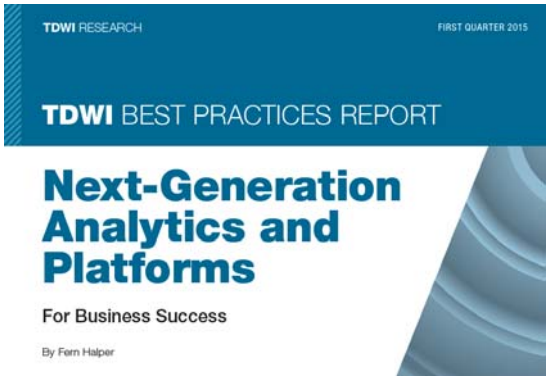
Next Generation Analytics Review



Survey Methodology. In late July 2014, TDWI sent an invitation via e-mail to business and IT executives; VPs and directors of BI, analytics, and data warehousing; business and data analysts; data scientists; IT application managers; and other BI/DW professionals, asking them to complete an Internet-based survey. The invitation was also delivered via websites, newsletters, and publications from TDWI. The survey drew over 450 responses. From these, we excluded incomplete responses as well as some respondents who identified themselves as vendors or academics. The resulting 328 responses form the core data sample for this report.

From Dashboards to Predictions

Executive Summary

The market is on the cusp of moving forward.

User organizations are pushing the envelope in terms of analytics and the platforms to support analysis. These organizations realize that to be competitive, they must be predictive and proactive. However, although the phrase "next-generation platforms and analytics" can evoke images of machine learning, big data, Hadoop, and the Internet of things, most organizations are somewhere in between the technology vision and today's reality of BI and dashboards. Next-generation platforms and analytics often mean simply pushing past reports and dashboards to more advanced forms of analytics, such as predictive analytics. Next-generation analytics might move your organization from visualization to big data visualization; from slicing and dicing data to predictive analytics; or to using more than just structured data for analysis. The market is on the cusp of moving forward.

Drivers for Next-Generation Analytics

The market for next-generation platforms and analytics is growing for many reasons, but what are the drivers for user adoption of the technology? We asked respondents to score the important drivers of next-generation analytics on a five-point scale where 1 was extremely unimportant and 5 was extremely important.

Decision making, understanding customers, and improving business performance ranked at the top. Companies are interested in utilizing analytics to make decisions. More often than not, they start with analytics to understand some behavior. Over 50% of the respondents (not charted) stated that using next-generation analytics is extremely important for driving strategic decision making and understanding customers. Slightly less than 50% felt it was extremely important for improving business performance and processes (not charted).

Drive new revenue: Respondents are interested in next-generation analytics to help drive new revenue opportunities, whether for sales and marketing or other business opportunities. Forty-six percent (not charted) of respondents felt this was extremely important.

Lower on the list was driving real-time actions. Analytics is useful only when acted upon. However, much of the market is not yet mature enough to implement real-time actions or take action on real-time events—a familiar situation from previous research (for instance, see the 2014 TDWI Best Practices Report *Real-Time Data, BI, and Analytics*[9]) as well. Likewise, monetizing analytics (i.e., generating revenue by actions such as selling analytics services) also ranked low. Fewer than 25% of respondents cite these drivers as extremely important.

Next-generation analytics is the successor to BI reporting and dashboards.

BI Status

Dashboards are very common today: 83% of respondents use them.

To learn about respondents' status in terms of BI and analytics, we asked, "What kinds of BI do you perform in your company today? Three years from now?" (See Figure 1.)

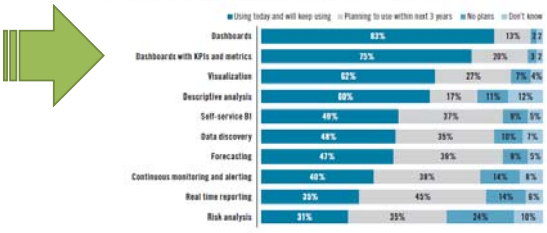
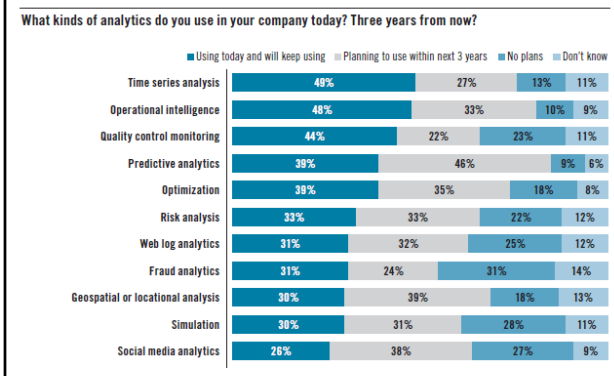


Figure 1. Types of BI in use at respondent companies. Based on 328 respondents.

Dashboards are the most commonly used BI technology today. Dashboards rank at the top of the list with close to 83% of respondents stating they use dashboards today. TDWI has seen similar results in



Prediction to Prescription

The Status of More Advanced Analytics

We also asked respondents about the status of more advanced analytics in their organizations. These technologies include:

- Predictive analytics: A statistical or data mining technique that can be used on both structured and unstructured data to determine outcomes such as whether a customer will "leave or stay" or "buy or not buy." Predictive analytics models provide probabilities of certain outcomes. Popular use cases include churn analysis, fraud analysis, and predictive maintenance.
- Prescriptive analytics: Whereas predictive analytics helps users determine what might happen, prescriptive analytics goes further to either suggest or automatically initiate a subsequent action to produce an optimal result. For instance, prescriptive analytics in healthcare can be used to guide clinician actions by making treatment recommendations based on models that use relevant historical intervention and outcome data. Prescriptive analytics can use both predictive analytics and optimization to do this. True prescriptive analytics often utilizes constraints.

Predictive analytics is often a first step in next-generation analytics.

- Structured data?
  - tables

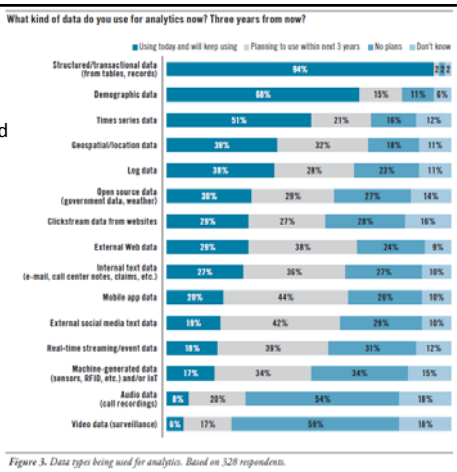


Figure 3. Data types being used for analytics. Based on 328 respondents.

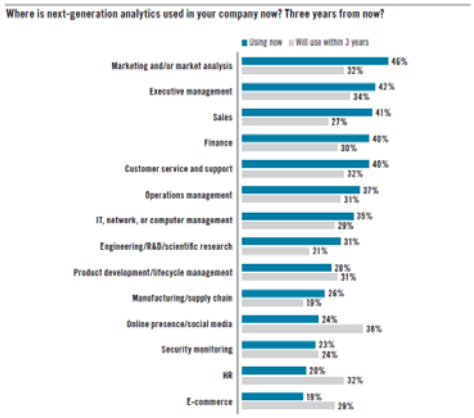


Figure 4. Parts of the organization where next generation analytics is being deployed. Based on 328 respondents.

- SAP Lumira targets the highlighted area below

EXPERT OPINION

"Predictive analytics today is the way visualization was a couple of years ago," according to Saken Kulkarni, solution principal, analytics, for Slalom Consulting. "It is on the verge of taking off with a new set of users, the data analysts. When it does take off, questions will be less about tools and methods and more about how analysts can share, collaborate, and obtain insights from these models. Analysts must be empowered to collaborate through a process similar to that which a developer uses to comment on code. Additionally, it is critical to help analysts manage models, keeping them accurate and up to date, especially as they accumulate hundreds of such models. These factors will be critical in the future as companies use both descriptive and predictive analytics."

Who analyzes the data?

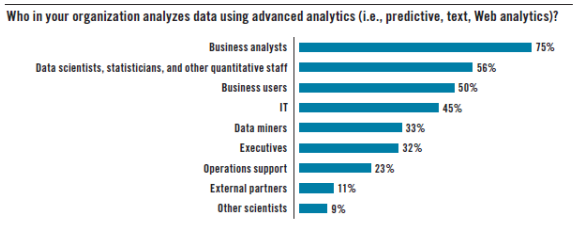


Figure 5. Personnel using advanced analytics to analyze data. Based on 328 respondents. Multiple selections were allowed.

Data driven decisions

Operationalizing Analytics: The Path to Action

Analytics must be actionable to be useful, and this is a big push with the next generation of analytics. Operationalizing refers to making analytics part of a business process; i.e., deploying analytics into production. In this way, the output of analytics can be acted upon. Operationalizing occurs in different ways. It may be as simple as manually routing all claims that seem to have a high probability of fraud to a special investigation unit, or it might be as complex as embedding analytics in a system that automatically takes action based on the analytics.

In order to make analytics useful it must be actionable.

Wide range of implementations

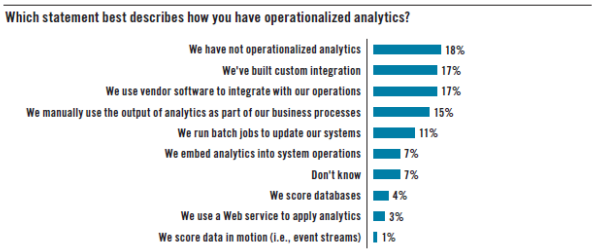


Figure 8. How respondents have operationalized analytics. Based on 328 respondents.

University Hiring (needs training)

Figure 10. Respondents' sources for acquiring skills. Based on 328 respondents.

Need skilled analysts

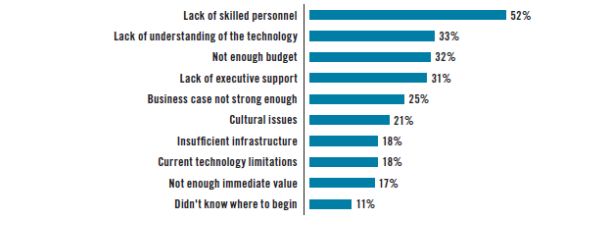


Figure 9. Next-generation analytics challenges faced by respondents. Based on 328 respondents. Multiple selections were allowed.

Measuring results. An analytics culture is necessary when dealing with next-generation analytics. This culture is data-driven, which means results-driven. Results inform actions, a best practice for analytics, whether it is simply tracking key performance indicators or monitoring the results of more advanced models that get stale. How often you update a model depends on the model. It can be a period as long as six months or as short as daily (or shorter, depending on how advanced the model is).

- "Results inform action"
  - Feedback loop, control, continuous improvement, …

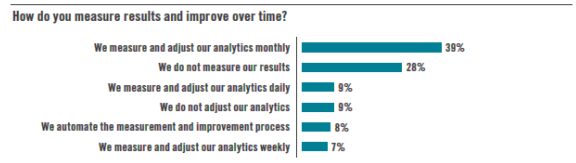


Figure 11. How respondents measure results and improve over time. Based on 328 respondents.