Forecast Snapshot: Prescriptive Analytics, Worldwide, 2015

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The prescriptive analytics software market will reach $1.1 billion by 2019, with a 22% CAGR from 2014. Currently, 10% of organizations have some form of prescriptive analytics; this will grow to 35% by 2020. Vendors must understand the market opportunities when planning their business strategy.

Key Findings

- Prescriptive analytics is the application of logic and mathematics to data to specify a preferred course of action. While all types of analytics ultimately support better decision making, prescriptive analytics outputs a decision rather than a report, statistic, probability or estimate of future outcomes.

- More organizations are moving up the analytics maturity ladder and building analytics capabilities beyond descriptive analytics to predictive and prescriptive analytics. By 2020, predictive and prescriptive analytics will attract 40% of enterprises' net-new investment in business intelligence and analytics.

- Overall buyer awareness of, and interest in, the value of analytics and data-driven decision making is a key growth driver. The current adoption is 5% of the potential number of target audience, which will grow to 10% of the potential target audience by 2020. Prescriptive analytics will move beyond its core community of operations research and management science professionals and become increasingly embedded in business applications.

Market Size and Forecast Growth Rate

Figure 1. Enterprise Spending on Prescriptive Analytics, Worldwide, 2014 and 2019

Billions of U.S. Dollars
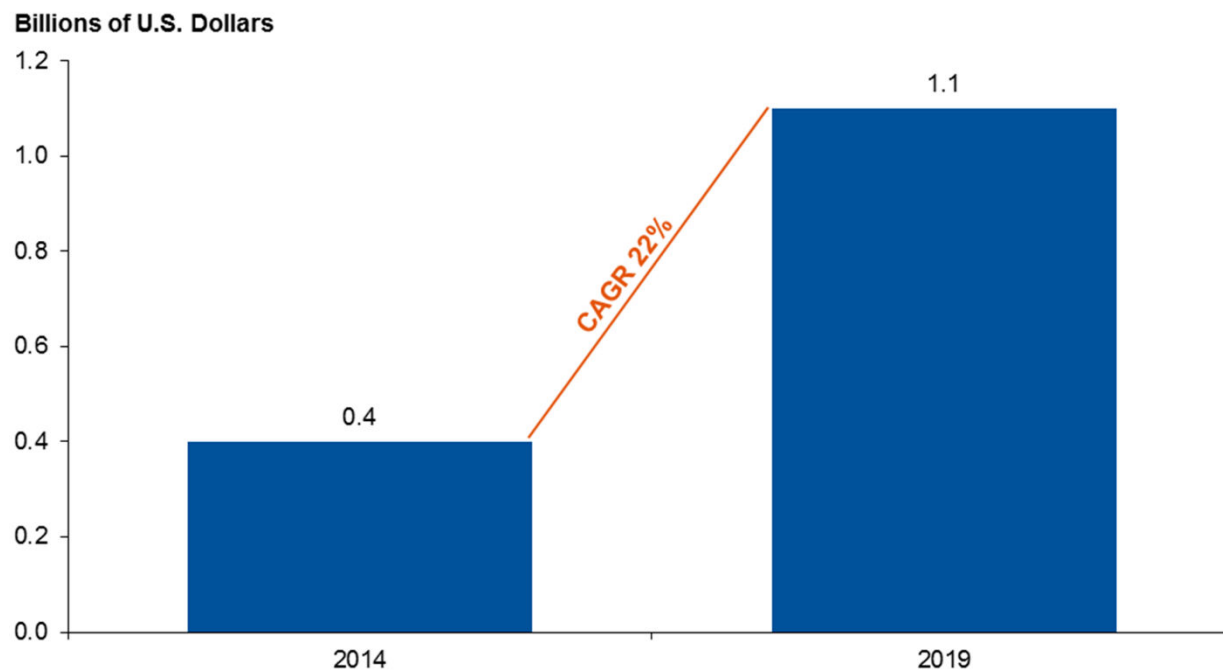
CAGR = compound annual growth rate

Source: Gartner (February 2016)

Analysis

Introduction

Although all types of analytics aim to improve decisions, only prescriptive analytics outputs a preferred course of action. It takes predictive insights to the next level by suggesting the optimal way to handle a future situation and can be applied to strategic, tactical and operational decisions, each of which has different traits. The recommended decision can be delivered to a human in a decision support environment, or it can be coded into a system for decision automation (see "Find the Best Approach to Decision Management").

Market Definition

These solutions combine predictive models, linear programming, business rules, and scoring and optimization techniques to form a powerful foundation for decision management. Certain types of problems are naturally optimization problems, while others call for a more simple solution, or one that builds on existing predictions and rules. In the "predictive analytics plus rules" approach, business rules make it prescriptive, but using the data and the analytics is what makes it

prescriptive analytics. The combination can both make rules smarter and make predictive analytics actionable.

Buyer Dynamics

While optimization goes back a long way, it has often been overlooked because of the high levels of skills needed to use the technologies. This is starting to change as organizations are investing more in data science and decision management skilled resources. Plus, vendors are making their prescriptive analytics offerings easier to use by less skilled citizen data scientists.

Because prescriptive analytics often leverages predictive methods, its adoption tends to be higher among companies that have built predictive capabilities. Many organizations that adopt prescriptive analytics have some experience with predictive analytics and are doing a type of prescriptive analytics without calling it such. As a consequence, they are not fully aware of the full range of methodologies offered by prescriptive analytics. While it is possible to jump from descriptive to prescriptive, many organizations proceed through each phase.

Some use cases are very mature — such as optimization in supply chain and logistics, cross-selling, database marketing and churn management — but many new use cases are emerging with as yet unknown potential. Therefore, it is still early days for broad adoption and awareness. Further, organizations need to move up the analytics maturity ladder — progressing beyond descriptive analytics to predictive and prescriptive analytics — before they can achieve full benefit from prescriptive analytics offerings.

Vendor Dynamics

While many ERP and supply chain vendors have offered capabilities for organizations to optimize decision making for decades, it has largely been reserved for the largest enterprises and is still a relatively new idea for most organizations. With the growing interest in predictive analytics by end-user organizations, vendors are now extending their advanced analytics platforms to include prescriptive analytics capabilities.

Current market penetration of prescriptive analytics is 1% to 5% of the target audience, the stand-alone marketing is still emerging, with main offerings from Ayata, Decision Lens, Earnix, FICO, Frontline Systems, Gurobi Optimization, IBM, MathWorks, Pros, River Logic and SAS. As more organizations deploy predictive analytics, we expect more analytics platform and application vendors to add prescriptive analytics to make it easier for organizations to turn predictions into recommended actions to improve decision making. The Internet of Things (IoT) will become a key driver for vendors to add prescriptive analytics capabilities to address both consumer and industrial use cases.

Prescriptive Analytics Market Size

To establish the size of the prescriptive analytics market in terms of end-user spending, we:

- Identified and tracked a set of 20 vendors representing the market share in the stand-alone prescriptive analytics market. We then checked the estimate against other data points, including vendor press releases, online database and other content aggregators, vendor financial reporting, and subject matter expert analyst inputs in the prescriptive analytics markets.

- Analyzed the top stand-alone prescriptive analytics vendors (Angoss, Decision Lens, Earnix, FICO, Gurobi Optimization, IBM, MathWorks, Pros, River Logic, SAS and Sparkling Logic) and estimate that their 2014 revenue was $345 million and that they accounted for 83% of the market.

- Analyzed and compared years of user survey data from advanced analytics practitioners and thousands of user inquiries to assist in qualifying supply-side revenue estimates with historical and current demand with user estimations of future use.

Prescriptive Analytics Forecast Assumptions

For emerging software markets like prescriptive analytics, we model growth based on organizations' adoption and vendor supply-side activities. At this stage in the analytics application life cycle, we believe application spending is most strongly driven by the following influencing factors:

- Software adoption across more organizations

- Expansion of the user base within an organization

- Expansion of the functionality being utilized within organizations

- Innovation in technology and product design

System replacement rates, a core variable in packaged application spending in more mature areas, is not currently a major variable in our five-year forecast assumptions because of the relative immaturity of the technology.

In this context, we make the following assumptions about the prescriptive analytics market:

- Ten percent of organizations currently have some form of prescriptive analytics, and this is forecast to grow to 35% by 2020. The bulk of new adoption will be from large organizations in mature economies.

- Adoption is currently 5% of potential seatholders, and this is estimated to grow to 20% of potential seatholders by 2019. Expansion of the user base for prescriptive analytics will affect the market modestly at first but more markedly toward the end of the forecast period.

- The average user base will grow 15% annually in 2016 within organizations using prescriptive analytics. Successful use of prescriptive analytics within an organization depends on the existence of highly automated and data-centric business processes. The more widespread such processes are, the greater the benefits that prescriptive analytics will provide. Some use cases for prescriptive analytics are already established, but as digital transformation increases, more of these processes will be available.

- Expansion due to greater functionality will cause the average user base of an organization using prescriptive analytics to grow by three times over the course of the forecast period. When organizations achieve successful business outcomes from analytics projects, this feeds their enthusiasm to use analytics to a greater extent, improving on the earlier projects, which drives expansion of the market.

- The percentage of organizations adopting this technology will rise to 10% by 2018 in the most advanced industries for prescriptive analytics (financial services, retail and logistics). Innovation and product design will drive adoption principally for organizations that are most mature in the use of analytics; hence, this industry focus.

Methodology

Forecast Snapshots provide a reasonable estimate of the global market size and five-year CAGR for market segments that are not covered by a regular Gartner Forecast report. The methodologies used for both sizing the markets and establishing their growth forecast may vary from one to another, and they rely heavily on analyst judgment and experience. In time, if the market segments evolve and gain critical mass, Forecast Snapshots may be superseded by regular Forecast publications, which are based on a more in-depth methodology. This may lead to significant changes in our estimates for market size and growth rate.

This Forecast Snapshot focuses on total end-user spending on prescriptive analytics, including new licenses, updates, upgrades, cloud, subscriptions and hosting, technical support, and maintenance (see "Market Definitions and Methodology: Software").

Our forecasting methodology is developed by a multistep process:

- We estimate a five-year CAGR by reviewing a combination of factors:

  - Five-year CAGR for the category as a whole. For example, if our published forecast shows that advanced analytics as a category is growing 8%, that becomes our baseline for subcategories, such as prescriptive analytics, that roll up under it.

  - Hype Cycle placement, which allows us to calibrate where a subsegment's growth might be in relationship to the category as a whole.

  - Vendor revenue history (from Magic Quadrants, Market Share reports and published financial reports), which further helps us calibrate subsegment growth.

- We then compare our forecast assumptions with the latest available market indicators, such as vendor sales and pipelines, vendor strategy, new product roadmaps, and IT spending data.

- We then generate preliminary forecasts, which are peer-reviewed with individual subject matter experts and revised as necessary.

- Finally, we roll up our submarket forecast estimates to check for consistency with our published segment-level forecasts. The sum of our submarket estimates cannot exceed our segment-level forecast.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Hype Cycle for Advanced Analytics and Data Science, 2015"

"How to Get Started With Prescriptive Analytics"

"Extend Your Portfolio of Analytics Capabilities"

"Find the Best Approach to Decision Management"

"Forecast: Enterprise Software Markets, Worldwide, 2012-2019, 4Q15 Update"

"Market Share: All Software Markets, Worldwide, 2014"

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