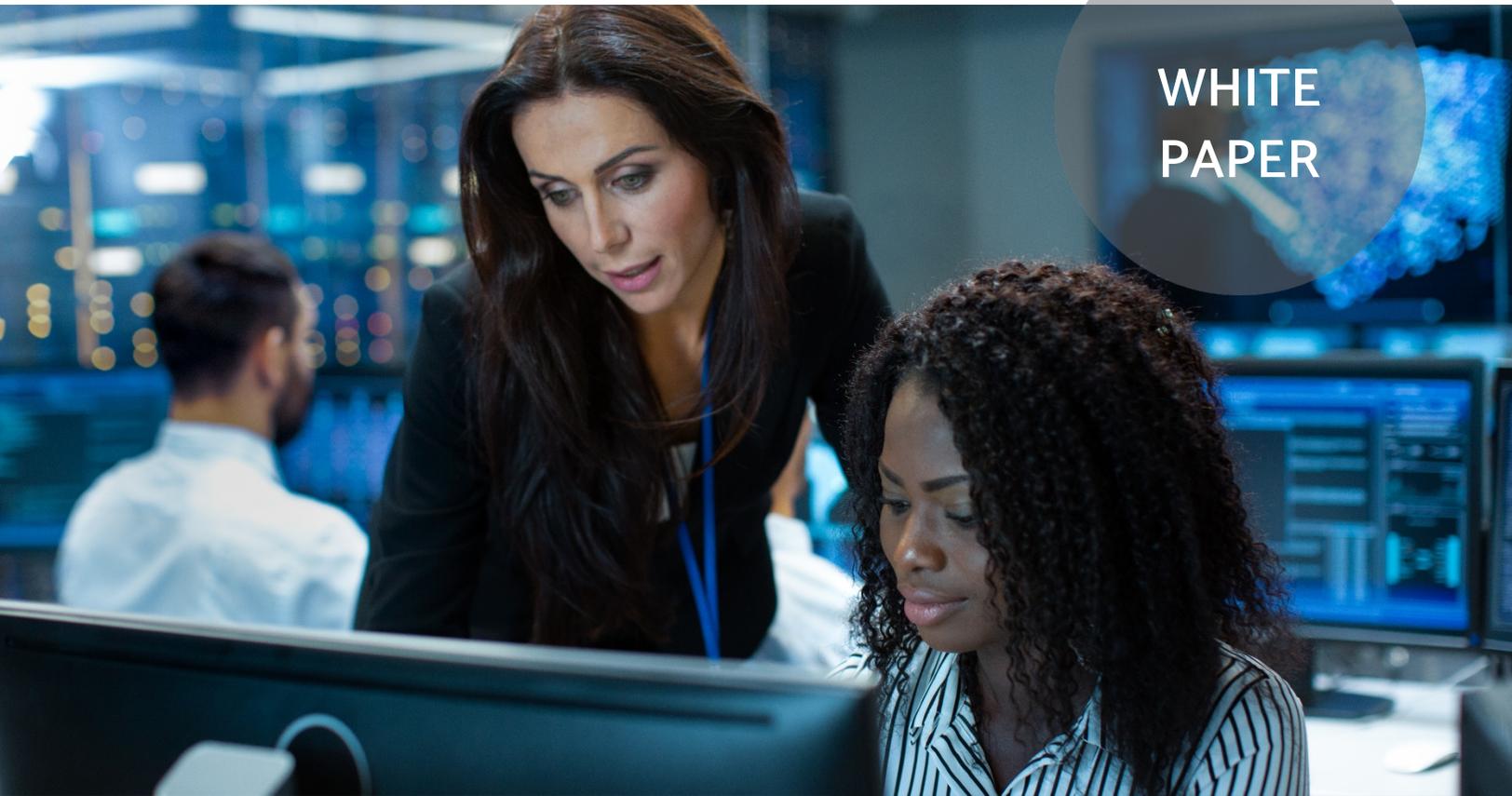


Empowering the Lines of Business with Packaged Analytics Applications

Accelerate and Improve Business Decision-Making



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Packaged Analytics for Business Impact

Line-of-business personnel in today's organizations increasingly have high expectations for how they can use data as they carry out their responsibilities. They want contextual, role-specific information delivered to them at the optimal point of impact for the organization. Business applications that include integrated analytic capabilities, typically referred to as packaged analytic applications, empower line-of-business leaders and staff to improve the quality of their operations and decisions, enable users to generate self-service insights and exploit the power of cloud-based software to reduce time-to-value.

To support these goals, organizations must consider the expanding area of packaged analytic applications and how to best provide these tools to business users.

Cross-Functional Analytics Improve Results

As the tools for data analysis and the skills needed to utilize those tools have become more wide-spread and accessible, simply having an analytics team within the organization is no longer enough to generate a competitive advantage. Collecting and analyzing large amounts



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of cross-functional data—that is, data drawn from more than one department or business unit—helps organizations take the next step forward in their analytics journey.

Analytics based on a range of data that extends beyond the limits of the department enable line-of-business personnel to make decisions and take actions for the organization to best meet its strategic and operational objectives. In fact, the most common benefit that organizations report from supporting cross-functional data usage is achieving a competitive advantage. In our research they also report lowering costs and improving the customer experience, both of which improve overall organizational performance. These extended or cross-functional analyses provide a better understanding of how the organization is performing and create better communication by sharing the same set of information across departments.

Certain finance, procurement and human resources analyses require cross-functional analytics. For instance, effective finance teams monitor product profitability by region, a KPI that combines financial and operational data. Top-performing procurement departments evaluate suppliers based not just on cost-per-unit but also on product quality, returns,



lifetime warranty claims and on-time performance. Human resources departments combine sales and employee data to create evaluative productivity metrics such as net revenue per sales representative. None of these are possible if departments are unable to access, combine and analyze data from other functional areas within the organization.

The Data Preparation Challenge

While providing cross-functional data to line-of-business users demonstrably has value, it often requires a significant amount of work to bring this data together from across the organization and prepare it for analytics. Our research finds that more than one-half of organizations (55%) identify data preparation as the part of the analytics process in which they spend the most time, as data from one line-of-business application is rarely sufficient and data from multiple sources is rarely in the form that is required.

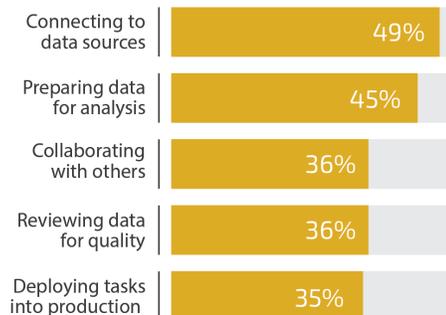
Our research also shows that the most time-consuming aspects of data preparation are connecting to data sources, preparing the data in the format needed for the analyses, collaborating with others, checking data quality and establishing these steps as repeatable processes in production systems. And often, this is work that the organization tasks IT with doing. Fewer than one-half of organizations (44%) are comfortable letting line-of-business personnel prepare data without the assistance of IT. This reliance on IT reduces the time that department can spend on other work, and it creates a bottleneck in the analytics process as line-of-business personnel submit requests and then wait for IT to respond. Furthermore, this process often requires multiple rounds of iteration thus consuming more time and resources.

Regardless of who is performing the data preparation, the lines of business and IT share the concern that data quality be ensured and maintained—a challenge that can be exacerbated by manual data preparation activities. For instance, one of the first steps in the data preparation process is evaluating and ensuring the consistency of terminology in the data being used. The processes for bringing disparate data sources together and addressing such inconsistencies are often manual and thus error-prone, which leads to extra work and potential data quality issues.

Our research also finds that nearly one-half of organizations (43%) use spreadsheets as part of their data preparation process, adding another potential source of quality and governance issues. The use of spreadsheets involves manual processes, which are time consuming, error

Time-Consuming Data Preparation Tasks

Connecting, preparing for analysis top list



Source: Ventana Research Data Preparation Benchmark Research
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prone and not easily repeatable. This reliance on a problematic tool contributes to low confidence in the quality of the data produced by their data preparation efforts—fewer than one-quarter (22%) of organizations say they are very confident about their data quality.

Packaged Applications Accelerate Empowerment

Applications with packaged analytics enable line-of-business personnel to get their jobs done more quickly and easily and can begin generating value for the business relatively quickly. Custom analyses built from scratch—especially cross-functional analyses—can be running almost immediately, even more so if they are cloud-based. Packaged applications also reduce the risk of application failure since they have already been proven successful in other organizations.

Packaged applications also accelerate data engineering processes because all the relevant data has been collected and prepared within the systems line-of-business personnel are already using. Working in such an environment, individuals can access all the relevant data in



Platforms that incorporate packaged analytics provide better support for business process efficiency than the traditional model of performing analytics.

a format that is familiar and ready for analysis. Our research shows that nearly three-quarters (72%) of organizations consider it important to package analytics within business applications, and the same is true for machine learning (ML). ML is becoming a popular analytic technique requiring specialized tools and skills. Our research shows more than one-half (56%) of organizations prefer to deliver ML capabilities packaged within applications rather than as stand-alone tools, and packaging ML only increases in importance as organizations move toward supplementing their analytics with these capabilities.

Platforms that incorporate packaged analytics provide better support for business process efficiency than the traditional model of performing analytics. In this longstanding model, analytics are performed with separate software products that are not integrated

with the line-of-business applications in use. Thus, individuals must leave the business application to perform the analyses and then switch context again to return to the business application in order to act on what they have learned in their analyses.

When analytics are integrated into pre-built applications the data need for those analyses is more readily accessible because access to it has been architected into the system, as has its preparation. The analyses thus can be conducted without repeated requests to IT, and users



can more quickly and easily act on the analytic insights because the work is already being performed within their regularly used applications.

The data preparation processes built into packaged analytics applications typically are robust, eliminating the need for manual data preparation and with it many data quality issues and

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Packaged analytics provide a greater measure of assurance that the organization is complying with its own data governance policies.

errors. These processes are maintained by the software vendor, ensuring they are kept in sync with other portions of the application. There is usually no additional maintenance work required on the part of the organizations using these applications.

Packaged analytics also provide a greater measure of assurance that the organization is complying with its own data governance policies. When the processes to prepare and integrate data are designed into the applications and manual processes are eliminated, the organization can more easily trust the data quality and consistency that results from those processes. Since the data originates from systems that have been reviewed and vetted, the lines of business and IT have greater assurance regarding the provenance of the

data in its analyses and no duplication of effort is needed to manage governance of data in two or more separate systems.

And finally, when data preparation and analytics capabilities are packaged and integrated within a given application, the capabilities are maintained and upgraded by the vendor, thus freeing line-of-business (or IT) personnel from this responsibility. This is particularly helpful as the source applications change over time.

Delivering Extended Insights

Analytics based on data from a single line-of-business application are often limited. For instance, in the supply chain, tracking metrics about on-time delivery from vendors help keep production running smoothly, but they don't help identify declines in the quality of materials that were rushed to meet a delivery deadline. In finance, tracking revenue growth is important, but it doesn't provide insight about draining the sales pipeline to meet this quarter's target. In human capital management, tracking time-to-hire doesn't provide insights into how the hires are impacting the organization's performance positively or negatively.



Incorporating cross-functional and external data sources can enhance line-of-business metrics and provide more thorough extended analyses and better-connected insights. On-time delivery data in the supply chain can be combined with information from sales returns



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and warranty claims to produce more meaningful insights and improve procurement. In finance, current revenue can be combined with sales pipeline information and hiring data to produce more accurate revenue forecasts and support better planning. In human capital management, correlating hiring metrics with productivity and utilization rates can provide a more complete picture of the extent to which new hires are enhancing the organization's performance. Such insights enable organizations to advance beyond tactical efficiency improvements toward using analysis to improve profitability.

Those deploying packaged analytic applications should plan to combine these data sources whenever available. While one of the key values of packaged applications is that they make it easier for line-of-

business personnel to get their job done, being able to bring diverse data sources together also encourages more exploration of the data and new analyses that can lead to meaningful insights and actions. Incorporating diverse data sets can enable the generation of strategic, executive-level insights instead of just more tactical analyses. A cross-company view with multiple data inputs can unlock new insights that can help leaders make more informed decisions about how to grow revenues, decrease costs and improve profitability.

Extending Packaged Analytic Applications

Packaged analytics need not eliminate the possibility of custom or ad hoc analyses. An analytic application architecture should support extending prebuilt analyses with additional custom querying. Using the existing infrastructure for these extensions provides a familiar and productive environment for users and still eliminates the context switching required if a separate tool is used.

Taking full advantage of applications with packaged analytic tools also requires an architecture that accommodates integration of an array of data sources beyond what the developer has already incorporated, including internal, external and third-party data. Financial data and transactional data are two of the most common sources of data used in analytics, but organizations often access other sources as well. More than one-third of organizations consider internet information sources, economic data and social media as important external data sources. One-quarter or more consider government demographic



sources and consumer demographic source important. Therefore, to be effective, analytic applications should include mechanisms to incorporate such data.

While the architecture needs to be flexible to support extended analyses as well as to incorporate cross-company, cross-functional and third-party data sources, it should still accommodate upgrades to the packaged application software. Unfortunately, providing such flexibility often makes it more difficult to maintain the underlying software application because the modifications are co-mingled with the vendor provided portions. To address this, vendors should design their software systems anticipating that customers will want to make modifications, yet they will also want to be able to upgrade these systems even though they have been modified. Such a design must manage the customizations separately from the



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portions provided by the vendor. Otherwise it will be difficult or impossible to incorporate upgrades from the vendor. Organizations should reject systems that don't provide this capability. The application also needs to include the tools, such as application programming interfaces (APIs) and databases, needed to collect, manage and access the customizations that clients make. Without an architecture and tools that keep these portions of the application separate, an organization will find it difficult to upgrade the software as new versions become available.

To be competitively useful, an application should make it possible for decision-making mechanisms to directly impact business operations. Once analyses are complete, the resulting insights should be presented within the transactional systems so that the appropriate action can easily and immediately be taken. For example, if a supply chain analysis suggests

that additional inventory is needed, the application should provide a way to begin the requisition process. If a workforce analysis suggests more staff are necessary, the application should help initiate the hiring process. If a financial analysis suggests changes to the budget, the application should help push these changes to the individual departments. In this way the analyses can streamline business processes, improve performance and drive business growth.



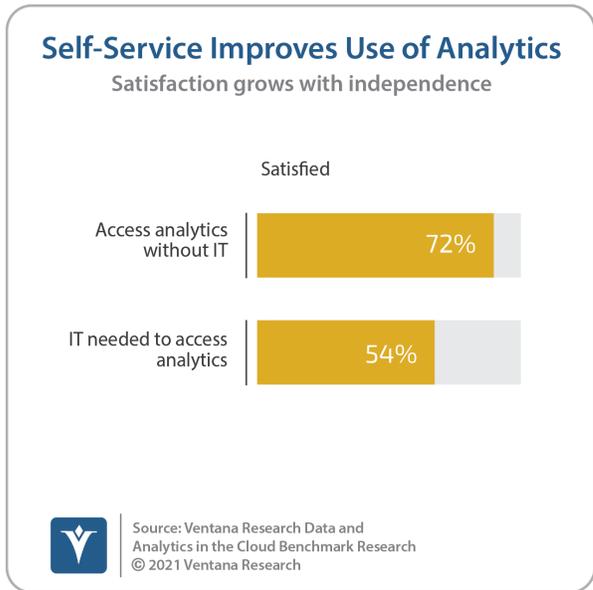
Self-Service and the Cloud

“Self-service analytics” is often cited as a goal, but it has not become a reality in most organizations. In fact, just two out of five organizations (40%) report that business users can analyze data without the assistance of IT. We do find, however, that among organizations in which business users can operate without IT, users are more confident in (77% vs. 44%) and more satisfied with (72% vs. 54%) their analytics usage and results. Integrated solutions make users more self-reliant, and in addition to improving confidence and satisfaction, this self-reliance enhances results and lowers costs.

Packaging analytics into applications thus helps organizations move forward, but pre-built reports and KPIs alone are insufficient to fully realize the goal of self-service. To truly empower business users, applications must simplify common analytics operations, including selecting data sets, specifying subsets of the original selection and creating custom visualizations in a user-friendly way. Packaged analytics that offer these capabilities provide business users with the freedom to analyze the data they need when they need it while also ensuring data governance so analytic insights are based on reliable, well-vetted business data.

Many organizations are adopting cloud-based business applications as well as cloud-based applications for data and analytics. Nearly all organizations (99%) expect to be doing analytics in the cloud at some point, and half (48%) are already using cloud-based analytics applications. Data is migrating to the cloud as well, with 86% of organizations either relying on the cloud today or expecting to rely on the cloud in the future for storing the majority of their data. However, our research also shows that most organizations have a hybrid of cloud and on-premises deployments. As a result, all organizations should be considering how to use the cloud as part of their data and analytics architecture while incorporating on-premises systems as well.

Adopting packaged cloud-based analytic applications can further help organizations accomplish the goal of self-service because when applications are delivered via the cloud, many of the installation, configuration and management functions are shifted to the software vendor. Ongoing maintenance of the hardware and software is also the responsibility of the vendor. Line-of-business personnel are thus freed to use the analytic applications to focus on running the business operations.





With cloud-based applications that include packaged analytics, executives can cost-effectively have the broader, more strategic view that analytics sourced from a single line-of-business application cannot provide. When the application features an extensible architecture, executives and others can combine all the relevant internal and external data sources they require to extend the potential of their analytic insights.

Such systems provide line-of-business personnel with easy access to the information they need to make well-informed business and operational decisions. They enable organizations to take advantage of the full range of analytics capabilities emerging today—including artificial intelligence and machine learning—to understand relationships in the data and predict behavior. Analyses performed using these tools can be consistent across the organization and the underlying data can be governed centrally. Rather than spending time creating and maintaining ad hoc data and analytics processes, the organization can instead concentrate on using the analytics to improve its operations and gain a competitive advantage.

Key Steps for Improved Decision-Making

Organizations that seek to accelerate and improve their decision-making can take the following steps to empower the line of business with packaged analytics:

- **Focus on enabling cross-departmental analysis.** To have a significant impact on performance today, analyses must be based on data from more than one department or software application.
- **Consider packaged analytic applications to empower the organization.** Tools that incorporate packaged analytics provide better support for business decision-making than traditional models of performing analytics. These tools empower line-of-business personnel to more efficiently and confidently take action.
- **Ensure packaged applications can be extended to meet the organization's needs.** Taking full advantage of applications with packaged analytic tools requires a data architecture that accommodates the integration of an array of data sources beyond what the developer has already incorporated, including internal, external and third-party data.
- **Prioritize self-service with cloud-based tools.** Packaging analytics into applications helps organizations realize the goal of self-service since these applications provide business users with the freedom to analyze the data they need while also ensuring governance so analytic insights are based on reliable, well-vetted business data. Nearly all organizations (99%) expect to be doing analytics in the cloud at some point, and one-half (48%) are already using cloud-based analytics applications. As a result, all organizations should be considering how to use the cloud as part of their data and analytics architecture.



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