The BI Survey 17

The world's largest survey of BI software users

KPI and Dashboards

This document explains the definitions and calculation methods of the KPIs used in The BI Survey 17

BARC

A CXP GROUP COMPANY

Table of contents

Understanding the KPIs

The goal of this document is to help the reader spot winners and losers in The BI Survey 17 using well designed dashboards packed with concise information. The BI Survey includes 5 aggregated KPIs, which can be absorbed at a glance. It also includes a set of 24 normalized KPIs, which we refer to as 'root' KPIs for each of the 42 products. The 'aggregated' KPIs are aggregations of these root KPIs.

This year we have calculated a set of KPIs for each of the nine peer groups. The values are normalized on the whole sample. Peer groups are used to enable fair and useful comparisons of products that are likely to compete.

The KPIs all follow these simple rules:

- Only measures that have a clear good/bad trend are used as the basis for KPIs.

- KPIs may be based on one or more measures from The BI Survey.

- Only products with samples of at least 20 - 30 (depending on the KPI) for each of the questions that feeds into the KPI are included.

- For quantitative data, KPIs are converted to a scale of 1 to 10 (worst to best).

- A linear min-max transformation is applied, which preserves the order of, and the relative distance between, products' scores.

- In some instances, adjustments are made to account for extreme outliers.

KPIs are only calculated if the samples have at least 15 - 30 data points (this varies depending on the KPI) and if the KPI in question is applicable to a product. Therefore some products do not have a full set of root KPIs. It is important to exclude KPIs based on small (and therefore not representative) samples to ensure that the graph scales are not distorted by outlier KPIs. In such cases, the product is still shown in the tables, but with a blank KPI value in the bar chart.

Reading the KPI charts

We provide two different types of dashboards for viewing the KPIs. The first type is the Product Dashboard. A Product Dashboard displays all the KPIs for a single product. The second type is the KPI Dashboard, which displays the KPI values for each product in a peer group.

The KPIs are presented using simple bar charts.
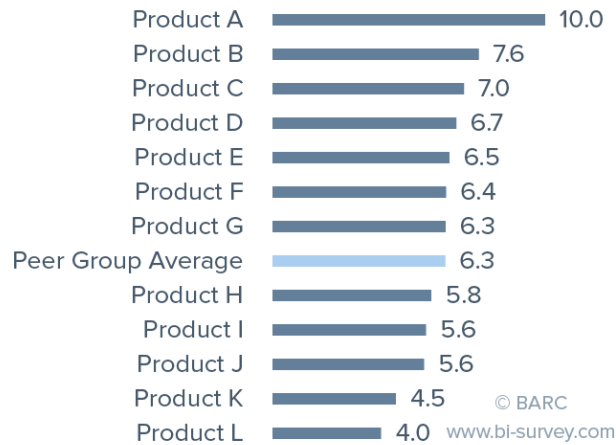

Figure 1: KPI Dashboard used for displaying KPIs

Products are sorted by value in the KPI Dashboards. The better the product the higher the value. The scale starts at zero and the KPI score of all the products in the chart is indicated. The sample average in each chart is represented by a pale blue bar.
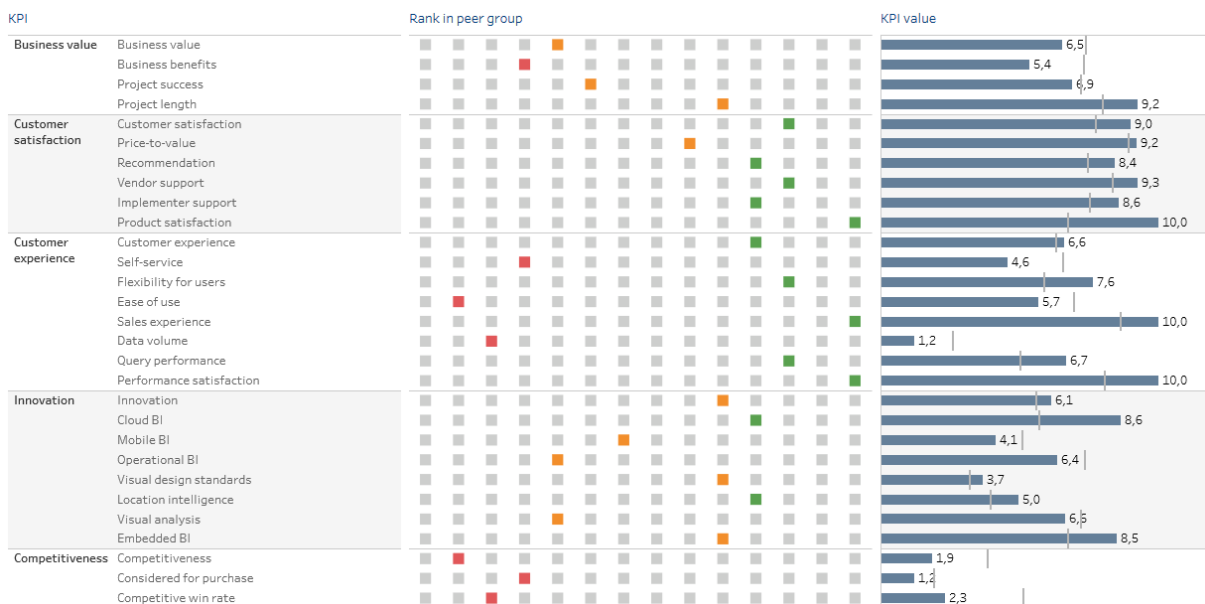

Figure 2: Product Dashboard used for displaying KPIs in the Analyzer

KPI	Rank in peer group		Value	
Business value	8		7.4	
— Business benefits	7		7.8	
— Project success	16		5.4	
— Project length	1		10.0	
Customer satisfaction	13		6.7	
— Price-to-value	6		8.6	
— Recommendation	12		6.9	
— Vendor support	9		7.6	
— Implementer support	8		7.2	
— Product satisfaction	18		2.7	
Customer experience	11		6.0	
— Self-service	3		9.3	
— Flexibility for users	11		5.6	
— Ease of use	9		6.7	
— Sales experience	7		8.1	
— Data volume	9		2.3	
— Query performance	18		2.0	
— Performance satisfaction	18		5.5	
Innovation	3		6.7	
— Cloud BI	2		9.4	
— Mobile BI	6		6.0	
— Operational BI	3		9.1	
— Visual design standards	15		3.3	
— Location intelligence	12		4.2	
— Visual analysis	7		8.4	
— Embedded BI	7		6.5	
Competitiveness	13		3.6	
— Considered for purchase	15		1.7	
— Competitive win rate	10		4.8	

Legend:
- 🟥 🟧 🟨 🟩 🟩
- Last ranked product in peer group
- Best ranked product in peer group
- 1.0 ▬▬▬ 10.0
- Worst product (Overall)
- Best product (Overall)
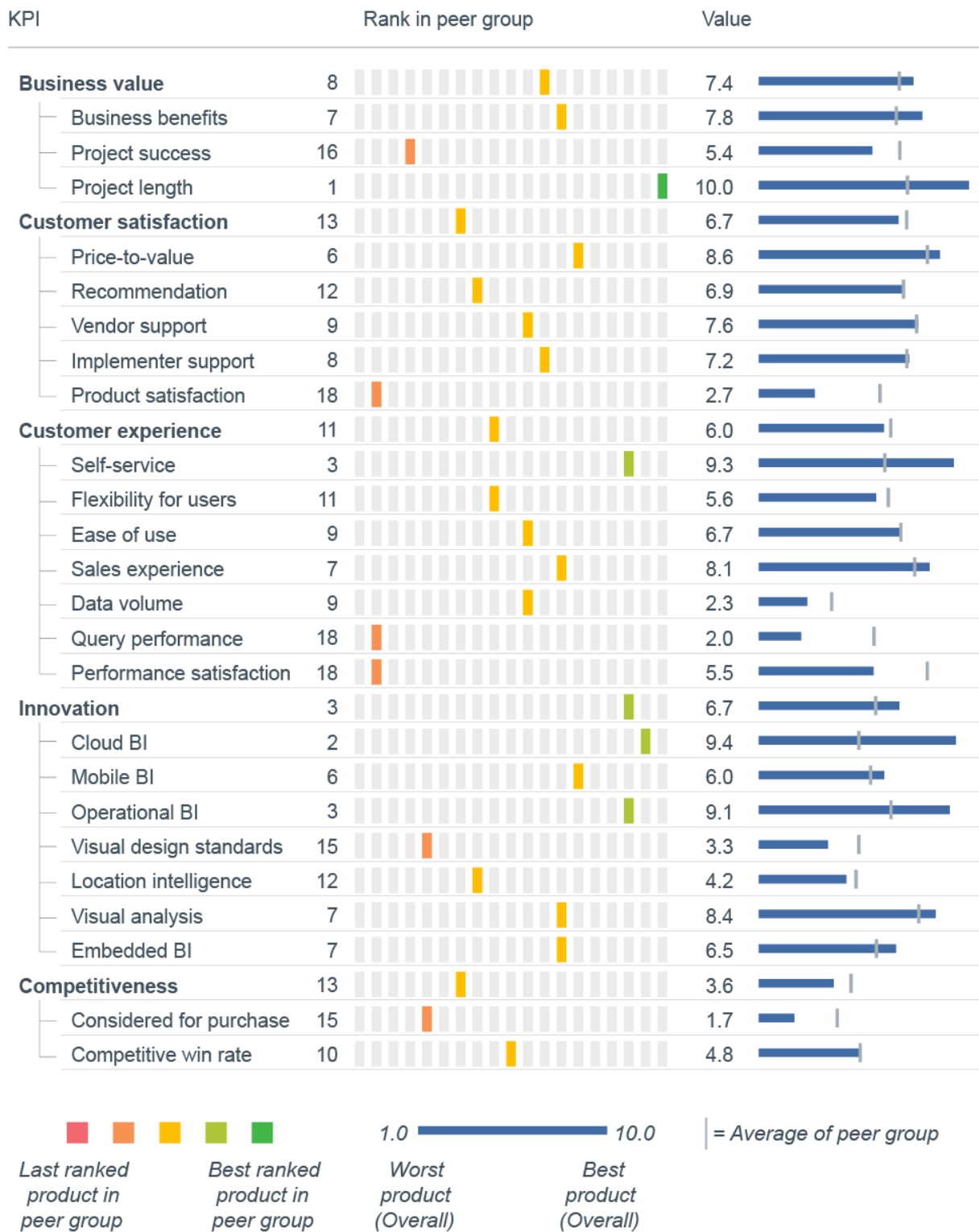- | = Average of peer group

Figure 3: Product Dashboard used for displaying KPIs in the Vendor Performance Summaries

In Figure 2 and Figure 3, the blue bars on the right represent the KPI values for the product in question in each KPI. The gray vertical line represents the peer group average. The colored bars in the middle represent the product's rank in the peer group for each KPI.

The aggregated KPIs

The calculation of aggregated KPIs is described in the following table. The aggregates are based on a weighted scoring of the root KPIs according to the importance of each root KPI to the aggregated KPI.

Aggregated KPIs	Root KPIs
Business value	Business benefits
	Project success
	Project length
Competitiveness	Considered for purchase
	Competitive win rate
Customer satisfaction	Price-to-value
	Recommendation
	Vendor support
	Implementer support
	Product satisfaction
Customer experience	Self-service
	Flexibility for users
	Ease of use
	Sales experience
	Data volume
	Query performance
	Performance satisfaction
Innovation	Cloud BI
	Mobile BI
	Operational BI
	Visual design standards
	Location intelligence
	Visual analysis
	Embedded BI

Figure 4: Aggregated KPIs and root KPIs

How to use the KPIs

Different readers will have their own views on which of these KPIs are important to them. For example, some people will regard fast query performance as very important, whereas others may regard recommendation or innovation as more important.

The aggregated KPIs above provide a good selection from which readers can choose those that they regard as key to their requirements.

Peer groups

Complete sample

We use responses from users of all products to calculate product-independent analysis. A typical question would be: What proportion of all your organization's employees currently makes regular use of business intelligence software? This question can be analyzed per product, but it can also be analyzed without reference to any specific product to provide insight into the market as a whole.

Products with less than 30 data points are shown among 'others'.

In The BI Survey Analyzer Web app you will find the results for the complete sample in the 'Survey Results' tab.

Peer groups

Peer groups are used to ensure that similar products are compared against each. The groups are essential to allow fair and useful comparisons of products that are likely to compete. The peer groups are primarily based on the results from The BI Survey, how customers say they use the product and our knowledge of the products.

Peer groups act as a guide to the reader to help make the products easier to understand and to show why individual products return such disparate results. They are not intended to be a judgment of the quality of the products. Most products appear in more than one peer group.

The peer groups are defined using the criteria described in the following table. These peer groups are used in a consistent way in our analysis as well as in The BI Survey Analyzer.

Peer group	Description
Large enterprise BI platforms	Includes products equipped with functionality for enterprise deployments that focus on a broad range of BI use cases.
Dashboarding-focused products	Includes products that focus on creating advanced and highly sophisticated dashboards.
Self-service reporting-focused products	Includes products that focus on self-service reporting and ad hoc analysis.
OLAP analysis-focused products	Includes products that focus on analysis in dimensional and hierarchical data models.
Data discovery-focused products	Includes products that focus on visual data discovery and advanced data visualization.
Integrated performance management products	Includes products that provide integrated functionality for BI and performance management, especially planning and budgeting.
Large international BI vendors	Includes products from companies with annual revenues of $200m+ and a truly international reach.
EMEA-focused vendors	Includes products from vendors that have a significant presence in – and focus on – the EMEA region.
Americas-focused vendors	Includes products from vendors that have a significant presence in – and focus on – the Americas region.

Figure 5: Peer group descriptions

The KPIs

The following sections provide the entire list of KPIs calculated for The BI Survey 17, as well as a description of the calculations.

KPIs are only calculated if the samples (from The BI Survey) have at least 15 or 30 data points (depending on the KPI), so some of the products do not have a full set of root KPIs. It is important to exclude KPIs based on small (and therefore unreliable) samples to ensure that the graph scales are not distorted by outlier KPIs based on small data samples. In such cases, the product is still shown in the tables, but with a blank KPI value in the bar chart. For example, MIK (prevero) is shown in the 'Competitive win rate' table, but with a blank KPI value in the bar chart.

All the KPIs are presented in The BI Survey Analyzer web application, both as Product Dashboards and KPI Dashboards.

Business value

Every BI project should be conceived with the idea of bringing value to the business, so the 'Business value' KPI is possibly the most important KPI of all, focusing on the bottom line value of BI projects. Business intelligence that does not deliver broad business value is superfluous.

The 'Business value' KPI shows how a successful BI software product can provide benefits in the real world. The KPI is an aggregation of the 'Business benefits', 'Project success' and 'Project length' KPIs.

Business benefits

What we measure
We measure the real benefit of projects after implementation whereas other surveys of business intelligence usage limit their questions to technical or organizational issues.

Why it is important
Unlike core transaction systems, BI projects are optional, not mandatory, so they must pay their way in terms of delivering business benefits.

How we measure
We ask users to judge project benefits based on real measurements the company has made. Using this information we weighted their responses and calculated the Business Benefits Index (BBI). The KPI is a normalized version of this index.

The following benefits were evaluated by survey participants:

- Better business decisions
- Faster reporting, analysis or planning
- Improved customer satisfaction
- Improved data quality
- Improved employee satisfaction
- Increased revenues
- More accurate reporting, analysis or planning
- Reduced costs (IT or non-IT)

- Saved headcount (in business departments and IT)
- Improved operational efficiency
- Increased competitive advantage

Project success

What we measure

This KPI is based on a combination of three measures: the level of general user and administrator satisfaction with implementations, as well as the frequency with which projects are completed on time and on budget.

Why it is important

The initial success of a BI project can have a great bearing on the business benefits achieved over time. Previous BI Surveys have consistently found that long-lasting projects are likely to become more costly than first anticipated, deliver less business benefits and often lead to other significant problems. Therefore, the speed with which a product is implemented can be crucial. User and administrator satisfaction is also an important indicator that the tool has been adopted as envisaged at the outset of the project.

How we measure

Similar to our business benefit calculations, we ask participants to judge their satisfaction level with their implementations. We also ask the level of success with which projects were completed on time and on budget and weight the responses to calculate project success. The KPI is a normalized version of this index.

Project length

What we measure

We measure how long it takes to implement projects.

Why it is important

Rapid implementation is a key measure of project success. Our research over the years has shown that projects with about a three-month implementation time deliver the most business benefits.

How we measure

The KPI is based on the number of projects implemented in under three months.

Innovation

New ideas and technologies are the lifeblood of the software industry. However, some vendors prefer to rest on their laurels, relying on existing technologies and lucrative maintenance contracts with loyal customers. If a BI tool can't keep up with recent developments, it becomes outdated very quickly and can't deliver the same level of benefits as rival tools.

The 'Innovation' KPI looks at seven technologies – cloud BI, visual analysis, mobile BI, operational BI, location intelligence, embedded BI and visual design standards – to measure a product's level of innovation.

Crucially, we do not investigate whether the vendor has promised the feature; we measure whether innovative features are in use by its customers.

Visual analysis

What we measure
We measure how many sites are using visual analysis with their BI product.

Why it is important
Visual analysis enables decision-makers to quickly digest insights on trends through highly visual representations. As data grows increasingly complex, many decision-makers find they can more readily see insights and detect outliers if they are plotted in visual charts and graphs, versus being buried in data tables. This is an important feature that is increasingly being sought by enterprises seeking more effective ways for decision-makers to absorb and act on data.

How we measure
We ask participants whether the tool they are most familiar with is being used for visual analysis by their organization. The KPI is based on the probability that products are being used in this way.

Cloud BI

What we measure
We measure how many sites actually use their BI product in a cloud environment.

Why it is important
Many software categories have adopted cloud computing. However, there have been concerns regarding security. Business intelligence has been a late adopter of cloud technology, but this is now a growth area in the BI space.

How we measure
We ask participants whether the tool they are most familiar with is being used in a cloud environment by their company. The KPI is based on the proportion of sites using BI in the cloud.

Mobile BI

Mobile BI has been available for years but has not yet gained much traction in the marketplace. New mobile hardware is making this software increasingly versatile.

What we measure
We measure how many sites are actually using mobile BI for any given product.

Why it is important

Mobile BI is considered by many as a big trend in BI and analytics. It gives decision-makers access to critical enterprise data and insights from their devices, regardless of where they are working or traveling.

How we measure

We ask participants whether the tool they are most familiar with is being used for mobile business intelligence by their company. The KPI is based on the probability that mobile BI is being used.

Operational BI

What we measure

We measure how many sites are using their BI tool with real-time data from transactional systems.

Why it is important

Operationalization of BI is one of the most important trends in the BI area. In operational BI, insights are derived from data coming directly out of production systems. Analysis results are used directly in operational processes for ad hoc monitoring, the optimization of those processes and the removal of possible process failures. Furthermore, many enterprises are looking for ways to blend archived analytical data within operational data to be able to gain situational awareness of opportunities or issues impacting their businesses.

How we measure

We asked participants whether the tool they are most familiar with is being used for BI with real-time data from transactional systems by their organization. The KPI is based on the probability that products are being used in this way.

Visual design standards

What we measure

We measure how many sites are using visual design standards with their BI product.

Why it is important

Information design is the practice of presenting information in a way that fosters efficient and effective understanding of it. Reports, dashboards and presentations benefit largely from a common, standardized visual language. This KPI shows how much a product is used by its users to employ information design standards.

How we measure

We ask participants whether the tool they are most familiar with is being used for visual design standards by their organization. The KPI is based on the frequency with which it is being used.

Location intelligence

What we measure

We measure how many sites are using location/spatial analysis with their BI product.

Why it is important
Geo/location information (at least an address or city) is available in most of the data an enterprise has. This data can be pre-processed in a standardized structure and then combined with other data sources. Through this combination, location intelligence provides new context and insights into existing data and offers additional analysis capabilities.

How we measure
We ask participants whether the tool they are most familiar with is being used for location/spatial analysis by their company. The KPI is based on the frequency with which it is being used.

Embedded BI

What we measure
We measure how many survey respondents use their BI product embedded within other applications.

Why it is important
Integrating intelligence in operational applications is growing steadily in popularity. From dashboards and BI applications to prediction and optimization models, users can access complementary functions directly in their specific operational processes and act on the findings – closing the classic management loop from information to action.

How we measure
We ask participants whether the tool they are most familiar with is being used in an embedded environment by their company. The KPI is based on the proportion of sites using embedded BI.

Competitiveness

The 'Competitiveness' aggregated KPI combines the 'Considered for purchase' and 'Competitive win rate' root KPIs.

Considered for purchase

What we measure
We measure how often products are *considered* for purchase, regardless of whether they are eventually purchased or not.

Why it is important
There are myriad reasons why a product might be considered for purchase by an organization. Factors such as vendor marketing, pre-existing relationships with the vendor, or word-of-mouth can all have an influence. Taking all these factors into account, this KPI provides an interesting indicator as to the strength of a product's market presence.

How we measure
The KPI scores in this category are based on the relative frequency with which products are considered for purchase.

Competitive win rate

What we measure

We measure how well products perform against other products in head-on competitions to win customers.

Why it is important

Recognizing which products to evaluate entails understanding those that have fared well in other organizations' product selections. Eliminating 'losers' at an early stage is important.

The BI Survey has consistently found that products from some large vendors are often bought with little or no evaluation and therefore appear to have an artificially high win rate compared to products from smaller, independent vendors, who have to fight for every sale.

How we measure

We calculate the win rate for products chosen by organizations that have evaluated at least one other product. We divide the frequency with which the product was chosen by the frequency with which the product was evaluated.

Customer experience

Delivering a superior customer and user experience is more important than ever. BI professionals don't want to have to spend a lot of time figuring out how a BI product works, attempting to learn interfaces or waiting around for a query to finish. With the current vogue for agility and BI self-service capabilities and the increasing need for users to be able to access a variety of data sources, the user experience of a BI product is an important consideration for many organizations.

To calculate the quality of customer experience of a BI tool, we combine the 'Ease of use', 'Self-service', 'Query performance', 'Performance satisfaction', 'Data volume', 'Flexibility for users' and 'Sales experience' KPIs.

Self-service

What we measure

We measure how many sites are using self-service BI with their BI product.

Why it is important

Self-service BI speeds up processes and eliminates the middle man. Independence from IT processes is a commonly cited need in BI projects.

How we measure

We ask participants whether the tool they are most familiar with is being used for self-service by their company. The KPI is based on the probability that BI is being used in a self-service manner.

Flexibility for users

What we measure

We measure the degree to which respondents consider their BI software to be flexible.

Why it is important

With the current vogue for agility and BI self-service capabilities and the increasing need for users to be able to access a variety of data sources, user flexibility is an important consideration for many organizations.

How we measure

This KPI is based on two factors: (1) the frequency with which flexibility was cited as a reason for purchasing a business intelligence product; and (2) the frequency of complaints about user flexibility post-implementation. Each of the above is given equal weighting in calculating a normalized KPI value.

Ease of use

What we measure

We measure the degree to which respondents consider their BI software to be easy to use.

Why it is important

Ease of use is often considered the holy grail of software. It is an important consideration for any vendor seeking to expand its footprint within enterprise sites. Business decision-makers don't want to have to spend a lot of time in training or attempting to learn interfaces.

How we measure

This KPI is based on two factors: (1) the frequency with which 'ease of use' is cited as a reason for purchasing a business intelligence product; and (2) the frequency of complaints about ease of use post-implementation. Each of the above is given equal weighting in calculating a normalized KPI value.

Sales experience

What we measure

We measure how companies describe their sales experience with the vendor.

Why it is important

In a competitive market like the BI and CPM software market, a highly professional sales organization is essential in order to become successful and continue to win new customers. In an increasingly complex, competitive and digitalized world, vendors that can quickly understand organizations' needs, provide industry-specific knowledge, and offer competitive pricing and contract flexibility are more likely to create a positive sales/purchasing experience for the customer. A positive experience in this regard can be as important to making the right software decision as functional and technical considerations.

How we measure

We ask users to rate their dealings with their BI vendor in the following six aspects of the sales/acquisition experience.

- General behavior

- Timely and thorough response to product-related and technical questions

- Overall rating of product evaluation and contract negotiation

- Ability to understand organization's needs

- Pricing and contract flexibility

- Industry-specific knowledge

Using this information we weighted the responses and calculated a sales experience index. The KPI is a normalized version of this index.

Data volume

The 'Data volume' KPI is a single KPI in its own group.

What we measure
We measure the median volume of data in databases used with the BI tool. This takes into account the data volume dimension of big data.

Why it is important
In an era when big data of all types is flooding organizations, the ability to support large data volumes is becoming ever more important. Many businesses now have petabytes of data under their domains, and this is likely to keep growing year after year.

How we measure
We calculate this KPI based on the median volume of data in databases used with the BI tool.

Query performance

What we measure
We measure the typical time it takes for queries to respond in the largest application using the tool, adjusted by the input data volume.

Why it is important
Fast performance is more important than most people realize. You can work around missing features and even bugs, but nothing can disguise an application that is painfully slow. And few things can put users off from making the most of an application more than irritation at its response times. This is proven by the clear link between project success and query performance throughout the history of The BI Survey.

There may well be other influencing factors, such as hardware capacity, but we do not have the data to account for such factors. However, it is unlikely that the majority of surveyed customers would under-specify their hardware. And if applications are hard to optimize for performance, then this is a fair reflection of user experiences with the product.

How we measure
The KPI is a calculation based on the median response time per product. A weighting is then applied whereby products are divided into three groups depending on their average data volume (small, medium and large) in order to produce a fairer comparison of query performance.

Performance satisfaction

What we measure
We ask how common complaints about the system's performance are.

Why it is important
Performance satisfaction is crucial in business intelligence projects, and often affects project outcomes.

In some ways, complaints about performance are more important than performance measured in seconds, because acceptable delays can vary depending upon how the system is used.

Performance is not only the most frequent product-related problem. Along with data quality it has been the most frequently reported problem overall in recent years. Beyond that, poor query performance leads to reduced business benefits and project success, so it is more than just a technical problem.

How we measure
We calculate the proportion of users indicating 'query performance too slow' as a problem.

Complaints are a negative factor, so this KPI rises as query performance complaints fall.

Customer satisfaction

We combine the 'Price-to-value', 'Recommendation', 'Product satisfaction', 'Vendor support' and 'Implementer support' root KPIs to calculate this aggregated KPI. These five factors are clearly related: If one is lacking, then the importance of the others is accentuated.

Price-to-value

What we measure

We ask participants to judge the price-performance ratio of their chosen product.

Why it is important
Price-to-value is an important metric in today's cost-conscious age. As many an enterprise BI tool user has found, the cost of buying and supporting BI software quickly adds up, especially when attempting to cost-justify adding new users. As more BI capabilities are pushed out to the business, this perception of value becomes even more critical.

How we measure
We ask participants to rate the price-performance ratio of their chosen product. To obtain the final KPI, we calculate an average weighted score per product.

Recommendation

What we measure
We measure whether customers that already have the product in use would recommend it to others.

Why it is important
No one knows more about how a product performs in the real world than the customers already using it. All too often, they find that products don't live up to expectations, or that the vendor does not

support the product properly. Therefore if existing users say they would recommend the product, we regard this as a positive indicator of the product's value.

How we measure
Users are asked whether they would recommend the product they are most familiar with. This is the sum of positive responses.

Product satisfaction

What we measure
We measure the frequency of product-related problems.

Why it is important
If a product proves unreliable at a critical time, the results can be debilitating, and can even render an application unusable.

However, not all customers have the same dependency on reliability, as some applications are not mission critical or time critical.

How we measure
We ask respondents to name the problems they have encountered in their use of the product. Afterwards we count the sum of all product-related problems.

Product problems are a negative factor, so the product satisfaction KPI rises as problem rates fall.

Vendor support

What we measure
We measure user satisfaction with the level of support provided for the product by the vendor.

Why it is important
Product support from the vendor is a key determinant for project success. This is an area where there are major differences between vendor ratings.

How we measure
We ask participants to rate the quality of the vendor's support. To arrive at the final KPI, we calculate an average weighted score per product.

Implementer support

What we measure
We measure user satisfaction with the level of support provided for the product by the implementer.

Why it is important
Product support is a key determinant for project success. As with vendor support, this is an area where we see major differences between products. The implementer's role can be just as important as the vendor's.

How we measure

We ask participants to rate the support by the implementer. We calculate an average weighted score per product to obtain the final KPI.

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