Wisdom of Crowds®
Business Intelligence Market Study

Tenth Anniversary Edition

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Business Intelligence: A Definition

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.”

Introduction
In 2019, we celebrate the 12th anniversary of Dresner Advisory Services! Our thanks to all of you for your continued support and ongoing encouragement. Since our founding in 2007, we have worked hard to set the “bar” high—challenging ourselves to innovate and lead the market—offering ever greater value with each successive year.

We are also pleased that our third annual conference, Real Business Intelligence, held May 14-15 on the MIT campus in Cambridge, Massachusetts was a huge success. Next year’s event is scheduled for May 5-6, 2020 in Cambridge, MA. Preregistration is available at www.rbi2020.com.

Unlike other events, we designed Real Business Intelligence as an immersive thought leadership event focused on strategies for success with information management, business intelligence, analytics, and performance management.

This year marks the tenth anniversary of the first Wisdom of Crowds Business Intelligence Market Study! What started off as a modest report with limited market trending and vendor ratings evolved into a comprehensive assessment of the market.

This tenth anniversary edition report includes analyses of adoption and deployment, staffing, budgets, technology, state of data, action on insights, success with BI, plus a robust industry section with in-depth vendor ratings.

We hope you enjoy this report!

Best,

Howard Dresner
Chief Research Officer
Dresner Advisory Services
## 2019 Wisdom of Crowds® Business Intelligence Market Study

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Benefits of the Study
The Wisdom of Crowds® Business Intelligence Market Study provides a wealth of information and analysis—offering value to both consumers and producers of business intelligence technology and services.

Consumer Guide
As an objective source of industry research, consumers use the Wisdom of Crowds® Business Intelligence Market Study to understand how their peers leverage and invest in business intelligence and related technologies.

Using our trademark 33-criteria vendor performance measurement system, users glean key insights into BI software supplier performance, enabling:

- Comparisons of current vendor performance to industry norms
- Identification and selection of new vendors

Supplier Tool
Vendor Licensees use the Wisdom of Crowds® Business Intelligence Market Study in several important ways such as:

External Awareness
- Build awareness for the business intelligence market and supplier brand, citing Wisdom of Crowds® Business Intelligence Market Study trends and vendor performance
- Create lead and demand generation for supplier offerings through association with Wisdom of Crowds® Business Intelligence Market Study brand, findings, webinars, etc.

Internal Planning
- Refine internal product plans and align with market priorities and realities as identified in Wisdom of Crowds® Business Intelligence Market Study
- Better understand customer priorities, concerns, and issues
- Identify competitive pressures and opportunities
About Howard Dresner and Dresner Advisory Services

The Wisdom of Crowds® Business Intelligence Market Study was conceived, designed, and executed by Dresner Advisory Services, LLC—an independent advisory firm—and Howard Dresner, its President, Founder, and Chief Research Officer.

Howard Dresner is one of the foremost thought leaders in business intelligence and performance management, having coined the term “Business Intelligence” in 1989. He published two books on the subject, *The Performance Management Revolution – Business Results through Insight and Action* (John Wiley & Sons, Nov. 2007) and *Profiles in Performance – Business Intelligence Journeys and the Roadmap for Change* (John Wiley & Sons, Nov. 2009). He lectures at forums around the world and is often cited by the business and trade press.

Prior to Dresner Advisory Services, Howard served as chief strategy officer at Hyperion Solutions and was a research fellow at Gartner, where he led its business intelligence research practice for 13 years.

Howard conducted and directed numerous in-depth primary research studies over the past two decades and is an expert in analyzing these markets.

Through the Wisdom of Crowds® Business Intelligence Market Study reports, we engage with a global community to redefine how research is created and shared. Other research reports include:

- Advanced and Predictive Analytics
- Analytical Data Infrastructure
- Business Intelligence Competency Center
- Cloud Computing and Business Intelligence
- Data Preparation
- Embedded Business Intelligence
- Location Intelligence
- Self-Service BI

Howard (www.twitter.com/howarddresner) conducts a weekly Twitter “tweetchat” on Fridays at 1:00 p.m. ET. The hashtag is #BIWisdom. During these live events, the #BIWisdom community discusses a wide range of business intelligence topics.

You can find more information about Dresner Advisory Services at www.dresneradvisory.com.
About Jim Ericson
Jim Ericson is a Research Director with Dresner Advisory Services.

Jim has served as a consultant and journalist who studies end-user management practices and industry trending in the data and information management fields.

From 2004 to 2013, he was the editorial director at Information Management magazine (formerly DM Review), where he created architectures for user and industry coverage for hundreds of contributors across the breadth of the data and information management industry.

As lead writer he interviewed and profiled more than 100 CIOs, CTOs, and program directors in a 2010-2012 program called “25 Top Information Managers.” His related feature articles earned ASBPE national bronze and multiple Mid-Atlantic region gold and silver awards for Technical Article and for Case History feature writing.

A panelist, interviewer, blogger, community liaison, conference co-chair, and speaker in the data-management community, he also sponsored and co-hosted a weekly podcast in continuous production for more than five years.

Jim’s earlier background as senior morning news producer at NBC/Mutual Radio Networks and as managing editor of MSNBC’s first Washington, D.C. online news bureau cemented his understanding of fact-finding, topical reporting, and serving broad audiences.
Survey Method and Data Collection
As in our original Wisdom of Crowds® Business Intelligence Market Study, we constructed a survey instrument to collect data and used social media and crowd-sourcing techniques to recruit participants.

We also include our own research community of over 5,000 organizations as well as vendors’ customer communities.

Data Quality
We carefully scrutinized and verified all respondent entries to ensure that the study includes only qualified participants.
Executive Summary
Executive Summary

User Analysis:

- Operations and Executive Management are the most influential functional drivers of business intelligence in all organizations of any size (pp. 21-25).
- Executives and managers remain the most targeted audience for BI, though attention is shifting downstream (pp. 26-30).
- Better decision-making remains the top objective for business intelligence regardless of function. We see new attention to revenue growth (pp. 31-37).
- Top business intelligence achievements include better decision-making and improved operational efficiency (pp. 38-42).
- Existing penetration of BI continues to improve over time and includes future expansion plans (pp. 43-52).
- Uptake of CDOs and CAOs is below 16 percent; future plans are more ambitious. All reporting organizations achieve better success in the presence of a CDO or CAO (pp. 53-60).
- Organizations are distributed in their use of one, two, three, four or more BI tools; larger organizations usually use more BI tools. (pp. 61-65).
- Top BI-related technologies include reporting, dashboards, and data integration with several technologies declining in user interest in 2019 (pp. 66-71).
- Large majorities are increasingly confident in their "state of data" (up noticeably in 2019) but less confident in their ability to "act on insight" (pp. 72-82).
- Our core measure of "success with BI" declines slightly since 2016. User feedback is the preferred measure of success; lack of usage is the preferred measure of failure. CDOs, CAOs, and the use of multiple tools contribute to success (pp. 83-95).
- More than half of organizations will very mildly increase BI budgets in 2019; 6 percent will decrease budgets (pp. 96-106).
- Net BI product replacement is 27 percent in 2019, most often for reasons of functionality (pp. 107-109).

Industry Analysis:

- According to users, business intelligence vendor and market performance declines slightly across some measures including sales acquisition, value and integrity. Quality and usefulness of products and technical support declines somewhat more. Vendor consulting is the worst-performing measure of industry performance in 2019, falling steeply from 2017 highs. However, willingness to recommend and overall performance declines are negligible (pp. 110-119).
Study Demographics
Our 2019 survey base provides a cross-section of data across geographies, functions, organization sizes, and vertical industries. We believe that, unlike other industry research, this supports a more representative sample and better indicator of true market dynamics. We have constructed cross-tab analyses using these demographics to identify and illustrate important industry trends.

Geography
Sixty-three percent of respondents work at North America-based organizations (including the United States, Canada, and Puerto Rico). EMEA accounts for about 26 percent of respondents; the remainder are distributed across Asia Pacific and Latin America (fig. 1).

Geographies Represented

Figure 1 – Geographies represented
Functions

Our 2019 sample base includes a mix of functions (fig. 2). Executive Management accounts for the largest group (about 24 percent), followed by IT (23 percent), and Finance (19 percent). BICC respondents (about 9 percent) are the next most represented, followed by Manufacturing / Supply Chain and Marketing.

Tabulating results across functions helps us develop analyses that reflect the differences and influence of different departments within organizations.

Figure 2 – Functions represented
Vertical Industries

In 2019, technology organizations lead our vertical industry distribution (16 percent). Healthcare represents 9 percent, and Education and Financial Services each represent 7 percent of our sample (fig. 3).

Tabulating results across industries helps us develop analyses that reflect the maturity and direction of different business sectors.

![Vertical Industries Represented](http://www.dresneradvisory.com)

**Figure 3 – Vertical industries represented**
Organization Size

Participation in our sample base is well balanced across organizations of different sizes in 2019 (based on global headcount). Small organizations (1-100 employees) represent about 31 percent of respondents, mid-size organizations (101-1,000 employees) represent about 34 percent, and large organizations (>1,000 employees) account for the remaining 35 percent (fig. 4).

Tabulating results by organization size reveals important differences in practices, planning, and maturity.

Figure 4 – Organization sizes represented
Analysis and Trends

Departments/Functions Driving Business Intelligence

We asked respondents which functional roles drive business intelligence “always,” “often,” “sometimes,” “rarely,” or “never” (fig. 5). Our results show a strong breadth of influence and, in 2019, survey respondents say Operations and Executive Management are the most influential. Like the longstanding BI focus on Management, Operations is traditionally influential: these two categories have been top drivers for at least the last four years of our study. Interestingly, Finance is the third most likely driver of BI, followed closely by Sales. More than half of the sample base say these top four functions drive business intelligence "always" or "often" 54-65 percent of the time. While functional influence may roll up to a centralized program or strategy, we observe that BI tactics and influence are widely distributed in organizations.

Figure 5 – Functions driving business intelligence
Functions Driving Business Intelligence 2013-2019

Across seven years of data, functional drivers of BI (ordered by 2019 ranking) jockey in degree of influence. Over time, Operations respondents maintain or grew influence as a driver of business intelligence, while most other functions recede somewhat (fig. 6). Executive Management is known as the traditional driver across time but lost some of its singular emphasis after 2015. Functions that lost the most influence over time include strategic planning, IT, and BICC / CoE, all of which indicate a lessening centralization of BI initiatives (if not strategy) that implies self-enablement.

Figure 6 – Functions driving business intelligence 2013-2019
Functions Driving Business Intelligence by Major Geography

Functional influence of business intelligence varies interestingly by geography (fig. 7). In 2019, Latin American functional influence is highest in Sales, Operations, Strategic Planning, marketing, and R&D. Excluding Latin America, Asia-Pacific respondents report the highest influence for Sales, Marketing, IT, and CoE. North American and EMEA respondents are the most likely influencers in the top (overall) functional roles: Operations, Executive Management, and Finance.

Figure 7 – Functions driving business intelligence by geography
Functions Driving Business Intelligence by Industry

The influence of different functional role drivers of BI varies markedly and sometimes predictably across industries (fig. 8). In 2019, advertising respondents are the most likely to be marketing exponents, while sales leadership is strongest in Retail/Wholesale, and Technology industries. The leading influencer among Healthcare respondents is resource-intensive HR. Perhaps less intuitively, Operations is a standout influencer in technology, while Executive Management is most likely to drive business intelligence in consulting practices.

Figure 8 – Functions driving business intelligence by industry
Functions Driving Business Intelligence by Organization Size

Executive Management and Operations are among the top three drivers of business intelligence in organizations of any size in 2019 (fig. 9). As we might expect, Executive Management influence is strongest in lower-headcount small (1-100 employees) and mid-sized (101-1,000) organizations. The influence of Finance is strong in very large organizations (> 5,000 employees) but strongest overall in mid-sized organizations. Sales and Marketing influence is strongest in small organizations and decreases somewhat as headcount increases before rebounding somewhat in very large organizations. Conversely, IT influence generally increases with organization headcount.

Figure 9 – Functions driving business intelligence by organization size
User Roles Targeted for Business Intelligence

In 2019, Executives remain the most likely primary (64 percent) and overall users of business intelligence, followed by Middle Managers and Line Managers (fig. 10). Targeting thereafter trails toward other BI audiences. That said, Individual Contributors / Professionals are nonetheless almost as likely as line or middle managers to be primary or secondary targets (75 percent). Customers make up a lesser but still important audience where about half are primary or secondary targets.

Figure 10 – Targeted users for business intelligence
Targeted Users for Business Intelligence 2013-2018

Fig. 11 shows an instructive view of BI user-targeting trends, which compares 2013 findings to our 2019 study. Most obviously, while Executive and Middle Manager targeting remain as top priorities, attention shifts downstream to Individual Contributors, Line Managers, Customers, and Suppliers. During this time, the relative increases are greatest for Individual Contributors and Customers. This view comports with early focus on strategic aims for business intelligence and introducing tools to those who could best wield change and spread its effects downstream. With these aims partly or largely fulfilled, empowerment spread, albeit slowly, over the seven-year span to lower institutional ranks and third parties. Thus, we consider the democratization of business intelligence to be ongoing, though we might have expected progress at a faster rate.

Figure 11 – Targeted users for business intelligence 2013-2019
Targeted Users for Business Intelligence by Geography

Executives are the most likely targets for business intelligence across all geographies, especially in EMEA (fig. 12). EMEA respondents are also more likely than those in other regions to target Line Managers and Middle Managers. Asia-Pacific and Latin American respondents are the next most likely to target Executives and Managers. Interestingly, North American respondents are less likely to target Managers but somewhat to very much more likely than other regions to target Individual Contributors and Professionals. Customer targeting is highest in Asia Pacific, followed by North America.

Figure 12 – Targeted users for business intelligence by geography
User Targets for Business Intelligence by Organization Size
Organizations of any size are most likely to target Executives as BI users in 2019 (fig. 13). The disparity between targeting Executives versus other roles is smallest in very large organizations (> 5,000 employees), where simple headcount by percentage likely plays a role. Still, both small organizations (1-100 employees) and large organizations (1,001-5,000 employees) are much more likely to target Executives compared to other roles. As organizations’ headcount rises above 100, they are considerably more likely to target Managers and Individual Contributors. Conversely, small organizations (which may have a smaller base of clients) are most likely by far to target Customers.

Targeted Users for Business Intelligence by Organization Size

Figure 13 – Targeted users for business intelligence by organization size
User Targets for Business Intelligence by Vertical Industries
In our 2019 sample, all vertical industries except Business Services are most likely to target Executives for business intelligence (fig. 14). Business Services clearly prioritizes customer BI enablement and, somewhat predictably, Advertising and Consulting enterprises also give strong secondary support to Customers. Elsewhere, Financial Services and Healthcare organizations give second attention to Middle Managers, while Manufacturing and Retail/make Line Managers secondary targets for BI.

![Figure 14 – Targeted users for business intelligence by industry](image-url)
Objectives for Business Intelligence
In 2019, the non-specific goal of “making better decisions” remains atop our list of business intelligence objectives (fig. 15). We have long associated this objective with organizations seeking general improvements, wherever they may be found, through the use of business intelligence. A second tier of quantifiable objectives includes "growth in revenues" and "improved operational efficiency/cost savings," which are now "critical" or "very important" to more than 70 percent of organizations. "Increased competitive advantage" and "enhanced customer service" are softer benefits that are nonetheless "critical" or "very important to more than 60 percent of respondents. Least important is "compliance/risk management" which, coincidentally, was an early pitched benefit of adopting business intelligence.

Figure 15 – Business intelligence objectives
Business Intelligence Objectives 2017-2019

Across three years of data, the objectives for business intelligence gain or fall only slightly in importance (fig. 16). "Better decision-making" firmed its top ranking in 2019. Most notably, "growth in revenues" edged ahead of "improved operational efficiency," possibly indicating a desire to shift emphasis toward hard ROI and top-line improvements through the use of BI. Other objective priorities dip slightly in 2019 but remain above 2017 levels.

Figure 16 – Business intelligence objectives 2014-2019
Percent Change in BI Objectives 2017-2018

Fig. 17 shows another helpful view of year-over-year attitudes toward BI objectives. Here we observe in detail that the BI objective of "growth in revenues" was the main positive mover in terms of importance, while "improved operational efficiency" (a topic of momentum in our earlier studies) and "increased competitive advantage" were slightly less prioritized.

![Percent Change in BI Objectives 2018-2019](image)

**Figure 17 – Percent change in BI objectives 2018-2019**
**Business Intelligence Objectives by Geography**

Business intelligence objectives results are fairly similar regardless of geography. “Better decision-making” is the most important BI objective across all geographical regions in 2019, most so in Latin America and North America (fig. 18). Revenue growth and competitive advantage are most important to Latin American respondents, while Latin America and Asia-Pacific respondents post the highest scores for compliance/risk management. Asia-Pacific and EMEA respondents are least focused on competitive advantage.

![Business Intelligence Objectives by Geography](http://www.dresneradvisory.com)

**Figure 18 – Business intelligence objectives by geography**
Business Intelligence Objectives by Function

In 2019, all functions place the greatest emphasis on the importance of "better decision-making," often by a significant margin (fig. 19). The newer focus on growth in revenues is closer to a top priority (as we might expect) for Executive Management, Marketing/Sales, and Operations. BICC and R&D respondents place secondary focus on competitive advantage, while IT and Finance predictably view improved operational efficiency/cost savings as their second most important BI objective.
Business Intelligence Objectives by Vertical Industry

By industry, "better decision-making" tends to be the top pick across industries (fig. 20). The exception is Business Services, where "growth in revenues" is now the highest priority. Revenue generation through BI also carries high secondary importance among Consulting, Retail/Wholesale, Technology, and Advertising respondents. Healthcare and Manufacturing respondents say "improved operational efficiency/cost savings" is their second highest priority. Compliance is the least important objective (or nearly so), across all industries we sampled.

![Business Intelligence Objectives by Industry](image-url)
Business Intelligence Objectives by Organization Size

Organizations of different sizes all place the highest emphasis on "better decision-making" with mean importance above the level of "very important" (fig. 21). Small organizations (1-100 employees), however, also give "very important" status to "growth in revenues." Also significant, large organizations (1,001-5,000 employees) give "very important" status to improved operational efficiency / cost savings. We note that all six objectives have mean scores above 3.0, or "important" to all organizations regardless of size.

Figure 21 – Business intelligence objectives by organization size
Business Intelligence Achievements
Beginning in 2018, we asked respondents to augment their view of "BI objectives" by gauging their perceived level of "BI achievements" (fig. 22). By this measure, we find some minor distinctions between intent and ongoing accomplishment. In 2019, for example, "better decision-making" is the top choice by both measures, while "improved operational efficiency" narrowly surpasses "growth in revenues" as an achievement. Other things being equal, this tells us that organizations are slightly more effective at improving efficiency than garnering revenue through the use of BI. Other objectives and achievements are in line in their ranking, indicating that stated goals might have borne desired results. Over time, we expect this polling will help identify some distinctions between specific organizational goals and the difficulty of modeling and managing different processes successfully.

Figure 22 – Business intelligence achievements
Fig. 23 show another instructive view of BI achievements, which shows comparative change in business intelligence achievements between 2018 and 2019. During this time, our findings show only slight variations. However, in small degrees, respondents claim gains in areas of increased competitive advantage, growth in revenues, and compliance/risk management and show slight declines in the remaining categories. Priority rankings are unchanged year over year.

![Business Intelligence Achievements, 2018-2019](image)

*Figure 23 – Business intelligence achievements 2018-2019*
Business Intelligence Achievements by Function

Viewed by function, all organizational roles claim the greatest achievements in "better decision-making" (fig. 24), and most rank "improved operational efficiency/cost savings" second. Exceptions are R&D and Marketing/Sales, which make "increased competitive advantage" their second priority. Even in the latter cases, revenue growth is a close third, another indication of what is likely an increasing emphasis on top-line ROI attached to BI regardless of function.

Figure 24 – Business intelligence achievements by function
Business Intelligence Achievements by Industry

Viewed by industry, all respondents claim their greatest number of achievements in "better decision-making" (fig. 25). In 2019, Business Services ranks "growth in revenues," a close secondary achievement. Technology also cites revenue growth as the secondary outcome. By comparison, Financial Services, Consulting, and Advertising say "increased competitive advantage" is been the second most realized achievement. Healthcare, Manufacturing, Retail/Wholesale, and Education respondents point to "improved operational efficiency/cost savings" as their second best area of achievement. Interestingly, achievement in revenue growth varies by industry, with the lowest levels of achievement in Financial Services and Education.

Business Intelligence Achievement by Industry

![Diagram showing business intelligence achievements by industry.]

Figure 25 – Business intelligence achievements by industry
Business Intelligence Achievements by Organization Size

Measured by organization size, respondents at all organizations find "better decision-making" their most realized BI achievement (fig. 26). Perhaps more interesting, we observe that both small organizations (1-100 employees) and large organizations (> 5,000 employees) fare best at both "growth in revenues" and "increased competitive advantage. The same organizations are marginally better at using BI to achieve enhanced customer service. Finally, as we would expect, large (1,001-5,000 employees) and very large organizations report the most achievements in improved operational efficiency/cost savings.

Figure 26 – Business intelligence achievements by organization size
Penetration of Business Intelligence Solutions

In an ongoing (and positive) development, the penetration of business intelligence (as a percentage of total employees) continues to improve over time. Fig. 27 compares penetration of BI in the years 2015 and 2019 and finds low-level penetration decreasing as higher levels climb. The top three levels of penetration (> 40 percent) now count more than one-third of potential users empowered, compared to about 27 percent in 2015. During the same time, penetration of 20 percent or less falls from 57 percent to 39 percent. If not at a dramatic pace, the trending in this finding gives us some confidence that the BI enablement and democratization continues to show improvement.

Figure 27 – Business intelligence penetration 2015-2019
Expansion Plans for Business Intelligence Through 2021

Beyond current deployment, respondents describe bullish plans for expanding BI in future time frames (we consider the 12-month period the most likely to be supportable and budgeted) (fig. 28). In this 12-month time frame, respondents expect to cut sub-10 percent penetration in half, from 30 percent to 15 percent, while all other levels of penetration will improve. In the longest 36-month view, respondents expect sub-10 percent penetration will fall to 10 percent, while penetration at the two highest levels (>60 percent) will improve from 21 percent to 42 percent.

Figure 28 – Expansion plans for business intelligence through 2022
Current Business Intelligence Penetration by Geography

Arguably the most mature among BI markets, North America and EMEA, lead penetration over other regions at the two highest (> 60 percent) levels in 2019 (fig. 29). Low-level (< 21 percent) penetration levels are more similar across North America, EMEA, and Asia Pacific, while Latin America reports the most (6 percent) low-level penetration.

Penetration of Business Intelligence Today by Geography

Figure 29 – Penetration of Business intelligence today by geography
Planned Business Intelligence Penetration by Geography

A view of future BI plans by geography reveals variations but globally supports growing expectations in 12, 24, and 36-month time frames (fig. 30). North America and EMEA expect the most expansion at the highest (> 81 percent) level in future time frames. Over time, Latin American respondents by far expect the largest lingering constituencies of lowest penetration (<10 percent). Regardless of region, 56-60 percent of organizations expect greater than 40 percent penetration in 36 months.

Expansion Plans for Business Intelligence through 2022 by Geography

Figure 30 – Planned business intelligence user penetration through 2022 by geography
Current Business Intelligence Penetration by Function

In 2019, the most penetrated BI users by function are in R&D, Executive Management, and Operations, where more than 41-56 percent of respondent organizations claim the top three levels (> 40 percent) of penetration (fig. 31). This group, however, is less differentiated and actually similar to IT, BICC, and Marketing/Sales respondents in low penetration levels of less than 21 percent. Finance respondents report the highest percentage (almost 60 percent) of organizations with less than 21 percent penetration.

Penetration of Business Intelligence Today by Function

Figure 31 – Penetration of Business intelligence today by function
Planned Business Intelligence Penetration by Function

All functions expect to see increased BI penetration over time (fig. 32). Operations and Executive Management predict the greatest improvements at the two top levels (> 60 percent), which are expected to arrive at more than 40 percent of organizations in 36 months. Marketing/Sales, with the lowest current levels of penetration, will nonetheless double the percent of users at the two highest levels of penetration (> 60 percent) between 12 and 24 months from today. R&D respondents, already well penetrated, predict the least change by level of penetration in future time frames.

Figure 32 – Expansion plans for business intelligence through 2022 by function
Current Business Intelligence Penetration by Vertical Industry
Both high and low levels of BI penetration vary across different vertical industries in 2019 (fig. 33). Currently, high-level BI penetration (> 80 percent) is most common in Business Services, Consulting, and Technology industries. These verticals share the fewest numbers of low-penetration (< 21 percent) organizations. Low levels of penetration (< 10 percent) are most common in Education, Retail/Wholesale, Healthcare, and Financial Services organizations.

Penetration of Business Intelligence Today by Industry

Figure 33 – Penetration of business intelligence today by industry
Planned Business Intelligence Penetration by Vertical Industry

In our 2019 sample, expansion plans for business intelligence vary unevenly by industry (fig. 34). Most clearly, 12, 24, and 36-month estimations of improved high-level (> 80 percent) penetration is highest among respondents in the Consulting and Technology industries. Financial Services and Business Services expect improvements at middle levels of penetration. Other examples all include modest projections for penetration improvements in coming time frames.

Figure 34 – Expansion plans for business intelligence through 2022 by industry
Current Business Intelligence Penetration by Organization Size

As we reported in every year of our study, small organizations of one to 100 employees have higher BI penetration than larger peers (fig. 35). While overall headcount almost ensures this score, we also expect small organizations, likely to be newer and comprised of more information workers, would find fewer barriers of cost or deployment and more immediate benefits than larger and older companies. In 2019, we see a high-low mix where levels of very high penetration (> 60 percent) gradually increase from mid-sized organizations (100-1,000) through very large organizations (>5,000 employees) organizations, while the lowest level of penetration (< 10 percent) also increases with global headcount.

Figure 35 – Penetration of business intelligence today by organization size
Planned Business Intelligence Penetration by Organization Size
Along with being the most penetrated today, small organizations (1-100 employees) have the steepest expectations for high future BI penetration in coming time frames (fig. 36). All other organizations are less optimistic about future penetration, though all predict improvements. Very large organizations (> 5,000 employees) have somewhat lower expectations (which may be colored by large global headcounts not considered audiences for business intelligence).

Figure 36 – Expansion plans for business intelligence through 2022 by organization size
Chief Data and Chief Analytics Officers
Beginning in 2016, we asked our audience whether their organization had appointed a chief data officer (CDO) or chief analytics officer (CAO). We understand these appointments cause changes in the technology and business architecture of organizations and that these roles and titles are evolving in their definition.

Enterprises with Chief Data or Chief Analytics Officers
The ongoing uptake and longevity of chief data and chief analytics officers remains quite modest but grew slightly between 2018 and 2019 (fig. 37). This year, about 16 percent of organizations report having a CDO, and about 12 percent report having a CAO. Year-over-year growth is about 14 percent for CDOs and about 9 percent for CAOs. For CDOs, growth is accounted for in shorter longevities (< 1 year, 1-3 years) with longer-term office holders unchanged. Among CAOs, there is minor attrition of long term (> 5 years) office holders compensated by newer appointees. Thus, in (small) numbers, traction and tenure narrowly favor CDOs over CAOs.

Enterprises with Chief Data or Chief Analytics Officers in Place 2018-2019

Figures 37 – Enterprises with chief data or chief analytics officers in place 2018-2019

http://www.dresneradvisory.com
Plans to Implement Chief Data or Chief Analytics Officers
Among the large majority of organizations that have no CDO or CAO, adoption plans for coming time frames are modest for both roles (fig. 38). Just 3 percent of organizations say they will name a CDO this year (2 percent will name a CAO), and 10 percent or less will name a CDO or CAO either this year or next. About two-thirds of all organizations currently have no plans to appoint either title.

**Figure 38 – Plans to implement Chief Data or Chief Analytics Officer Roles**
Effectiveness of Chief Data or Chief Analytics Officers

We asked respondents to describe the effectiveness of a chief data officer or chief analytics officer in their organization (fig. 39). By this measure, success is similar but narrowly favors the chief analytics officer. In 2019, we find that CAOs are "highly" effective 63 percent of the time compared to 59 percent for CDOs. An additional 28 percent of CAOs are "moderately" effective compared to 28 percent of CDOs. Nine percent of CAOs have "low" effectiveness compared to 11 percent of CDOs. Nonetheless, respondents report about 90 percent of both CDOs and CAOs bring "high" or "moderate" success to their roles, which implies that their presence creates broad workforce awareness and a more measured view of data and analytics.

![Effectiveness of Chief Data and Chief Analytics Officers](image_url)

Figure 39 – Effectiveness of Chief Data and Chief Analytics officers
Presence of Chief Data and Chief Analytics Officer by Success with BI

We might assume that longer-tenured CDOs and CAOs would accompany higher estimations of success with business intelligence. However, in 2019, the greatest perceived BI success in the presence of a CDO or CAO arrives between three- and five-year tenures (fig. 40). Organizations that have had a CDO or CAO for 3-5 years are 58 percent likely to say they are "completely successful," a figure that tapers off to slightly less than 40 percent for CDOs and CAOs with more than five years on the job.

Organizations that have had a CDO or CAO for less than one year report the lowest success, and CDOs with less than one year in office fare slightly worse than those with no CDO. Nonetheless, organizations with no CDO or CAO are always more likely to report they are "somewhat unsuccessful" or "unsuccessful" with business intelligence.

**Chief Data and Chief Analytics Officers by Success with BI**

![Bar chart showing the success rates of CDOs and CAOs based on their tenure. The chart displays the percentage of organizations reporting completely successful, somewhat successful, unsuccessful, and somewhat unsuccessful success with BI for different tenure categories (1-3 years, 3-5 years, more than 5 years, and no CDO or CAO).]

Figure 40 – Presence of chief data and chief analytics officer by success with BI
Business Intelligence Achievements by Presence of CDO

We asked respondents to describe their level of achievement of BI objectives in the presence of a chief data officer (fig. 41). This chart reveals an interesting mixed experience of CDO introduction and success. Perhaps most noticeably, the general achievement of "better decision-making" appears to decline with the introduction of a CDO and recovers less than completely over time, perhaps due to shakeups in norms and existing practices. But in areas of "growth in revenues" and "compliance/risk management," a different story emerges where CDO tenure brings considerably more achievements over time, perhaps through imposition of enterprise standards and practices. "Enhanced customer service," "increased competitive advantage," and "improved operational efficiencies" tell a more mixed tale, with only marginal improvement in achievements than without a CDO.

![Bar Chart: Business Intelligence Achievement by Presence of CDO](http://www.dresneradvisory.com)

**Figure 41 – Business intelligence achievements by presence of CDO**
Business Intelligence Achievements by Presence of CAO
We asked respondents to describe the degree of achievement of BI objectives in the presence of a chief analytics officer (fig. 42). In this case, we see a more steady growth of achievements in the presence of a CAO over time. As with the CDO achievements, success over time is highest in "growth in revenues" (where we see dramatic long-term results) and in "compliance/risk management." In several other areas ("enhanced customer service," "increased competitive advantage," "improved operational efficiency"), we see growing success that tapers off once the CAO has been in place for more than three years. In every case, there are more achievements in the presence of a CAO than in the absence of one.

![Business Intelligence Achievement by Presence of CAO](image)

Figure 42 – Business intelligence achievements by presence of CAO

http://www.dresneradvisory.com
Enterprises with Chief Data or Chief Analytics Officers by Organization Size

Appointments of chief data officers and/or chief analytics officers are more likely to be longer tenured, large-organization phenomena, but are moving downstream to smaller enterprises (fig. 43). Large organizations (1,001-5,000 employees) and very large organizations (>5,000 employees) account for more than three times as many five-plus year CDO and CAO appointments, as do smaller organizations. But newer appointments are more equally likely to extend to organizations of any size, and small organizations (1-100 employees) and mid-sized organizations (101-1,000 employees) are slightly more likely than larger peers to have had a CAO or CDO for less than one year.

Figure 43 – Enterprises with chief data or chief analytics officers by organization size
Enterprises with Chief Data and Chief Analytics Officers Reporting Structure

Among organizations with a CAO or CDO, both titles are by far most likely to report to the CEO (and thus may be considered strategic and worthy of C-level status) (fig. 44). By a small margin, chief data officers are a bit more likely to report to the CIO than are CAOs. It is worthwhile to note that Marketing, often mentioned as the “tip of the spear” of analytic activities, is by far least likely to have reporting oversight of the CAO, and even less, the CDO.

**Chief Data and Chief Analytics Officer Reporting Structure**

![Bar chart showing the reporting structure of Chief Data and Chief Analytics Officers.](image)

*Figure 44 – Chief data and chief analytics officer reporting structure*
Number of Business Intelligence Tools in Use

Number of Business Intelligence Tools in Use 2013 to 2019
Across seven years of study, we see a somewhat constrained range in the number of business intelligence tools in use by organizations—accompanied by improved awareness over time (fewer "don't know") (fig. 45). Generally, we observe the number of organizations with only one tool in use declines slightly over time, while the number using four or more tools increases slightly. This finding tends to contradict the old expectation that tool proliferation leads to consolidation, though indeed, one-tool users rebound to higher numbers in 2019. Also, this chart does not directly account for the effects of service-based and/or role-based options for BI tools that are easily implemented and perhaps paid for with departmental or project budgets.

Figure 45 – Number of business intelligence tools in use 2013-2019
Number of Business Intelligence Tools by Geography

Respondents in any region are between 63-75 percent likely to say they use one, two, or three business intelligence tools. Respondents in EMEA are more likely than those in other regions to use one or two BI tools (fig. 46). North American organizations are most likely to use four or more business intelligence tools (purple). Less than 10 percent of respondents in any region say they don’t know how many BI tools are in use.

Figure 46 – Number of business intelligence tools in use by geography
Number of Business Intelligence Tools by Function

Executive Management respondents are most likely to report one BI tool in use, though a majority (56 percent) of executives says their organization uses more than one (fig. 47). Along with Operations and BICC respondents, Executive Management has the highest tool awareness in the organization. Marketing/Sales and Operations respondents are the most likely to report the use of four or more BI tools. R&D, BICC, and IT respondents are most likely overall to report multiple tool usage. While function correlates to the number of BI tools used, there are nonetheless wide variations in tool use within roles.

![Number of Business Intelligence Tools in Use by Function](image_url)

Figure 47 – Number of business intelligence tools in use by function
Number of Business Intelligence Tools by Vertical Industry

By industry, Retail/Wholesale, and Manufacturing are most likely to report either one or two tools in use (fig. 48). Healthcare and Higher Education respondents are most likely to report multiple BI tool use. Advertising and Financial Services respondents are most likely to specify four or more BI tools in use. Education respondents are most likely to be unaware of the number of tools in use. While BI tool use varies by industry, there can be wide variations in numbers within specific industries.

Figure 48 – Numbers of business intelligence tools in use by industry
Number of Business Intelligence Tools by Organization Size

High organizational headcount historically correlates to greater numbers of business intelligence tools in use, and this is clearly true again in 2019 (fig. 49). More than half of very large organization (> 5,000 employees) respondents report using four or more tools, compared to 15 percent at small organizations (1-100 employees) and 17 percent at mid-sized organizations (101-1,000 employees). Conversely, 35 percent of respondents at small organizations report only one BI tool in use, compared to just 5 percent at very large organizations.

Figure 49 – Number of business intelligence tools in use by organization size
Technologies and Initiatives Strategic to Business Intelligence

Familiar BI technologies—reporting, dashboards, data integration, advanced visualization, and end-user self-service—top the list of technologies and initiatives strategic to business intelligence (37 topics under our study in 2019) (fig. 50). Second-tier initiatives include data discovery, data warehousing, data discovery, data mining/advanced algorithms, and data storytelling. The lowest priorities in 2019 include video analytics, edge computing, IoT, complex event processing, and social media analysis.

Figure 50 – Technologies and initiatives strategic to business intelligence
Technology Priorities 2015-2018
Over time, technology priority rankings mostly have positive momentum, though several fall back in 2019 from peak levels reported in 2018 (fig. 51). Notably, reporting retains all-time high scores as the top priority, and data storytelling, governance and data catalog hold momentum. Notable year-over-year decliners include mobile device support, embedded BI, IT analytics, and big data (e.g., Hadoop). This latter list of decliners all witnessed considerable industry attention and possible "hype" in preceding years. Perhaps in the same fashion, cognitive BI (artificial intelligence) maintains its all-time high in 2019, subject to future review.

Figure 51 – Technology priorities 2015-2019
Technologies and Initiatives Strategic to Business Intelligence by Geography

By region, North America leads interest in reporting, dashboards, data integration and, farther down the list, data storytelling, sales planning, and software as a service (fig. 52). EMEA respondents express the greatest interest in advanced visualization, data warehousing, enterprise planning, and governance, among other categories. Asia-Pacific respondents report standout interest in integration with operational systems, mobile device support, streaming data analysis, and most lower-ranked priorities in 2019. Interestingly, Asia-Pacific respondents are distinctly less interested than other regions in reporting, self-service, and enterprise planning.

Figure 52 – Technologies and initiatives strategic to business intelligence objectives by geography
As we might expect, functional attitudes toward BI technologies and initiatives often relate to specific daily roles and responsibilities (fig. 53). Marketing/Sales, BICC, and Executive Management respondents report the highest interest in dashboards and advanced visualization. Almost all functions, but especially Finance, place high emphasis on reporting. Finance also leads enterprise planning and end-user self-service interest but has below-average interest in most other technologies. BICC respondents’ top interest is in governance, integration with operational systems, and cognitive BI in 2019. Operations respondents have above-average interest in operational system integration and GDPR.

Figure 53 – Technologies and initiatives strategic to business intelligence by function
Technologies and Initiatives Strategic to Business Intelligence by Vertical Industry

Vertical industries describe a range of interest in different business intelligence initiatives and priorities (fig. 54). For example, Retail/Wholesale respondents give the top scores to reporting, data integration, and data catalog. Healthcare respondents have the highest interest in dashboards and data discovery but mostly below-average interest elsewhere. Financial Services most emphases data mining, governance, in-memory analysis, and cognitive BI. Manufacturing leads interest in objectives including enterprise planning/budgeting, integration with operational systems, and sales planning. Social media analysis is predictably most popular among Advertising respondents.

Figure 54 – Technologies and initiatives strategic to business intelligence by industry
Technologies and Initiatives Strategic to Business Intelligence by Organization Size

Business intelligence priorities vary by organization size, and very large organizations (> 5,000 employees) lead interest in nearly all technologies and initiatives in 2019 (fig. 55). Small organizations (1-100 employees) are often the next most interested (excluding categories such as data warehousing and enterprise planning) and lead interest in software as a service in 2019 as they have historically. Mid-size organizations (101-1,000 employees) interest is often below average, particularly for lower-ranked objectives, but is highest for sales planning. Objectives that are tightly grouped regardless of organization size include reporting, dashboards, data integration, advance visualization, self-service, and data mining.

Figure 55 – Technologies and initiatives strategic to business intelligence by organization size
Business Intelligence and the State of Data

For a sixth year, we polled respondents for attitudes and behaviors reflective of the “state of data” in their organizations (fig. 56). As their choices describe, a large majority (70 percent) of organizations say they either see data as “truth” or maintain "a common view of enterprise data" limited by parochial views and semantics. Nineteen percent report consistent "department-level data." Eleven percent report the worst state of data, "multiple inconsistent data sources with conflicting semantics and data."

Figure 56 – Business intelligence and the state of data
Business Intelligence and the State of Data 2015-2018

Across the years 2015-2018, respondents’ overall opinions of their “state of data” improves slowly, and in 2019, takes a notable leap upward (fig. 57). The more dramatic year-over-year improvement is best seen in combined scores of “data as truth” and “a consistent view of data at a department level (70 percent) as opposed to the 64 percent observed in 2018. Given concurrent gains in awareness and education, and despite changing business dynamics and the emergence of new technologies, we consider this finding an encouraging reflection of experience with BI and user confidence in data practices. The lowest state of data (multiple, inconsistent data sources) remains between 10-12 percent throughout the history of our study.

![Business Intelligence and the State of Data 2015-2019](image-url)

*Figure 57 – Business intelligence and the state of data 2015-2019*
Business Intelligence and the State of Data by Geography

Estimations of organizational data maturity differ according to regional geography (fig. 58). In 2019, North American respondents are least confident: just 30 percent say their state is "data as truth" (compared to 36 percent in EMEA and 35 percent in Asia Pacific). Likewise, 37 percent of North American respondents report the next highest "common view of enterprise data" describes their state of data, compared to 39 percent in EMEA and 44 percent in Asia Pacific. About one-third of North American respondents report the two lowest states of data, compared to one-quarter in EMEA and 20 percent in Asia Pacific.

Figure 58 – Business intelligence and the state of data by geography
**Business Intelligence and the State of Data by Function**

Estimations of organizational data maturity also vary by function (fig. 59). Most interestingly, Finance is less likely than most other functions to report "data as truth" but has closer to average confidence that "consistent data is available at a department level." Among all functions, Executive Management and BICC respondents express the overall highest estimation of their state of data and the highest percentages reporting each of the top two states of data. Overall, more than 40 percent of operations, R&D, and Marketing/Sales respondents report the two lowest states of data, though every function includes cadres of high confidence.

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**Figure 59 – Business intelligence and the state of data by function**
Business Intelligence and the State of Data by Industry

By industry, Manufacturing, perhaps due to its rigid production requirements, is most likely (82 percent) to report the two highest states of data (fig. 60). Technology respondents are more than 70 percent likely to report the two top states of data. Education and Financial Services report the least overall confidence, and Business Services respondents are most likely (46 percent) to report the two poorest states of data.

![Business Intelligence and the State of Data by Industry](image)

Figure 60 – Business intelligence and the state of data by industry
Business Intelligence and the State of Data by Organization Size
Smaller organizations (which on average manage a smaller scope of data than larger peers) are most likely to “have their act together” and most often report "data as truth" (40 percent) compared to larger peers (fig. 61). Viewed left to right, we see the state of data becomes somewhat less coordinated and more fragmented as organization headcount increases. That said, headcount is clearly only one constraint to state of data as significantly larger organizations report results nearly comparable to small ones, and upper-quality levels are consistently in the majority regardless of size. Less than 13 percent of organizations of any size report the lowest state on multiple, inconsistent data sources.

Data as "truth" - A common view of enterprise data is available with common application of data, filters, rules, and semantics
A common view of enterprise data is available. However, information views and semantics are manipulated to support specific positions
Consistent data is available at a departmental level. Conflicting, functional views of data causes confusion and disagreement
We have multiple, inconsistent data sources with conflicting semantics and data. Information is generally unreliable and distrusted

Figure 61 – Business intelligence and the state of data by organization size
Business Intelligence and Action on Insight

In 2014, we introduced “action on insight,” a high-level self-assessment of best (and worst) practices in organizational use of data. In 2019, respondents say best practices in information management and sharing contribute to their success with taking action on BI insights (fig. 62). More than half of respondents (57 percent) that have "closed loop" processes are able to leverage insights "all of the time" or "most of the time." At the other end of the performance spectrum, where "insights are under-leveraged," less than 40 percent can take action on insight "all of the time" or "most of the time."

![Business Intelligence and Action on Insight](http://www.dresneradvisory.com)

**Figure 62 – Business intelligence and action on insight**
Business Intelligence and Action on Insight by Geography

Organizational estimations of the ability to take action on insight vary unevenly by geographic region, though they trend toward the same overall result: organizations with effective information sharing are better at leveraging insights regardless of region (fig. 63). In 2019, combined "closed loop" and "ad hoc" action-capable organizations are most common in North America and EMEA, followed by Asia Pacific and Latin America. Less effective (uncoordinated, under-leveraged) North American and EMEA organizations also say they fare better than comparable Asia-Pacific and Latin American peers at taking action on insight.

Figure 63 – Business intelligence and action on insight by geography
Business Intelligence and Action on Insight by Function

BICC respondents, most aware of BI and collaborative capabilities, have traditionally been the most confident in their organization’s ability to take action on insight. This is again the case among "closed loop" sharing organizations in 2019. IT and Marketing/Sales respondents are the next most effective (fig. 64). Within "closed loop" organizations, R&D respondents tend to be the least effective. Ability to take action on insight in low-performing organizations is more universally poor across functions but best executed in Operations.

![Business Intelligence and Action on Insight by Function](http://www.dresneradvisory.com)

Figure 64 – Business intelligence and action on insight by function
Business Intelligence and Action on Insight by Vertical Industry

Industries with best practice information management and sharing exhibit high confidence in their ability to take action on insight (fig. 65). In our 2019 sample, "closed-loop" performers with the best ability to leverage insight are in Healthcare, , and Business Services. Weaker execution in closed loop organizations is in Education and Retail/Wholesale.

**Business Intelligence and Action on Insight by Industry**

![Business Intelligence and Action on Insight by Industry](image)

*Figure 65 – Business Intelligence and action on insight by industry*
Business Intelligence and Action on Insight by Organization Size

Organizations of different size show similar capabilities in their ability to act on insight (fig. 66). Among those with "closed loop" sharing, small, large, and very large organizations are somewhat more able to succeed all or some of the time compared to mid-sized peers. Among organizations with "ad hoc" sharing practices, large and very large organizations perform a bit better than their closed-loop peers. Performance appears to degrade more slowly by organization size as headcount increases.

Business Intelligence and Action on Insight by Organization Size

"Closed loop" - Information is shared, teams work to process it and act in a timely fashion. No formal boundaries

Ad hoc (informal) action on insights across functions

Uncoordinated/self-serving action (sometimes at the expense of others)

Insights are underleveraged

Figure 66 – Business intelligence and action on insight by organization size
**Success with Business Intelligence**

Our core measure of "success with business intelligence" declines gradually over the last four years of our study (fig. 67). Organizations that reported "completely successful" reached an all-time high of 37 percent in 2016, but that result falls to 33 percent in 2017, to 31 percent in 2018, and to 29 percent in 2019. That said, in 2019, mean scores remain above 3.0, indicating "good" success, and only 2 percent of organizations are willing to describe themselves as "unsuccessful." We cannot be certain what mix of events, expectations, and other changes these scores represent, but we are not surprised to see continuing fluctuation of satisfaction with BI, even in the wake of many successes.

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**Figure 67 – Success with business intelligence 2015-2019**
How Successful Organizations Measure Success with Business Intelligence

Beginning in 2017, we asked respondents to quantify in more detail how they measure the success of business intelligence initiatives (fig. 68). The top results in 2017, 2018, and again (even more affirmatively) in 2019 are "user feedback/satisfaction" (81 percent), followed by "customer feedback/satisfaction" (51 percent). "System/application activity" rises to third place (42 percent) in 2019, just ahead of, "ROI" (41 percent). By a large margin, respondents tell us to engage with users and measure their satisfaction rather than to focus on system activity or raw numbers of users.

Figure 68 – Measures of success with business intelligence
How Unsuccessful Organizations Measure Failure with Business Intelligence

We also asked respondents to better quantify how they measure the failure of business intelligence initiatives (fig. 69). The top results are "lack of usage" (71 percent), followed by "limited adoption" (66 percent). More distantly, they cite "user feedback" (51 percent) and cost/ROI (26 percent). From this view (combined with "measures of success (fig. 68), we might conclude that less successful organizations are less likely to judge their failure on user feedback than successful ones (or that feedback contributes to success, while user metrics speak for themselves). But unsuccessful companies are more likely to judge their failure on less transparent, high-level (often IT) metrics of system activity and user headcount. We believe the findings in figs. 68 and 69 also demonstrate the value and more frequent success of organizations with a business intelligence competency center.

Figure 69 – Measures of failure with business intelligence
Success with Business Intelligence by Organization Size
Perceived success with business intelligence varies unevenly by organization size. Small organizations (1-100 employees) and very large organizations (> 5,000 employees) are most likely (33-34 percent) to say they are "completely successful" (fig. 70). Eighty-eight percent of the smallest organizations say they are "completely" or "somewhat" successful with BI, compared to 80 percent of mid-sized organizations, 86 percent of large organizations (1,001-5,000 employees), and 84 percent of very large peers. Less than 3 percent of any organization of any size describes itself as "unsuccessful."

Figure 70 – Success with business intelligence by organization size
Success with Business Intelligence by BI Objectives

Organizations that are successful with business intelligence are most likely to focus on the full range of objectives we sampled in 2019 (fig. 71). In those organizations that are "completely successful" with BI, all objectives except "compliance/risk management" are above or well above an adjusted mean value of 4.0 ("very important"). Thus, a holistic embrace of BI objectives reflects success, though "better decision-making" remains the foremost guidepost. Organizations that consider themselves unsuccessful are less emphatic in all areas and possibly more likely to look for hard over "soft benefits" of generally improved performance.

Figure 71 – Business intelligence objectives by success with BI
Success with Business Intelligence by Targeted Users

In 2019, we see some evidence that focus on non-traditional targeted users brings success to organizations (fig. 72). Most notably, “completely successful” organizations count suppliers and partners/affiliates as primary targeted users. More traditional audiences (executives, managers) are less often primary targets in 2019 compared to past studies but are typical secondary targets in organizations that are at least “somewhat successful.” We cannot be sure why suppliers and partner/affiliates surge in 2019, but we continue to see that a broad targeting strategy for both primary and secondary users is generally an indicator of BI success.

Figure 72 – Success with business intelligence by targeted users
Success with Business Intelligence and Technology Priorities

Organizations with a CAO with "high" effectiveness are very likely to report either “complete” success (63 percent) or "complete" or "somewhat successful" BI initiatives (100 percent) (fig. 73). This extreme effectiveness is next closely matched by organizations with "high"-level effective CDOs (53 percent and 96 percent respectively). Mid-level effective CDOs are equally likely to report either "completely" or "somewhat successful" BI execution. Overall, these highly linear findings associating CDO/CAO effectiveness with BI success are an endorsement of the function, though criteria for "effectiveness" and indicators of success are nonetheless in the eye of the beholder.

Figure 73 – Effectiveness of chief data and analytics officers by success with BI
Success with Business Intelligence and Technology Priorities
Organizations that are "completely" successful with business intelligence (and to a lesser degree those that are "somewhat successful") pay more attention to multiple BI-related technology priorities than do lower-performing peers (fig. 74). The diversity of attention in high-performing organizations extends from the most basic (reporting, dashboards) to the more obscure priorities (CEP, IoT, edge computing). Standout areas of investment for "completely successful" BI organizations include "integration with operational systems" and "in-memory analysis." "Somewhat successful" and "unsuccessful" organizations under-invest by comparison in several areas including "advanced visualization," "data discovery," "data mining," and "in-memory analysis."

Figure 74 – Technologies and initiatives strategic to business intelligence by BI success
Success with Business Intelligence and Number of BI Tools

In 2019, organizations that are successful with business intelligence report more than one BI tool in use, an outcome we might associate with diverse undertakings (fig. 75). However, this relationship is not without exception. For example, similar percentages (about 20 percent) of "completely successful" and "unsuccessful" or "somewhat successful" organizations report the use of three BI tools. As numbers increase, "completely successful" and "somewhat successful" are more likely to be users of four or more tools compared to lower-performing organizations.

Figure 75 – Number of business intelligence tools in use by success with BI
Success with Business Intelligence and the State of Data

Success with business intelligence correlates directly and powerfully to an organization’s state of data (fig. 76). Organizations that view data as “truth” are 95 percent likely to be at least "somewhat successful." Both “completely” and “somewhat” levels of success diminish as state of data declines. For example 12 percent or less of organizations with the two lowest states of data are “completely successful” compared to 46 percent of those who report “data as truth.”

State of Data by Success with BI

- **Data as "truth"** - A common view of enterprise data is available with common application of data, filters, rules, and semantics
- A common view of enterprise data is available. However, information views and semantics are manipulated to support specific positions
- Consistent data is available at a departmental level. Conflicting, functional views of data causes confusion and disagreement
- We have multiple, inconsistent data sources with conflicting semantics and data. Information is generally unreliable and distrusted

![Figure 76 – Business intelligence and the state of data by BI success](image-url)
Success with Business Intelligence and Action on Insight
Success with business intelligence correlates very strongly with an organization’s ability to take action on insights (fig. 77). At the high end of performance, 80 percent of “completely successful” organizations with closed-loop processes take action on insight "all of the time" or "some of the time." The poorest-performing organizations that report closed loop processes are just 25 percent likely to take action on insight "all of the time" or "some of the time." Though results are more skewed in organizations that take "uncoordinated" action or "rarely" leverage insights, organizations with the lowest level of coordination are much more likely to fail.

Figure 77 – Business intelligence and action on insight by success with BI
Success with Business Intelligence and Penetration of Users
In near linear fashion, organizations that are more successful with business intelligence have higher penetration (number of users as a percentage of the workforce) (fig. 78). Almost half of "completely successful" organizations have 81 percent or greater penetration, compared to 6 percent of unsuccessful organizations. Conversely, 30 percent of "unsuccessful" organizations have less than 10 percent BI penetration, compared to 20 percent of "completely successful" organizations. This finding makes a strong case for the merits of "information democracy" but does not diminish the challenge of providing "actionable" information to users.

Penetration of Business Intelligence Solutions
Today by BI Success

![Penetration of Business Intelligence Solutions](http://www.dresneradvisory.com)

Figure 78 – Penetration of business intelligence solutions today by BI success
Business Intelligence Achievements by Success with BI

As we would expect, high-achieving organizations are far more likely to be successful at unique BI objectives (fig. 79). In 2019, "completely successful" organizations execute best in areas of "compliance/risk management," "growth in revenues," and "improved operational efficiency." In all areas (most notably "better decision-making") "successful" organizations out-achieve "unsuccessful" and "somewhat successful" peers. Organizations that are "unsuccessful" at BI are also far less likely to have attempted to meet various BI objectives.

**Figure 79 – Business intelligence achievements by success with BI**
Budget Plans for Business Intelligence
We asked organizations (regardless of success) whether they will increase, decrease, or maintain existing business intelligence budgets (fig. 80). In 2019, more than half (55 percent) of respondent organizations plan to increase BI investment, while just 6 percent will decrease BI budgets from 2018 levels. The remaining 39 percent will maintain current budgeting. (We do not know the extent to which BI expansion might consist of departmental spending or the adoption of BI subscription services.)

Figure 80 – Budget plans for business intelligence
Budget Plans for Business Intelligence 2017-2019

By percentage, budget changes for business intelligence in 2019 are similar to 2018. This year, increased budgets for business intelligence grew by just 1 percent while the number decreasing budgets is unchanged (fig. 81). Over three years of data, a greater investment occurs in 2018, when increased spending rises from 50 percent to 54 percent.

Figure 81 – Budget plans for business intelligence 2017-2019
Budget Plans for Business Intelligence by Geography

Although a majority of organizations across all geographies plan to increase BI spending in 2019, EMEA (55 percent) and North American (56 percent) respondents are more likely to raise budgets than are Asia-Pacific (48 percent) respondents (fig. 82). Consequently, Asia-Pacific respondents are most likely to maintain BI spending. Between 5-7 percent of organizations in any geography plan to decrease BI budgets compared to last year.

Figure 82 – Budget plans for business intelligence by geography
Budget Plans for Business Intelligence by Function

In 2019, more than 60 percent of BICC and R&D respondents say they will increase BI spending over last year (fig. 83). The majority of respondents in Marketing/Sales (53 percent) and Finance (52 percent) also plan increases. Fifty percent of IT respondents and 48 percent of Operations respondents will increase BI spending. Operations is the most likely of any function (17 percent) to decrease spending on business intelligence.

Figure 83 – Budget plans for business intelligence by function
Budget Plans for Business Intelligence by Vertical Industry

In 2019, Manufacturing, Technology, and Financial Services organizations are most likely (60 percent or more) to increase budgets for business intelligence (fig. 84). Plans to increase spending thereafter drops off to 47-57 percent in Advertising, Business Services, Retail/Wholesale, and Healthcare organizations. Higher Education organizations are least likely (37 percent) to increase BI spending. Healthcare is most likely to decrease spending (12 percent).

Figure 84 – Budget plans for business intelligence by industry
Budget Plans for Business Intelligence by Organization Size

In 2019, increases in BI spending become slightly less likely as global headcount increases (fig. 85). Very large organizations (>5,000 employees) are about 51 percent likely to increase spending, compared to 57 percent of small organizations (1-100 employees). More notably, 15 percent of very large organizations plan to decrease BI spending this year, compared to 4 percent or less at any smaller-size organizations. Longer-standing BI organizations are more frequently found at very large organizations, though we cannot be sure of dependencies other than maturity (e.g., line assignment, budget roll-ups) that would lead to budget decreases at these companies.

Figure 85 – Budget plans for business intelligence by organization size
Budget Plans for Business Intelligence by Penetration of BI Solutions

In 2019, BI spending plans do not correlate neatly with existing BI penetration (fig. 86). However, we can say generally that organizations with lower levels of BI penetration (<40 percent) are often more likely to increase rather than maintain or decrease BI budgets. (Another way of expressing this is that penetration requires investment.) Both saturation and histories of success may be involved in these decisions. For example, more organizations with the highest levels of BI penetration (61 percent or more) plan to decrease rather than maintain or increase BI budgets. However, these same organizations that are decreasing budgets are more than 50 percent likely to have the two lowest levels of penetration (40 percent or less).

Figure 86 – Budget plans by penetration of business intelligence solutions
Expansion Plans for Business Intelligence through 2021 by BI Budget Plans

Expansion plans for BI spending through 2021 are more revealing than 2019 plans alone. For example, organizations with increased budgets are more likely to plan for somewhat deeper user penetration particularly at the highest levels (>60 percent) than those maintaining or decreasing budgets (fig. 87). At the same time, organizations decreasing spending are more focused on all levels, including low to mid-level penetration.

Figure 87 – Expansion plans for business intelligence through 2021 by BI budget plans
Budget Plans for Business Intelligence by Success with BI

Organizations that are successful with business intelligence are incrementally more likely to increase BI spending in 2018 (fig. 88). Forty-four percent of "completely successful" organizations will increase budgets this year, compared to 33 percent of "somewhat unsuccessful" and 20 percent of "completely unsuccessful" organizations. As success decreases, organizations are much more likely to decrease year-over-year budgets: "unsuccessful" and "somewhat successful" organizations are 50 percent likely to decrease BI spending, compared to 30 percent or less of more successful organizations.

Figure 88 – Budget plans for business intelligence by success with BI
Business Intelligence Achievements by BI Budget Plans

High-achieving organizations are most likely to increase spending on discrete BI achievements "across the board" (fig. 89). Interestingly, those organizations that are decreasing budgets for the most part report more success than organizations with unchanged BI spending. This chart tells us that increased BI budgeting is not by itself a guarantor of success. Generally, we believe that business intelligence achievement requires strategic intent and investment that is reflected in budget priorities (fig. 15, p. 31).

![BI Achievement by BI Budget Plans](image-url)

**Figure 89 – Business intelligence achievements by BI budget plans**
Technologies and Initiatives Strategic to Business Intelligence by BI Budget Plans

Planned BI spending generally—but not always—increases in proportion with the priority ranking of BI technologies and initiatives (fig. 90). For example, those with increased budgets place the highest priority upon the top three technology/initiative priorities: dashboards, reporting, and data integration. Those spending less in 2019 place a higher priority upon big data (perhaps because of its open source roots), end user data preparation, collaborative support for group-based decision-making, and enterprise planning.

Figure 90 – Technologies and initiatives strategic to business intelligence by BI budget plans
Business Intelligence Product Longevity and Replacement

Longevity of Business Intelligence Products

In general, respondents indicate that their current business intelligence tools have been in place less than 5 years, with only 19 percent saying tools have been in place for more than 6 years (fig. 91). This suggests both strong "green field" and replacement markets for business intelligence tools.

![Longevity of Current BI Tool](image_url)

**Figure 91 – Longevity of current BI tool**
Current Business Intelligence Products Replaced by Another

Beginning in 2018, we asked respondents whether their current BI product replaced another BI product (fig. 92). In 2019, the net new product replacement rate of 27 percent is somewhat lower than we expected. This year, 73 percent of respondents say replacement of another product was not the outcome of BI tool or service acquisition, compared to 76 percent in 2018. This scenario might include instances where a product was implemented where none existed before. Alternately, a new product might have been implemented to serve a select audience or specific function with new capabilities.

![Current BI Product Replaced Another BI Product 2018-2019](image)

Figure 92 – Current BI product replaced by another BI product 2018-2019
 Reasons BI Products Are Replaced
Of the 27 percent of respondent organizations that indicate their current BI product replaced another (fig. 93), the primary reasons cited for doing so are functionality (80 percent) and modernization (61 percent). Corporate standards are a less likely primary reason for replacement (31 percent). Notably, cost is the least likely primary reason (17 percent) for replacing an existing BI product.

Figure 93 – Reasons for BI product replacement
Industry and Vendor Analysis
In this section, we review business intelligence vendor and market performance, using our trademark 33-criteria evaluation model.

Scoring Criteria
The criteria for the various industry and vendor rankings are grouped into seven categories including sales/acquisition experience, value for price paid, quality and usefulness of product, quality of technical support, quality and value of consulting, integrity, and whether the vendor is recommended.
Industry Performance

Sales/Acquisition Experience
Year over year, we observe mostly small declines in measures of industry sales and acquisition performance (fig. 94). This represents a continuing falloff from peak levels experienced during 2017-2018. Expressed another way, sales and acquisition performance is fairly consistent during the years 2014-2019 and includes a peak period in 2017-2018. Additionally, sales and acquisition scores remain in the range of 4.0 or "very good" throughout this period. The best experiential performers in 2019 are traditionally the strongest: "product knowledge" and "professionalism." Lesser performance is seen in "contractual terms" and "follow up after the sale."

Figure 94 – Industry performance — sales and acquisition experience: 2014-2019
Value
End users report a narrow decline in scores for value in 2019 (from 4.21 to 4.16) compared to 2018 (fig. 95). This result, though slightly off the 2018 all-time high, is nonetheless above average for the years 2014-2019. Viewed over six years of data, industry performance remains on an uptrend and the ongoing trend line above 4.0 (above "very good") is strongly positive.

![Industry Performance - Value: 2014-2019](image)

Figure 95 – Industry performance — value 20142019
Quality and Usefulness of Product

In 2019, most measures of industry quality and usefulness decline from all-time highs that were mostly reached in 2017-2018 (fig. 96). One encouraging exception is "overall usability," an area of sustained day-to-day value that arises to peak levels in 2019. Conversely, the lowest scores for quality and usefulness in 2019 are for "integration of components within product" (often a byproduct of technology acquisitions) and "customization and extensibility," which may result from an increasingly populous landscape of complementary technologies.

Figure 96 – Industry performance — quality and usefulness of products: 2014-2019
Technical Support

In 2019, all measures of industry technical support decline (fig. 97). Compared to minor volatility during the years 2014-2018, 2019 declines are more dramatic and "across the board" in 2019. More alarming, scores for "continuity of support," "responsiveness," and "time to resolve problems" falls below a score of 4.0, or the level indicating "very good" performance. In total, these results may indicate that industry respondents should review resources and investments and monitor responsiveness in support of customer technical issues.

Figure 97 – Industry performance — technical support: 2014-2019
Consulting

In 2019, BI consulting is the worst-performing area of vendor and market performance (fig. 98). Across six years of data, consulting performance slowly improved during the period 2014-2017, declined noticeably in 2018, and experienced a steep drop in 2019. Almost every attribute we measure reaches an all-time high in 2017 but capitulates to all-time low measurements in 2019. We cannot immediately assign a reason to this across-the-board decline in vendor consulting satisfaction, though the findings of the last two years merit further examination. Perhaps a telltale, the weakest areas of vendor consulting include "continuity" and "value," (from historic highs of "very good" to lows of "good" or lower), which suggests attention to resources and the completion of engagements to desired outcomes.

![Industry Performance - BI Vendor Consulting 2014-2019](image)

Figure 98 – Industry performance — BI vendor consulting: 2014-2019
Integrity
Vendor integrity—measured as honesty and truthfulness in all dealings—experiences its first year-over-year decline in 2019 (fig. 99). This follows slow steady growth during the years 2014-2018 and a high of 4.39, followed by a 3 percent decline to 4.26 in 2019. The extent of this decline, coupled with ongoing scores well above "very good" make this finding notable but within the range of past performance.

Figure 99 – Industry performance — integrity: 2014-2019
Recommended
Despite the shortfalls noted in figs. 94-99, (pp. 112-117), 2019 industry performance—viewed by the measure of customers willing to recommend—remains essentially flat and continues a long-term positive trend (fig. 100). Year-over-year "recommended" scores minimally from 4.72 to 4.69, and the six-year trend ranges between 46 and 4.7, very consistent and very positive, well above "very likely" scores.


![Bar chart showing industry performance recommended scores from 2014 to 2019.](image)

*Figure 100 – Industry performance — recommended: 2014-2019*
Performance Improvements
Another view of vendor performance is overall scores, which show a series of small steady gains during the years 2014-2018, slightly reversed in 2019 (fig. 101). In the long term, the number that says overall performance declined remains remarkably consistent, between 4-5 percent, suggesting that vendors historically paid suitable attention to their products in a positive sales climate. The 2019 shortfall reflects the number who said industry performance improved, which declines from 44-40 percent, returning to the lowest levels seen in 2014-2015.


![Bar chart showing percentage change in overall industry performance from 2014 to 2019.](image)

*Figure 101 – Overall industry performance improvement: 2014-2019*
Vendor Ratings
In this section, we offer ratings of business intelligence software vendors. We rate vendors using 33 different criteria, on a five-point scale for each. Criteria covers sales/acquisition experience (8 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

In 2016, we dispensed with market segmentation and now rely upon our Customer Experience and Vendor Credibility models as a means of presenting relative vendor ratings. As a result, we no longer include a peer average for individual vendor rating charts. Instead, this is replaced (where possible) with a year-over-year comparison for each vendor.

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.
Business Intelligence Market Models

Starting in 2015, we developed two new models for examining and understanding the business intelligence market. Using quadrants, we plotted aggregated user sentiment into x and y axes.

Customer Experience Model
The customer experience model considers the real-world experience of customers working with BI products on a daily basis (fig. 102). For the x axis, we combine all vendor touch points—including the sales and acquisition process (8 measures), technical support (5 measures), and consulting services (5 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 102 – Customer experience model
Vendor Credibility Model
The vendor credibility model considers how customers “feel” about their vendor (fig. 103). 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 103 – 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 its previous year’s performance and to the average for all vendors (all records in the study population).

The detailed criteria are below. We add “clock” position information to assist in locating specific scores.

Table 1 - Detailed vendor rating criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Clock</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales/acquisition experience</td>
<td>12-2</td>
<td>Professionalism, Product knowledge, Understanding our business/needs, Responsiveness, Flexibility/accommodation, Business practices, Contractual terms and conditions, Follow-up after the sale</td>
</tr>
<tr>
<td>Quality and usefulness of product (continued)</td>
<td>3</td>
<td>Customization and extensibility, Ease of upgrade/migration to new versions, Online forums and documentation</td>
</tr>
<tr>
<td>Quality of technical support (8-9 o’clock)</td>
<td>8-9</td>
<td>Professionalism, Product knowledge, Responsiveness, Continuity of personnel, Time to resolve problems</td>
</tr>
<tr>
<td>Quality and value of consulting services (9-10 o’clock)</td>
<td>9-10</td>
<td>Professionalism, Product knowledge, Experience, Continuity, Value</td>
</tr>
<tr>
<td>Integrity (11 o’clock)</td>
<td>11</td>
<td>Whether vendor is recommended (12 o’clock)</td>
</tr>
<tr>
<td>Whether vendor is recommended (12 o’clock)</td>
<td>12</td>
<td>Whether vendor is recommended (12 o’clock)</td>
</tr>
</tbody>
</table>

http://www.dresneradvisory.com
Figure 104 – Alteryx detailed score

In its first year of inclusion, Alteryx is generally below or in line with the overall sample for most measures and is a contender in Customer Experience Model and a trust leader in the Vendor Credibility Model. It has a perfect recommend score.
Amazon Detailed Score

In its first year of inclusion, Amazon is generally below or in line with the overall sample. It is considered a contender in both the Customer Experience and Vendor Credibility models and has a perfect recommend score.
Board Detailed Score

Figure 106 – Board detailed score

With scores generally above or in line with the overall sample, Board’s overall score increased in 2019, with key improvements across most measures. It is considered an overall leader in the Customer Experience Model and a trust leader in the Vendor Credibility Model. It has a perfect recommend score.
Dimensional Insight’s scores remain well above the overall sample in 2019. It continues to be an overall leader in both Customer Experience and Vendor Credibility models and saw increased performance for several key product measures, and overall integrity. It is best in class for sales product knowledge, product customization and extensibility, consulting experience and continuity, and overall integrity. It maintains a perfect recommend score.
With scores well above the overall sample, Domo’s 2019 scores improve in most categories, including sales, product, and support. It is ranked as an overall leader in both the Customer Experience and Vendor Credibility models and is best in class for robustness/sophistication of technology, integration with third-party technologies, overall usability, ease of installation, ease of upgrade, and online training, forums and documentation. It maintains a perfect recommend score.
Google Detailed Score

Figure 109 – Google detailed score

In 2019, Google made key improvements in several categories of measurement including sales, value, and product. It is considered a technology leader in the Customer Experience Model and an overall leader in the Vendor Credibility Model. It maintains a perfect recommend score.
In its first year of inclusion, Grow’s scores are mostly above or in line with the overall sample. It is considered a Service Leader in the Customer Experience Model and a Trust Leader in the Vendor Credibility Model.
Hitachi Vantara (Pentaho) Detailed Score

In 2019 Hitachi Vantara’s (formerly Pentaho) scores are generally below the overall sample, with the exception of consulting. It has improvements over 2018 in several categories of measurement including sales, product, consulting, integrity, and recommend. It is considered a contender in the Customer Experience Model.
IBM Detailed Score

With almost across-the-board declines in performance versus 2018, IBM’s scores remain generally below the overall sample.
In 2019, Infor/Birst’s scores are generally in line with the overall sample with improvements in a number of sales, product, and consulting measures, as well as overall integrity. It is considered a contender in the Customer Experience Model and a trust leader in the Vendor Credibility Model.
Information Builders Detailed Score

With scores consistently above the entire sample, Information Builders is an overall leader in both Customer Experience and Vendor Credibility models. In 2019, it has key improvements across all product measures, as well as overall value, consulting, and technical support. It is best in class for sales business practices and maintains a perfect recommend score.
With scores generally above the overall sample, in 2019 Jedox’ overall score increases with key improvements in sales, technical support, consulting, and overall integrity. It remains an overall leader in both the Customer Experience and Vendor Credibility models and maintains a perfect recommend score.
Logi Analytics Detailed Score

Figure 116 – Logi Analytics detailed score

With scores above the overall sample (except product), Logi Analytics is a Service Leader in the Customer Experience Model and a Technology Leader in the Vendor Credibility Model. In 2019 it has improvements in technical support, consulting, and overall integrity.
Looker continues to be ranked as an overall leader in both the Customer Experience and Vendor Credibility models. It scores significantly above the overall sample for every measure and is best in class for sales and technical support responsiveness and consulting professionalism and product knowledge. It maintains a perfect recommend score.
Microsoft Detailed Score

Figure 118 – Microsoft detailed score

In 2019, Microsoft has modest declines in performance across most measures. With scores somewhat below the overall sample, Microsoft is considered a Contender in both Customer Experience and Vendor Credibility models.
In 2019, MicroStrategy shows continued performance improvements across sales, product, value, and technical support categories. Its scores are generally above or in line with the overall sample and is considered an overall leader in the Customer Experience Model and a trust leader in the Vendor Credibility Model.
Figure 120 – Oracle detailed score

With scores already well below the overall sample, Oracle declines across a number of measures in 2019. This is offset by improvements in value and several sales and technical support measures, which increase. It is an outlier in both Customer Experience and Vendor Credibility models.
Pyramid Analytics Detailed Score

With scores consistently above the overall sample, Pyramid Analytics is an overall leader in both Customer Experience and Vendor Credibility models. Building upon last year’s improvements, it continues to increase scores in all categories, including sales, value, product, support, consulting, and integrity. It is best in class for sales understanding of business needs, flexibility/accommodation, contractual terms and conditions, overall value, and technical support continuity of personnel and time to resolve problems. It maintains a perfect recommend score.

Figure 121 – Pyramid Analytics detailed score
Qlik Detailed Score

With scores generally in line with the overall sample, Qlik is considered a Technology Leader in the Customer Experience Model and a Trust Leader in the Vendor Credibility Model. It has a perfect recommend score.
In 2019, RapidMiner has key improvements in many categories of measurement, including sales, product and technical support. With scores well above the overall sample, it is best in class for product completeness of functionality, and ease of administration. It is considered an overall leader in both Customer Experience and Vendor Credibility models.
With scores generally above or in line with the overall sample, Salesforce has key improvements in its product scores versus 2018, as well as for several key sales and technical support measures. It is considered an overall leader in the Customer Experience Model and a Trust leader in the Vendor Credibility Model.
For 2019, SAP improves dramatically across every category of measurement, including sales, value, product/technology, technical support, consulting, integrity, and recommend. It is considered a Technology Leader in the Customer Experience Model and a Contender in the Vendor Credibility Model. It is best in class for reliability of technology.
SAS Detailed Score

Figure 126 – SAS detailed score

With scores generally in line with or below the overall sample, in 2019 SAS is considered a Technology Leader in the Customer Experience Model and a Contender in the Vendor Credibility Model.
In 2019 Sisense remains an overall leader in both Customer Experience and Vendor Credibility models. It has improved performance for a number of key sales and products metrics, technical support, overall value, and integrity. It is best in class for sales professionalism, follow up after the sale, technical support professionalism, product knowledge, and consulting value.
With scores above or in line with the overall sample, Tableau is considered an overall leader in the Customer Experience Model and a Trust Leader in the Vendor Credibility Model. In 2019 it has improvements in overall value, integrity, and several key sales and product measures.
With scores generally below the overall sample, TIBCO Software is considered a Contender in both Customer Experience and Vendor Credibility models.
Zoomdata Detailed Score

With scores generally above the overall sample, Zoomdata has improvements in a number of key sales and product measures as well as integrity. It remains an overall leader in the Customer Experience Model and is a Technology Leader in the Vendor Credibility Model. It maintains a perfect recommend score.
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- Big Data Analytics
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- Enterprise Planning
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- Location Intelligence
- Self-Service BI
- Small and Mid-Sized Enterprise Business Intelligence
Dresner Advisory Services - 2019 Wisdom of Crowds Survey Instrument

Please enter your contact information below

First Name*: _________________________________________________

Last Name*: _________________________________________________

Title: _________________________________________________

Company Name*: _________________________________________

Street Address: _________________________________________________

City: _________________________________________________

State: _________________________________________________

Zip: _________________________________________________

Country: _________________________________________________

Email Address*: _________________________________________________

Phone Number: _________________________________________________

URL: _________________________________________________

May we contact you to discuss your responses and for additional information?

( ) Yes ( ) No

What major geography do you reside in?*

( ) North America

( ) Europe, Middle East and Africa

( ) Latin America

( ) Asia Pacific
Please identify your primary industry*

( ) Advertising
( ) Aerospace
( ) Agriculture
( ) Apparel & Accessories
( ) Automotive
( ) Aviation
( ) Biotechnology
( ) Broadcasting
( ) Business Services
( ) Chemical
( ) Construction
( ) Consulting
( ) Consumer Products
( ) Defense
( ) Distribution & Logistics
( ) Education (Higher Ed)
( ) Education (K-12)
( ) Energy
( ) Entertainment and Leisure
( ) Executive search
( ) Federal Government
( ) Financial Services
( ) Food, Beverage and Tobacco
( ) Healthcare
( ) Hospitality
( ) Insurance
( ) Legal
( ) Manufacturing
( ) Mining
( ) Motion Picture and Video
( ) Not for Profit
( ) Pharmaceuticals
( ) Publishing
( ) Real estate
( ) Retail and Wholesale
( ) Sports
( ) State and Local Government
( ) Technology
( ) Telecommunications
( ) Transportation
( ) Utilities
( ) Other - Please specify below

Please type in your industry

__________________________________________________________
How many employees does your company employ worldwide?

( ) 1-100
( ) 101-1,000
( ) 1,001-2,000
( ) 2,001-5,000
( ) 5,001-10,000
( ) More than 10,000

What function do you report into?*

( ) Business Intelligence Competency Center
( ) Executive Management
( ) Finance
( ) Human Resources
( ) Information Technology (IT)
( ) Marketing
( ) Operations (e.g., Manufacturing, Supply Chain, Services)
( ) Research and Development (R&D)
( ) Sales
( ) Strategic Planning Function
( ) Other - Write In

Please specify the function that you report to:
_______________________________________
9) Does your organization have a Chief Data Officer or Chief Analytics Officer in place?

<table>
<thead>
<tr>
<th></th>
<th>For less than 1 year</th>
<th>1 - 3 years</th>
<th>3 - 5 years</th>
<th>More than 5 years</th>
<th>Don't have one</th>
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<td>()</td>
<td>()</td>
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<tr>
<td>Chief Analytics Officer (CAO)</td>
<td>()</td>
<td>()</td>
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<td>()</td>
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</table>

Do you anticipate having a CDO or CAO in the future?

<table>
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<th>Next Year</th>
<th>Distant Future</th>
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<td>()</td>
</tr>
<tr>
<td>Chief Analytics Officer (CAO)</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
</tbody>
</table>
What roles do the CDO or CAO report to?

<table>
<thead>
<tr>
<th>Role</th>
<th>CEO</th>
<th>CFO</th>
<th>CMO</th>
<th>CIO</th>
<th>Other</th>
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<tr>
<td>Chief Analytics Officer (CAO)</td>
<td>()</td>
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<td>()</td>
</tr>
</tbody>
</table>

What role does your CDO report into?

_________________________________________________

What role does your CAO report into?

_________________________________________________

How effective has the Chief Data Officer been within your organization?

0 ________________________ [ ] ________________________________ 100

How effective has the Chief Analytics Officer been within your organization?

0 ________________________ [ ] ________________________________ 100
Please respond to the following statement: "My organization considers our business intelligence initiatives a success."

( ) Completely agree
( ) Agree somewhat
( ) Disagree somewhat
( ) Disagree

What has been the key to your success with business intelligence?
____________________________________________
____________________________________________
____________________________________________
____________________________________________
____________________________________________

How do you determine BI success?
[ ] Return on investment (ROI) model
[ ] User feedback/satisfaction
[ ] Customer feedback/satisfaction
[ ] Numbers of deployed users
[ ] System/application activity
[ ] Other - Write In: __________________________________________
[ ] Other - Write In: __________________________________________

What have been the obstacles to success with business intelligence?
____________________________________________
____________________________________________
How do you measure failure with BI?

[ ] User feedback

[ ] Cost/Return on investment

[ ] Limited adoption

[ ] Lack of usage

[ ] Other - Write In: _______________________________________________

[ ] Other - Write In: _______________________________________________

This year our budget for business intelligence / analytics is:

( ) Increasing over last year

( ) Decreasing over last year

( ) Staying the same as last year

Percentage of BI/analytics budget spent on new software purchases

0 ________________________ [ ] ___________________________ 100

Percentage of BI/analytics budget spent on software maintenance

0 ________________________ [ ] ___________________________ 100

Percentage of BI/analytics budget spent on software subscription services

0 ________________________ [ ] ___________________________ 100

Percentage of BI/analytics budget spent on external consulting services

0 ________________________ [ ] ___________________________ 100
Which function drives your business intelligence initiatives?

<table>
<thead>
<tr>
<th>Function</th>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
</tr>
<tr>
<td>Competency Center/Center of Excellence</td>
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</tr>
<tr>
<td>Sales</td>
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<tr>
<td>Finance</td>
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<tr>
<td>Research and Development (R&amp;D)</td>
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<tr>
<td>Information Technology (IT)</td>
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<tr>
<td>Human Resources</td>
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<tr>
<td>Executive Management</td>
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<tr>
<td>Marketing</td>
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<tr>
<td>Manufacturing</td>
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<td>(</td>
</tr>
<tr>
<td>Strategic Planning Function</td>
<td>(</td>
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<td>(</td>
</tr>
</tbody>
</table>
Where has business intelligence helped to achieve business goals?

<table>
<thead>
<tr>
<th></th>
<th>High Achievement</th>
<th>Moderate Achievement</th>
<th>Acceptable Achievement</th>
<th>Not Yet Attempted</th>
<th>Not Yet Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better decision-making</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Compliance / Risk Management</td>
<td>()</td>
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</tr>
<tr>
<td>Growth in revenues</td>
<td>()</td>
<td>()</td>
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<td>()</td>
</tr>
<tr>
<td>Improved operational efficiency/cost savings</td>
<td>()</td>
<td>()</td>
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<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Enhanced customer service</td>
<td>()</td>
<td>()</td>
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<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Increased competitive advantage</td>
<td>()</td>
<td>()</td>
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<td>()</td>
</tr>
</tbody>
</table>
What does your organization expect to achieve with business intelligence?

<table>
<thead>
<tr>
<th></th>
<th>Critical</th>
<th>Very important</th>
<th>Important</th>
<th>Somewhat important</th>
<th>Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better decision-making</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Compliance / Risk Management</td>
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<tr>
<td>Growth in revenues</td>
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<td>Improved operational efficiency/cost savings</td>
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<tr>
<td>Enhanced customer service</td>
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<tr>
<td>Increased competitive advantage</td>
<td>()</td>
<td>()</td>
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<td>()</td>
<td>()</td>
</tr>
</tbody>
</table>
Who are the targeted consumers of business intelligence within your organization?

<table>
<thead>
<tr>
<th></th>
<th>Primary</th>
<th>Secondary</th>
<th>Future plans</th>
<th>No plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Executives</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Individual</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Contributors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Professionals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line Managers</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Middle Managers</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Partners / Affiliates</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Suppliers</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>

What percentage of all employees have access to business intelligence solutions?

<table>
<thead>
<tr>
<th></th>
<th>Under 10%</th>
<th>11 - 20%</th>
<th>21 - 40%</th>
<th>41 - 60%</th>
<th>61 - 80%</th>
<th>81% or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>In 12 months</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>In 24 months</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>In 36 months</td>
<td>( )</td>
<td>( )</td>
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</tr>
</tbody>
</table>
Please choose one of the following to describe the state of data governance in your organization.

( ) Data as "truth" - A common view of enterprise data is available with common application of data, filters, rules, and semantics

( ) A common view of enterprise data is available. However, information views and semantics are manipulated to support specific positions

( ) Consistent data is available at a departmental level. Conflicting, functional views of data causes confusion and disagreement

( ) We have multiple, inconsistent data sources with conflicting semantics and data. Information is generally unreliable and distrusted

How do people in your organization take advantage of insights learned from business intelligence solutions?

<table>
<thead>
<tr>
<th></th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Closed loop” - Information is shared, teams work to process it and act in a timely fashion. No formal boundaries</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Ad hoc (informal) action on insights across functions</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Uncoordinated/ self-serving action (sometimes at the expense of others)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Insights are under-leveraged</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>
How many business intelligence products are currently used in your organization today?

( ) Don't know
( ) 1
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7
( ) 8
( ) 9
( ) 10 or more

Please indicate the importance of the following technologies to your strategy and plans.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Critical</th>
<th>Very important</th>
<th>Important</th>
<th>Somewhat important</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to write to transactional applications</td>
<td>()</td>
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<tr>
<td>Advanced visualization</td>
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<tr>
<td>Big Data (e.g., Hadoop)</td>
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</tr>
<tr>
<td>Cognitive BI (e.g.,)</td>
<td>()</td>
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</tr>
<tr>
<td>Artificial Intelligence-based BI</td>
<td>Collaborative support for group-based analysis</td>
<td>Complex event processing (CEP)</td>
<td>Dashboards</td>
<td>Data catalog</td>
<td>Data discovery</td>
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<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
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</table>

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<table>
<thead>
<tr>
<th>&quot;self-service&quot;</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>End-user data preparation and blending</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise planning / budgeting</td>
<td></td>
<td></td>
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<tr>
<td>GDPR (General Data Protection Regulation)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Governance</td>
<td></td>
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<tr>
<td>In-memory analysis</td>
<td></td>
<td></td>
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<tr>
<td>Integration with operational processes</td>
<td></td>
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<tr>
<td>Internet of Things (IoT)</td>
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<tr>
<td>IT Analytics</td>
<td></td>
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<tr>
<td>Location intelligence / analytics</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mobile device support</td>
<td></td>
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<tr>
<td>Natural language analytics (natural)</td>
<td></td>
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</tbody>
</table>
### 2019 Wisdom of Crowds® Business Intelligence Market Study

<table>
<thead>
<tr>
<th>Feature</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language query/natural language generation</td>
<td>()</td>
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<tr>
<td>Open source software</td>
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<tr>
<td>Prepackaged vertical/functional analytical applications</td>
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<tr>
<td>Reporting</td>
<td>()</td>
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<tr>
<td>Sales Planning</td>
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<tr>
<td>Search-based interface</td>
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<tr>
<td>Social media analysis (Social BI)</td>
<td>()</td>
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<tr>
<td>Software-as-a-Service and cloud computing</td>
<td>()</td>
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<tr>
<td>Streaming data analysis</td>
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<tr>
<td>Text analytics</td>
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<tr>
<td>Video analytics</td>
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</tr>
</tbody>
</table>
What is your level of investment in IoT technologies?

( ) Investing today
( ) Planning for this year
( ) Planning for next year
( ) We have no plans

Which types of IoT investments are most/least important to your organization?

<table>
<thead>
<tr>
<th></th>
<th>Critical</th>
<th>Very important</th>
<th>Important</th>
<th>Somewhat important</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment in IoT Infrastructure (hardware, signals, processes)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Investment in Data Supply Chain (capture, movement, prep, management, etc.)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Investment in IoT Analytics Application development (Attributes and Metrics etc.)</td>
<td>( )</td>
<td>( )</td>
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<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>
Please select one vendor to rate. You will have an opportunity to rate a second vendor at the end of this section.

( ) 1010data

( ) Adaptive Insights

( ) ADVIZOR Solutions

( ) Alteryx

( ) Amazon (i.e., QuickSight)

( ) AnswerRocket

( ) Arcadia Data

( ) arcplan (Longview)

( ) BIME (Zendesk)

( ) Board

( ) ClearStory Data

( ) Cubeware

( ) Datameer

( ) DataRPM

( ) Datawatch (Panopticon)

( ) Dimensional Insight

( ) Domo

( ) Dundas

( ) FICO

( ) GoodData

( ) Google Analytics

( ) IBM

( ) iDashboards
( ) InetSoft
( ) Infor (Birst)
( ) Information Builders (IBI)
( ) Izenda
( ) Jedox
( ) Jinfonet/JReport
( ) Klipfolio
( ) KNIME
( ) Lavastorm
( ) Logi Analytics
( ) Looker
( ) Microsoft
( ) MicroStrategy
( ) Narrative Science
( ) OpenText (Actuate)
( ) Oracle
( ) Panorama
( ) Pentaho (Hitachi Vantara)
( ) Phocas
( ) Pyramid Analytics
( ) Qlik
( ) RapidMiner
( ) Salesforce.com
( ) SAP
( ) SAS Institute
( ) Sisense
( ) Solver
( ) Tableau
( ) TARGIT
( ) ThoughtSpot
( ) TIBCO (Spotfire, Statistica, Alpine Data, Jaspersoft)
( ) Yellowfin
( ) Yseop
( ) Zoomdata
( ) Other - Write In: _________________________________________________

Please specify the product name and version for the selected vendor

_____________________________________________________________________

How long has this product been in use in your organization?
( ) Less than 1 year
( ) 1 - 2 years
( ) 3 - 5 years
( ) 6 - 10 years
( ) More than 10 years
Did this product replace another BI product? If so, which one?

Did this product replace another BI product?

( ) Yes ( ) No

Which product did it replace?

__________________________

Why was it replaced?

<table>
<thead>
<tr>
<th></th>
<th>Primary Reason</th>
<th>Secondary Reason</th>
<th>Was Not a factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Functionality</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Corporate standard</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Modernization</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>

How many users currently use this product?

( ) 1-10

( ) 11-50

( ) 51-100

( ) 101-200

( ) 201-500

( ) More than 500
How would you characterize the sales/acquisition experience with this vendor?

<table>
<thead>
<tr>
<th>Professionalism</th>
<th>Excellent</th>
<th>Very good</th>
<th>Adequate</th>
<th>Poor</th>
<th>Very poor</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product knowledge</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Understanding our business needs</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Flexibility/accommodation</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
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<td>()</td>
</tr>
<tr>
<td>Business practices</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Contractual terms and conditions</td>
<td>()</td>
<td>()</td>
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</tr>
<tr>
<td>Follow-up after the sale</td>
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</tr>
</tbody>
</table>

How would you characterize the value for the price paid?

- ( ) Great value (Well exceeded expectations)
- ( ) Good value (Somewhat exceeded expectations)
- ( ) Average value (Met expectations)
- ( ) Poor value (Fell short of expectations)
- ( ) Very poor value (Fell far short of expectations)
How would you characterize the quality and usefulness of the product?

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very good</th>
<th>Adequate</th>
<th>Poor</th>
<th>Very poor</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robustness/sophistication of technology</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Completeness of functionality</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Reliability of technology</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Scalability</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Integration of components within product</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Integration with third-party technologies</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
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<td>( )</td>
</tr>
<tr>
<td>Overall usability</td>
<td>( )</td>
<td>( )</td>
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<td>( )</td>
</tr>
<tr>
<td>Ease of installation</td>
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<tr>
<td>Ease of administration</td>
<td>( )</td>
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<tr>
<td>Customization and extensibility</td>
<td>( )</td>
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</tr>
<tr>
<td>Ease of upgrade/migration to new versions</td>
<td>( )</td>
<td>( )</td>
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</tr>
<tr>
<td>Online training, forums and documentation</td>
<td>( )</td>
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</tr>
</tbody>
</table>
How would you characterize the vendor's technical support?

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very good</th>
<th>Adequate</th>
<th>Poor</th>
<th>Very poor</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionalism</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Product knowledge</td>
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<td>( )</td>
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<td>( )</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>( )</td>
<td>( )</td>
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</tr>
<tr>
<td>Continuity of personnel</td>
<td>( )</td>
<td>( )</td>
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<td>( )</td>
</tr>
<tr>
<td>Time to resolve problems</td>
<td>( )</td>
<td>( )</td>
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<td>( )</td>
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</tr>
</tbody>
</table>

How would you characterize the vendor's consulting services?

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very good</th>
<th>Adequate</th>
<th>Poor</th>
<th>Very poor</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionalism</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>Product knowledge</td>
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<tr>
<td>Experience</td>
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<tr>
<td>Continuity</td>
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<tr>
<td>Value</td>
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</tr>
<tr>
<td>Availability of resources</td>
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</tr>
</tbody>
</table>
How would you rate the integrity (i.e., truthfulness, honesty) of this BI vendor?

( ) Excellent
( ) Very good
( ) Adequate
( ) Poor
( ) Very poor
( ) Don't know

Did your experience with this vendor improve, remain the same or decline from last year?

( ) Improved
( ) Stayed the same
( ) Declined

Would you recommend this vendor/product?

( ) I would recommend this vendor/product
( ) I would NOT recommend this vendor/product

Please enter any additional comments regarding this vendor and/or its products

____________________________________________
____________________________________________
____________________________________________
____________________________________________