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Dresner Advisory Services, LLC

2019 Edition

Analytical Data Infrastructure Market Study (Excerpt)

Wisdom of Crowds® Series

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Business Intelligence Defined

Business intelligence (BI) is “knowledge gained through the access and analysis of business information.”

Business Intelligence tools and technologies include query and reporting, OLAP (online analytical processing), data mining, and advanced analytics, end-user tools for ad hoc query and analysis, and dashboards for performance monitoring.

Source: Howard Dresner, *The Performance Management Revolution: Business Results Through Insight and Action* (John Wiley & Sons, 2007)

Analytical Data Infrastructure Defined

Analytical data infrastructure (ADI) defines a set of technology components for integrating, modeling, managing, storing, and accessing the data sets that serve as sources for analytic/BI consumers, e.g., analytic/business applications, tools, and users.

Executive Summary

In our 2019 Analytical Data Infrastructure Market Study, we used the following use cases to analyze the market survey responses:

- Business user reporting and dashboards
- Business user discovery and exploration
- Data science (e.g., advanced and predictive workloads and workflows)
- Embedded analytics (e.g., analytic functions and data embedded within business applications for higher volume/low latency applications).

Each use case presents a different combination of data workloads and analytical workflows to an ADI platform. The goal of this report is to better understand the priority of use cases and preferences for Analytical Data Infrastructure features/capabilities such as performance versus cost, data-integration priorities, and development and deployment preferences. Understanding these capabilities, uses, and adoption will help with the prioritization planning, developing, and execution of a BI and analytics strategy for any size organization.

- The top use case most identified as a top priority for ADI platforms is business user reporting and dashboards. For most organizations (83 percent of respondents), this is the most important use case when considering ADI platforms. The data science use case is a priority for 43 percent of respondents. Embedded analytics, i.e., a use case within business operational applications work and data flows and requiring low latency analytics and typically high data volumes is a priority for evaluating ADI platforms for 35 percent of the market.

- Cost and corporate standards are a low relative priority for ADI platforms compared to performance and security priorities. We think this will lead to further ADI platform fragmentation and associated data and analytics fragmentation across organizations.

- The preference (60 percent of responses) is for a single ADI platform that can support multiple use cases and workloads/workflows (e.g., it must provide capabilities for business user reporting and dashboards as well as business discovery and exploration or data science analytic use cases).

- The majority of respondents prefer an ADI platform accessed/licensed via a cloud deployment ("as a cloud service" versus "on-premises software").

- Data integration and management capabilities to support hybrid deployments (cloud and on premises) is a top ADI platform priority for 30 percent of the market. We expect cross data center integration and management tools for hybrid ADI platform deployments will increase in priority and the range of capabilities and options will become extensive as the technology/market develops.

- The range of innovation and variety of ADI platform capabilities and diversity of use cases in the market today and the lack of priority on corporate standards and governance, makes developing a business and technical strategy (for using data and analytics to drive business change) for larger scale, cross-functional, multi-use case BI and analytics projects, more difficult than ever for business and technical leaders.

Analytical Data Infrastructure Use Cases

There is a diversity of ADI use cases. Different use cases have different data and analysis workloads/workflows and buying requirements. Buying requirements for ADI platforms can reflect combinations of use-case priorities. We asked respondents to rank the importance of four types of ADI use cases. The majority (83 percent) of respondents indicate "business user reporting and dashboards" as their highest use case driving ADI requirements and priorities, ranking it as "critical" or "very important" (fig. 1). The second-highest use case is "business user discovery and exploration," which 67 percent of respondents rank as "critical" or "very important." Fifty-three percent of respondents rank "data science (advanced and predictive analytics or data mining)" use cases as their highest priority, and 45 percent rank "embedded analytics with business applications" as their highest priority use cases. Sixty percent of respondents identify multiple use cases as top priorities for their ADI platforms.

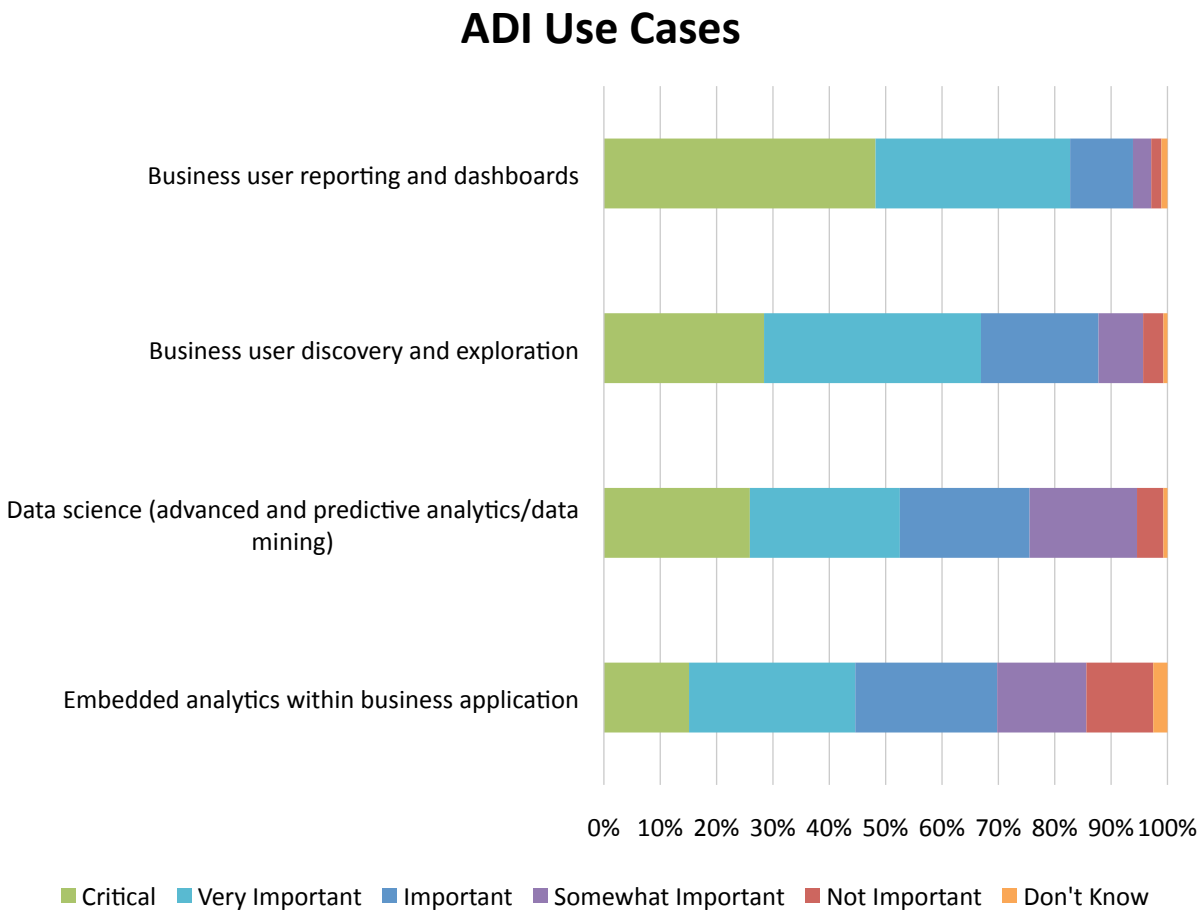

Figure 1 – ADI use cases

An early, albeit slight, trend is emerging in changing priorities for ADI use cases. Year over year, “business user reporting and dashboards” and “business user discovery and exploration” are the top use cases; however, they decline very slightly in priority (fig. 2) year over year. The year-over-year changes in ADI priorities for the data science and embedded analytics use cases continues to increase slightly, much as they did in our 2018 report. We believe that as organizations become more mature in their experience with BI, they expand to more advanced functionality and workflows found in data science and embedded analytics use cases.

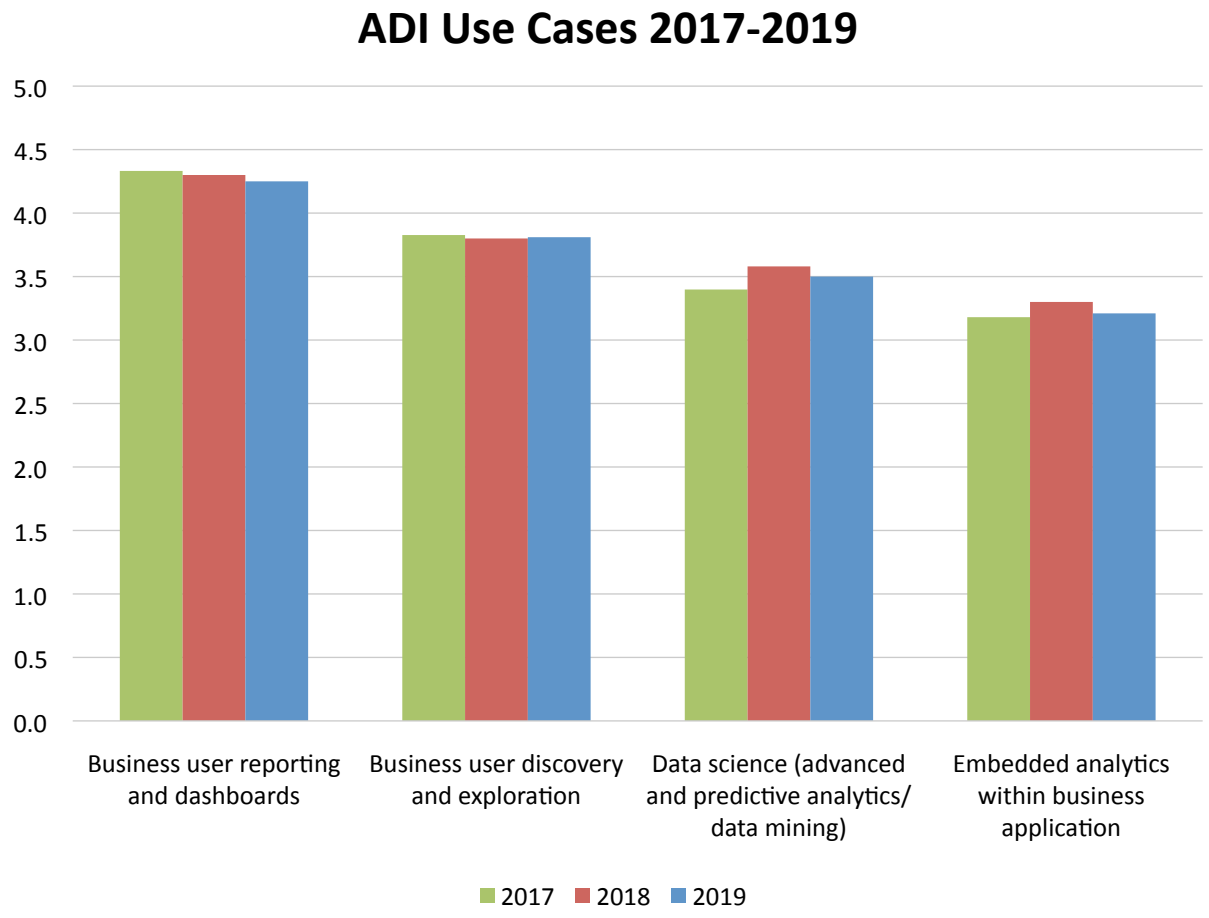

Figure 2 – ADI use cases 2017-2019

Selection Priorities for Analytical Data Infrastructure

In this section, we discuss respondents' priorities covering price/performance product-related qualities such as scalability, usability, etc. Performance and security are the highest selection priorities for ADI platforms in 2019. This is driven by the ever-growing volume of data, algorithms, and number of users arising from combinations of use cases. An ADI platform must support the volume and combinations of data, workloads, integrations, etc. required from the combinations of use cases and their workloads and workflows. We added a new question to our survey this year, which shows respondents place a relatively lower priority on ADI platforms' ability to meet compliance or regulatory requirements, ranking these features lower than most other ADI requirements (fig. 3). "Corporate standards" and "price" are relatively low priorities, demonstrating the diversity of ADI platforms/skills/workflows and that, for most organizations, no one ADI platform can be a "corporate standard."

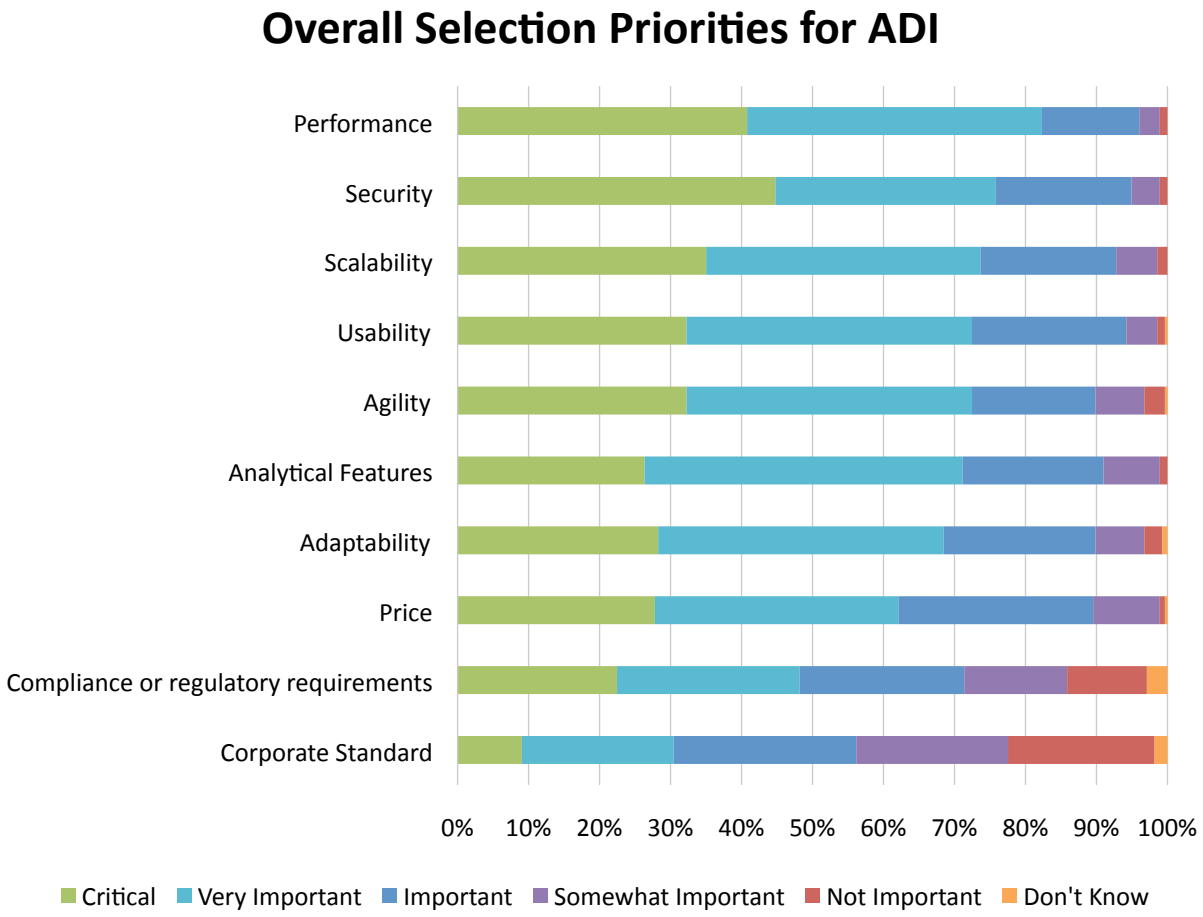

Figure 3 – Overall selection priorities for ADI

Performance leads the selection priorities for ADI platforms in 2019. Security shows a rising trend upward in priority over the past three years (fig. 4). Usability remains a high priority year over year. And, like last year, respondents rank price and corporate standards as their lowest selection priorities, with the priority of corporate standards declining slightly year over year.

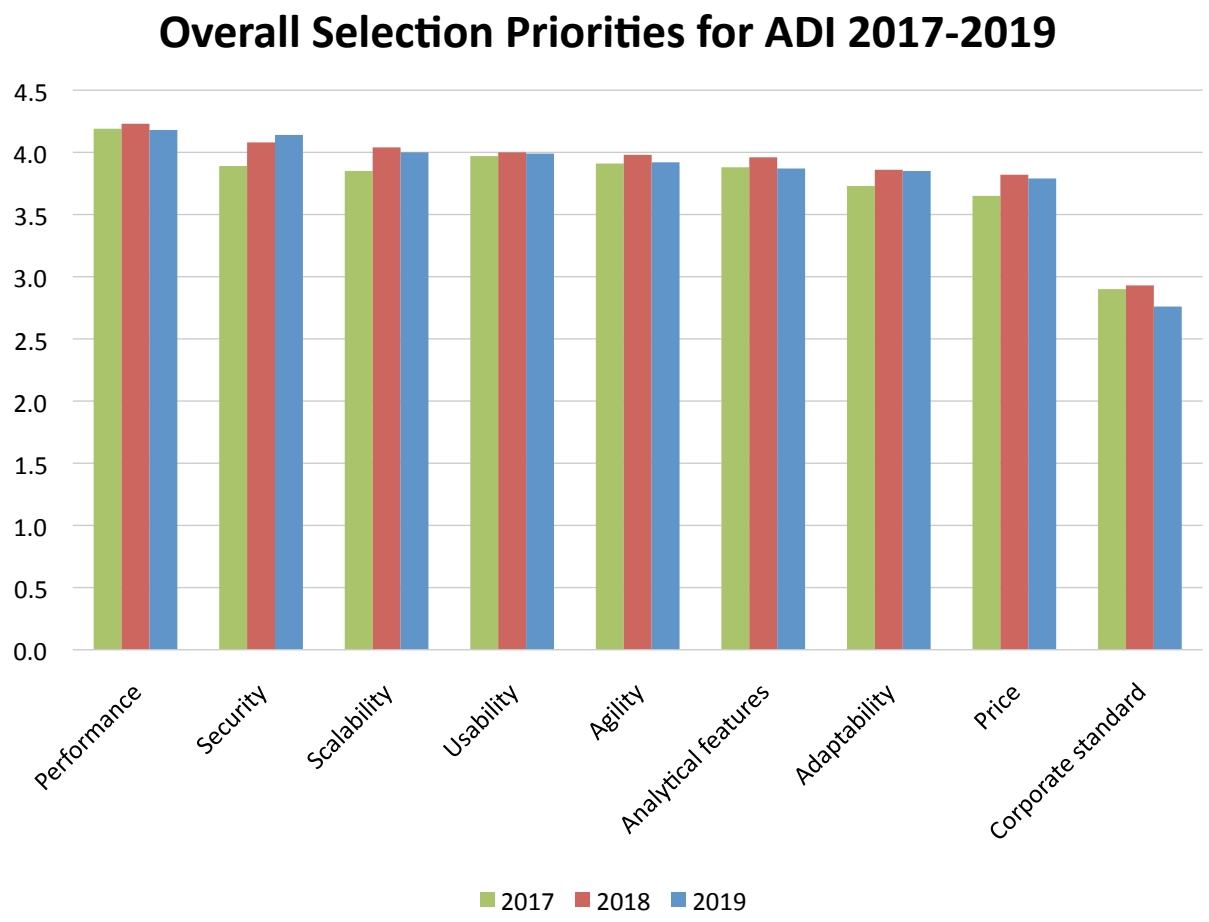

Figure 4 – Overall selection priorities for ADI 2017-2019

Vendor Ratings

In this section, we offer ratings of analytical data infrastructure vendors. We rate vendors using 33 different criteria, on a five-point scale for each. Criteria covers sales/acquisition experience (eight criteria), value for price paid (1), quality and usefulness of product (12), quality of technical support (5), quality and value of consulting services (5), whether the vendor is recommended (1), and integrity (1).

As we explore vendor performance in more detail, it is important to understand the scale we use in scoring the industry and vendors:

- 5.0 = Excellent
- 4.0 = Very good
- 3.0 = Adequate
- 2.0 = Poor
- 1.0 = Very poor

Based on our scoring methodology, all vendors perform at a level that is considered more than “adequate” for all criteria categories.

Please note that “average score” is the mathematical mean of all items included in vendor ratings. Each column in the chart represents a scale consisting of varying numbers of items (for example, "sales" is a scale consisting of eight items, while "value for price paid” is one item). As such, each column is weighted differently (based upon the number of items represented and the number of respondents rating those items) in calculating the overall average rating. The average score cannot be calculated by simply averaging across the subscale scores.

Analytical Data Infrastructure Market Models

Starting in 2015, we began using two new models for examining and understanding the analytical data infrastructure market. Using quadrants, we plot aggregated user sentiment into x and y axes.

Customer Experience Model

The Customer Experience Model considers the real-world experience of customers working with ADI products daily (fig. 5). For the x axis, we combine all vendor touch points—including the sales and acquisition process (eight measures), technical support (five measures), and consulting services (five measures)—into a single "sales and service" dimension. On the y axis, we plot customer sentiment surrounding product, derived from the 12 product and technology measures used to rank vendors. On the resulting four quadrants, we plot vendors based on these measures.

The upper-right quadrant contains the highest-scoring vendors and is named "overall experience leaders." Technology leaders (upper-left quadrant) identifies vendors with strong product offerings but relatively lower services scores. Contenders (lower-left quadrant) would benefit from varying degrees of improvement to product, services, or both.

User sentiment surrounding outliers (outside of the four quadrants) suggests that significant improvements are required to product and services.

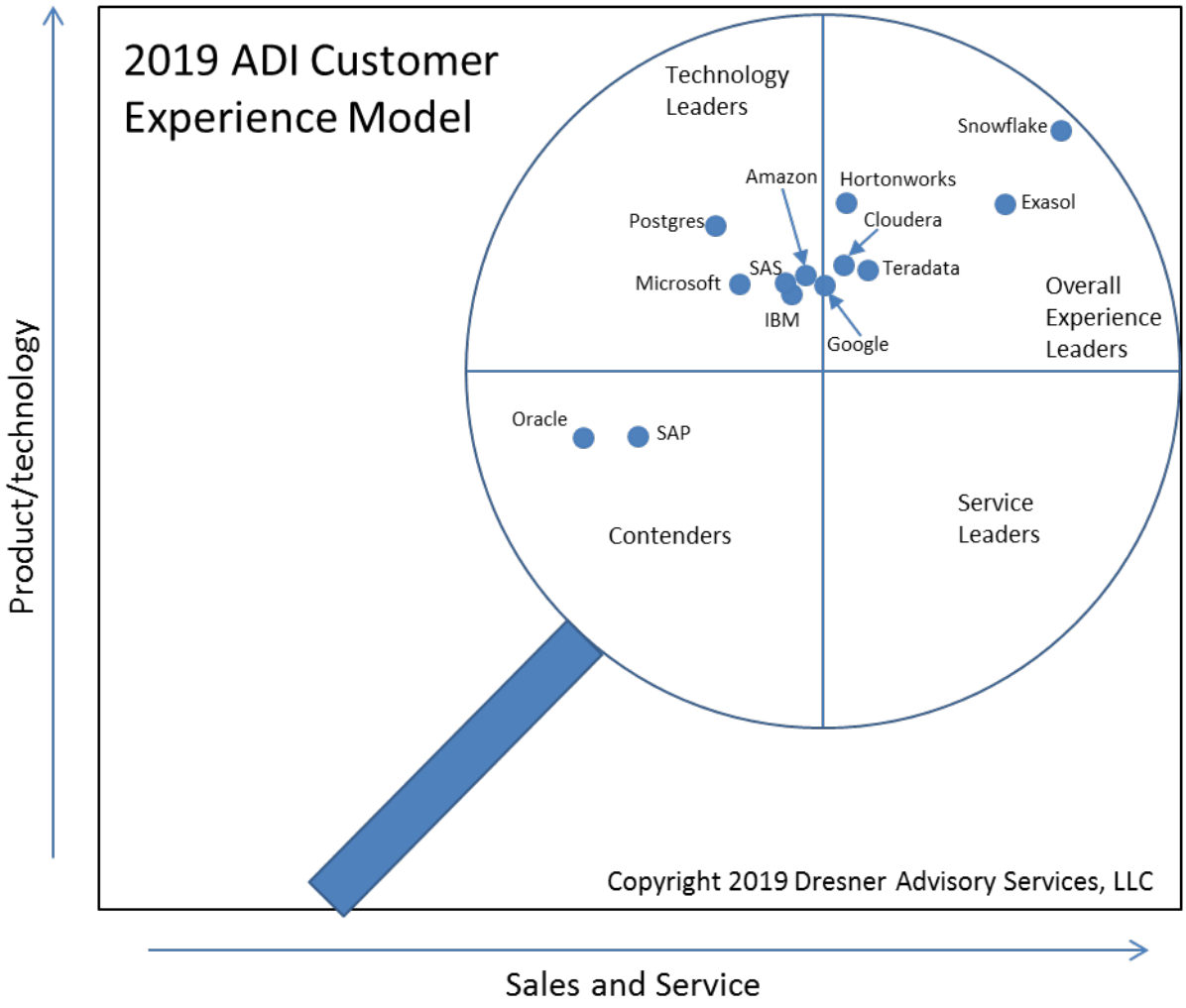

Figure 5 – Customer experience model

Vendor Credibility Model

The Vendor Credibility Model considers how customers "feel" about their vendor (fig. 6). The x axis plots perceived value for the price paid. The y axis combines the integrity and recommend measures, creating a "confidence" dimension. The resulting four quadrants position vendors based on these dimensions.

The upper-right quadrant contains the highest-scoring vendors and is named "credibility leaders." Trust leaders (upper-left quadrant) identifies vendors with solid perceived confidence but relatively lower value scores. Contenders (lower-left quadrant) would benefit by working to improve customer value, confidence, or both.

User sentiment surrounding outliers (outside of the four quadrants) suggests that significant improvements are required to improve perceived value and confidence.

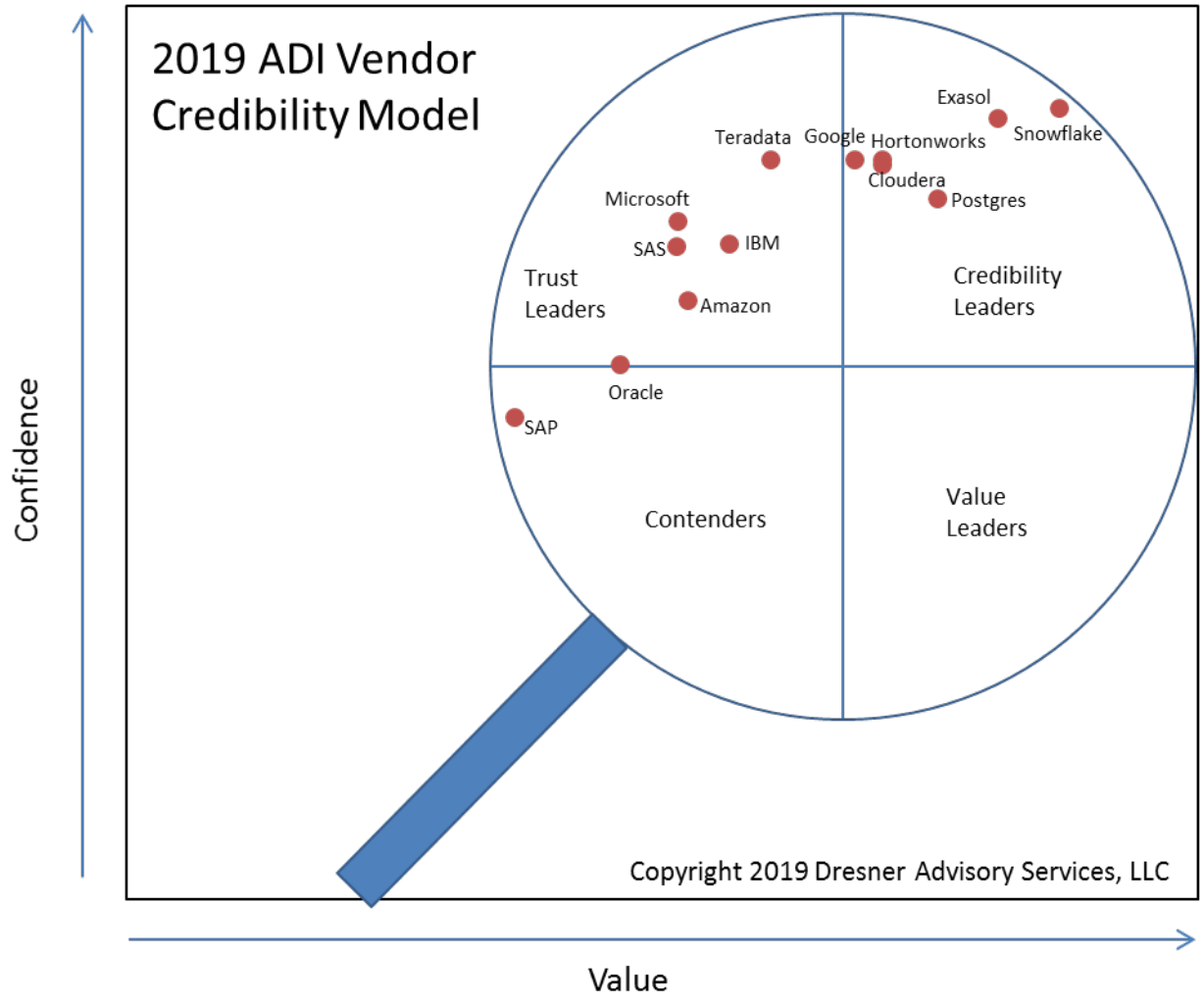

Figure 6 – Vendor credibility model

Detailed Vendor Ratings

In this section, we offer detailed vendor scores. Using our 33-criteria evaluation model (table 1), we compare each vendor's performance to their previous year's performance and to the average for all vendors (all records in the study population).

The detailed criteria are below. We added "clock" position information to assist in locating specific scores.

Table 1- Detailed vendor rating criteria

- **Sales/acquisition experience** *(12 - 2 o'clock)*
  - Professionalism
  - Product knowledge
  - Understanding our business/needs
  - Responsiveness
  - Flexibility/accommodation
  - Business practices
  - Contractual terms and conditions
  - Follow-up after the sale
- **Value for price** *(3 o'clock)*
- **Quality and usefulness of product** *(3 - 7 o'clock)*
  - Robustness/sophistication of technology
  - Completeness of functionality
  - Reliability of technology
  - Scalability
  - Integration of components within product
  - Integration with third-party technologies
  - Overall usability
  - Ease of installation
  - Ease of administration
- **Quality and usefulness of product (continued)**
  - Customization and extensibility
  - Ease of upgrade/migration to new versions
  - Online forums and documentation
-
- **Quality of technical support** *(8 - 9 o'clock)*
  - Professionalism
  - Product knowledge
  - Responsiveness
  - Continuity of personnel
  - Time to resolve problems
- **Quality and value of consulting services** *(9 - 10 o'clock)*
  - Professionalism
  - Product knowledge
  - Experience
  - Continuity
  - Value
- **Integrity** *(11 o'clock)*
- **Whether vendor is recommended** *(12 o'clock)*

Google Detailed Score

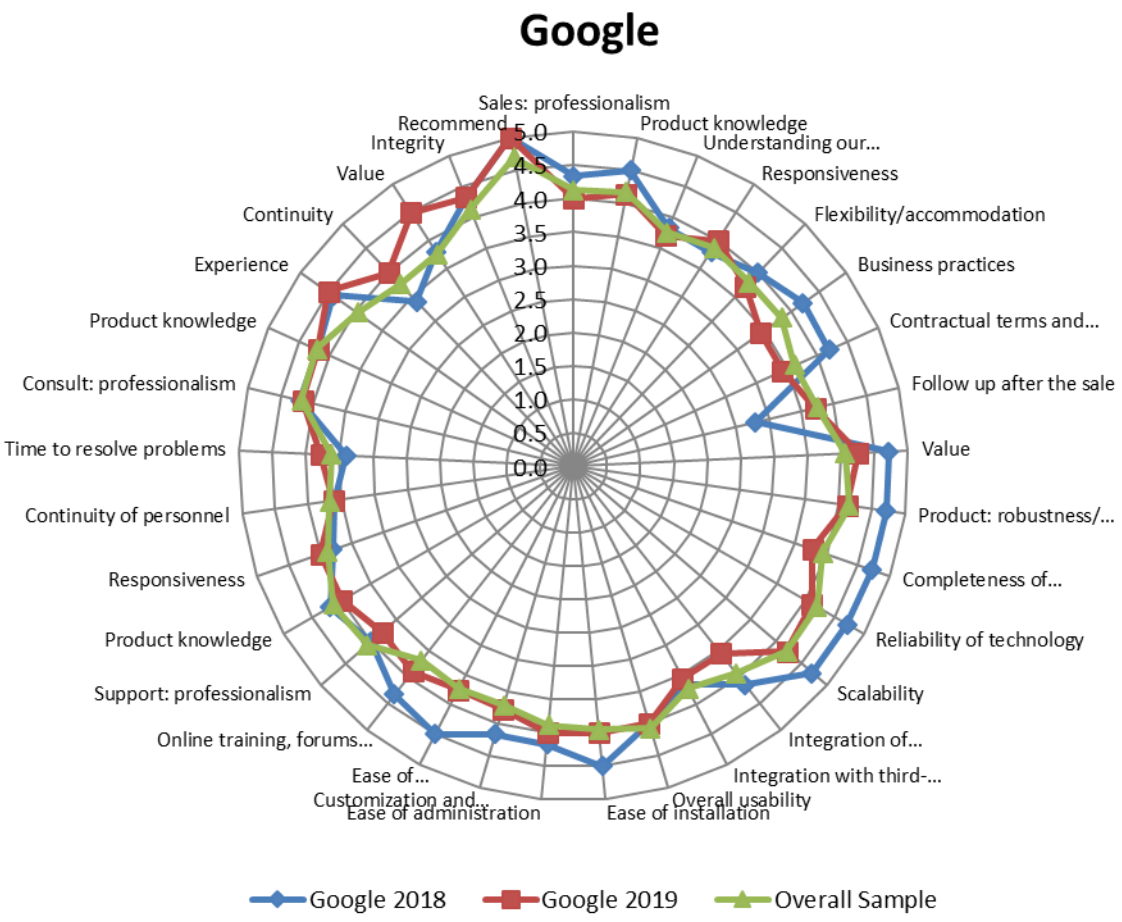

Figure 7 – Google detailed score

With scores generally above or in line with the overall sample, Google is an Overall Leader in both Customer Experience and Vendor Credibility models. It saw key improvements in consulting and technical support scores versus 2018 and maintains a perfect recommend score.

About Bill Hostmann

Bill Hostmann is a Research Fellow with Dresner Advisory. His area of focus includes trends in Analytic Data Infrastructures (ADI)—integrating and managing the information and information models used by BI, Advanced Analytics, and CPM/PM applications.

Bill has more than 20 years of product management experience at the intersection of business intelligence / analytics and data analytics infrastructure, including positions in product and general management at Gemstone Systems, Informix, and Informatica.

He spent 14 years as a research analyst at Gartner, including several years as a VP and Distinguished Analyst for BI/Analytics.

Bill served as conference chair of the Gartner BI/Analytics Conference for many years, growing the number of conference attendees from hundreds to several thousand attendees.