabric or, at a minimum, invest in a common metadata layer across the tools to understand how data is being leveraged across the tools.

Seize Newly Catalyzed Market Opportunities to Accelerate Analytics Maturation

The convergence of analytics and BI and DSML platform capabilities, together with the broader collision of data and analytics worlds, is unsettling. Products are changing at an accelerated rate, with most platforms receiving updates only days or weeks apart, as opposed to monthly or annually. This frequency is transforming platforms, just as requirements and capabilities are changing more rapidly and drastically than ever. Consequently, data and analytics leaders are struggling to understand what capabilities are available and how best to meet the needs of their changing user base, which increasingly includes both technical and nontechnical, expert and citizen, users.

Planning first to recognize and then to harness the potential of this transformation can accelerate an organization's analytics maturation. Harnessing the energy arising from — the potential within — the collision could shorten not only the time to insight but also, ultimately, the time to measurable business benefit. In addition, it enables a natural progression to more advanced analytics, while providing ample opportunity to define, implement and support collaborative processes for a broader range of users.

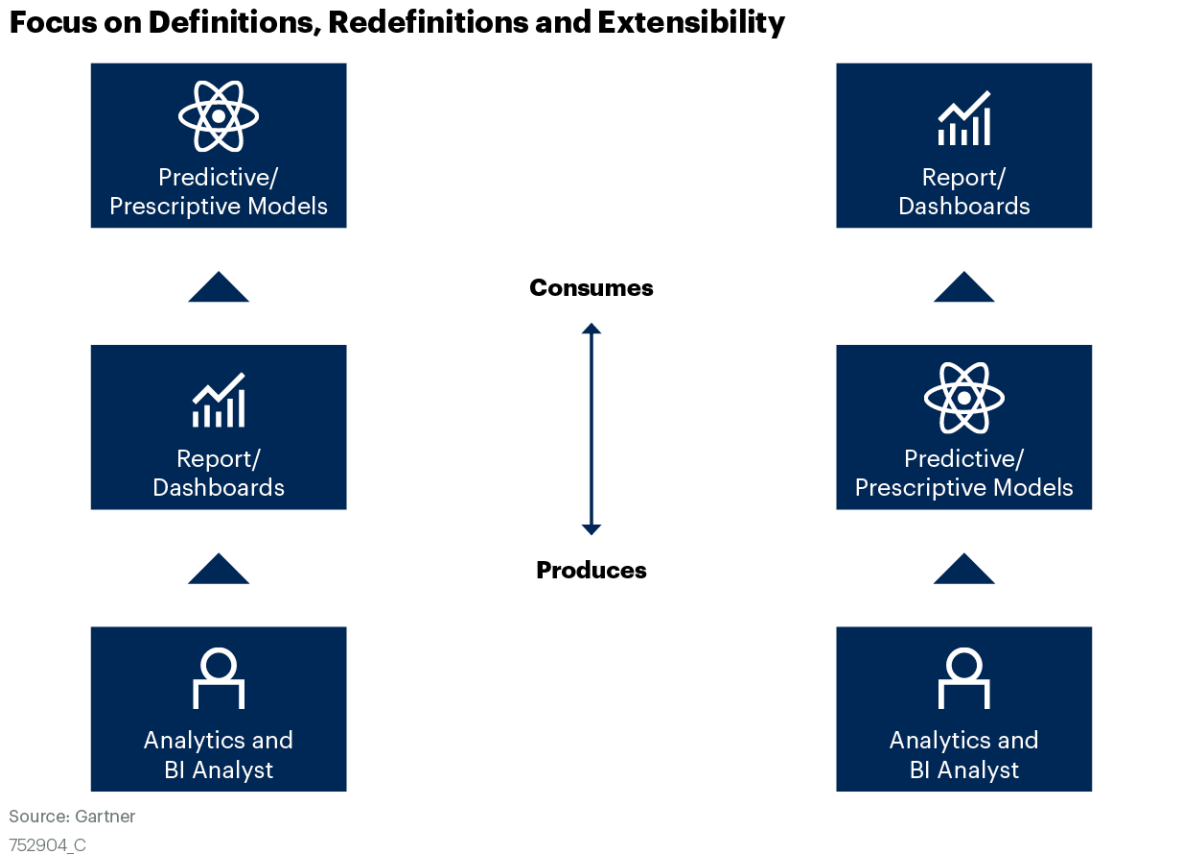
To capture the collision's energy, data and analytics leaders should begin by keeping the end in mind:

- What are the business priorities and questions they need to address?
- What analytic insights could aid their recognition and resolution?
- How will they know when they are making progress?

Once they know the desired result, they can work back to determine what types of analytics are required to support mission-critical priorities and what data is required to perform the necessary analysis. Having begun with the end in mind, they should then build analytics solutions agilely, moving from data access to data preparation, analysis, delivery and management.

The next step is for them to define and redefine the capabilities required to conduct the analysis. They should favor natural extensibility across analytics capabilities, as analyses and desired business results require. This approach enables a complete analytical process that accelerates delivery of more thorough and comprehensive analysis. It also produces analysis that can be directly used and measured for value. Users — whether data scientists, analytics and BI analysts, or other citizen or expert users — become both producers and consumers, moving fluidly across capabilities as their analyses dictate (see Figure 6).

Figure 6. Focus on Definitions, Redefinitions and Extensibility



Upskilling of staff is becoming a priority as the worlds collide, and will remain so in the aftermath. Training should cover, but not be limited to:

- Analytic methods
- Business processes
- Application of analytics to business requirements
- Data literacy
- Collaboration
- Responsible AI
- Citizen development

There is a paradox here, in that the more automation there is, and the easier analytics tools become to use, the more — not less — training of staff is required. The nature of the training shifts, however, to focus on data literacy and the use of insights in the context of individuals, as opposed to traditional training that focused on how to use the technology.

Organizations that recognize and respond quickly to the fast-moving changes brought about by augmented analytics will be well-placed to manage the effects of the collision. Recognition of the collision positions analytics leaders to respond to and exploit convergence by avoiding overlaps, confusion and missed opportunities. Harnessing the energy arising from the collision, to produce a smooth, value-added convergence, enables a natural extension of analytics capabilities. In addition, it enables the building of a more comprehensive data and analytics stack.

Aligning people, processes and data to support and drive the convergence is critical. Pressing ahead with the operationalization of analytics will create a direct opportunity to measure and communicate business value. Seizing the opportunity arising from the collision early and directly will deliver a competitive edge. Fostering supportive communities and collaborative processes focused on business priorities will further accelerate analytic maturation and the delivery of measurable business value.

Recommendations to data and analytics leaders:

- Define, and redefine, the analytics capabilities most relevant to your organization by focusing first on its business needs. Then work back across the analytic process to determine what analytics are required to support the necessary initiatives and, finally, what data is required to perform the analysis.
- Deconstruct — with a view to reconstructing — not only your organization's analytics capabilities but also its data capabilities, approaches and processes. Use augmented approaches to transform how data and analytics are used, accessed and incorporated to drive and measure business value.
- Avoid concentrating on technology at the expense of defining and evolving processes focused on the end-to-end analytics life cycle. Enable and encourage collaborative approaches for all data and analytics consumers and producers, as well as those in supporting roles charged with championing and supporting the transformation. Build communities and facilitate interaction to increase the use of, and support for, analytics and data across the organization.

- Provide training specific to data literacy, analytics approaches, tools and application of the tools to business problems. With easier-to-use augmented tools comes an increased need to understand the data, appropriate application of the techniques and how to interpret results.

Document Revision History

Worlds Collide as Augmented Analytics Draws Analytics, BI and Data Science Together - 10 March 2020

Recommended by the Author

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Build a Comprehensive Ecosystem for Citizen Data Scientists to Drive Impactful Analytics

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Best Practices to Avoid Citizen Data Science Failure

Analytics, Business Intelligence and Data Science Solutions Primer for 2021

IT Score for Data & Analytics

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