THE BI Survey 16

The world´s largest survey of BI software users

Sample, Products & Methodology

This document provides readers with background information on the sample, products & methodology to help gain a clearer understanding of The BI Survey 16

BARC
A CXP GROUP COMPANY

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Survey background

The BI Survey 16 follows on from 15 successful editions of The BI - and former OLAP - Surveys.

This edition features a wide range of products, not only from the well-known BI giants, but also specialist products from much smaller vendors and open source vendors.

The BI Survey provides a detailed quantitative analysis of why customers buy BI tools, what they use them for and how successful they are. The Survey is based on the analysis of the real-world experience of 3,137 respondents.

The value of a survey like this depends on having a sufficiently large, well-distributed and unbiased sample. This section describes the characteristics of the people who took part in the study and how we recruited them.

Objectives for the data sample

We had a number of specific objectives when compiling the sample. It must:

- Be large, for statistical reliability
- Include viable samples from as many BI products as possible
- Be well distributed
- Be unbiased.

A large and varied sample

The BI Survey 16 has the largest sample of any survey of business intelligence users available on the market. While a sample of 500 respondents may seem impressive and statistically acceptable, the problem comes when trying to compare sub-samples for, say, individual products.

The BI Survey has a rule that, as far as possible, only sub-samples containing 30 or more data points should be reported. It is easy to get sub-samples larger than this for the more widely used products, but less easy for others. Sometimes it is surprisingly difficult to find viable sample sizes for products even from large vendors, such as Oracle. This means that the overall sample needs to be at least 1,000 in order to obtain useful sub-samples.

Unbiased

To produce unbiased results we encouraged all vendors to promote The BI Survey, eliminating the risk of a small number of vendors encouraging their favored customers to participate without our knowledge. This year a number of vendors promoted The BI Survey 16 through their public Web sites, and many emailed not just their customers, but also their prospects.

It transpires that many vendors' mailing lists include not just their own customers, but also prospective customers who may well be current or previous users of other vendors' products. This meant that we obtained adequate samples even from customers of vendors who did not promote The Survey.

We thank the vendors for the professional way in which they collaborated in this venture. None of them attempted to influence the questionnaire or the analysis and presentation of the data.

We are always aware that some vendors could be tempted to enter data themselves, purporting to be genuine customers. Vendors are warned that if we discover examples of this practice, all entries that come via their invitation will be removed from The Survey.

We apply increasingly stringent data cleansing rules, using a number of different tests. We remove all suspect data that purported to be from user sites.

Notes on reading The BI Survey documents

Instead of delivering one long document covering all aspects of The BI Survey, we have split the information into several smaller documents.

By providing the raw data via a Web-based tool - The BI Survey Analyzer - users have the ability to carry out their own analysis of The Survey results.

The BI Survey 16 is divided into several documents, as listed below.

Document	Description
The BI Survey 16 - The Results	An overview and analysis of the most important product-related findings and topical results from The BI Survey 16
The BI Survey 16 - Best Practices	Provides advice to buyers of BI software as well as users and administrators of existing BI solutions based on the results of our analysis.
The BI Survey 16 - Sample, Products, Methodology (this document)	Provides details of the sample and an overview of our methodology including details of our calculation methods.
The BI Survey 16 - KPIs and Dashboards	This document provides descriptions of the KPIs we use in The BI Survey, including calculation methods.
The BI Survey 16 - Vendor Performance Summaries	A series of executive reports on each product featured in The BI Survey 16. Each report contains a product review by BARC's analyst team plus a summary of the relevant product-related results from The Survey.

Figure 1: Overview of The BI Survey 16

The BI Survey Analyzer contains information on all The Survey results and key performance indicators (KPIs). This online tool allows users to carry out their own analysis. In The BI Survey Analyzer the entire sample can be analyzed and it is also possible to filter the results by region, company size and other criteria. The tool allows users to export reports.

Figure 2: Screenshot from The BI Survey Analyzer Web app

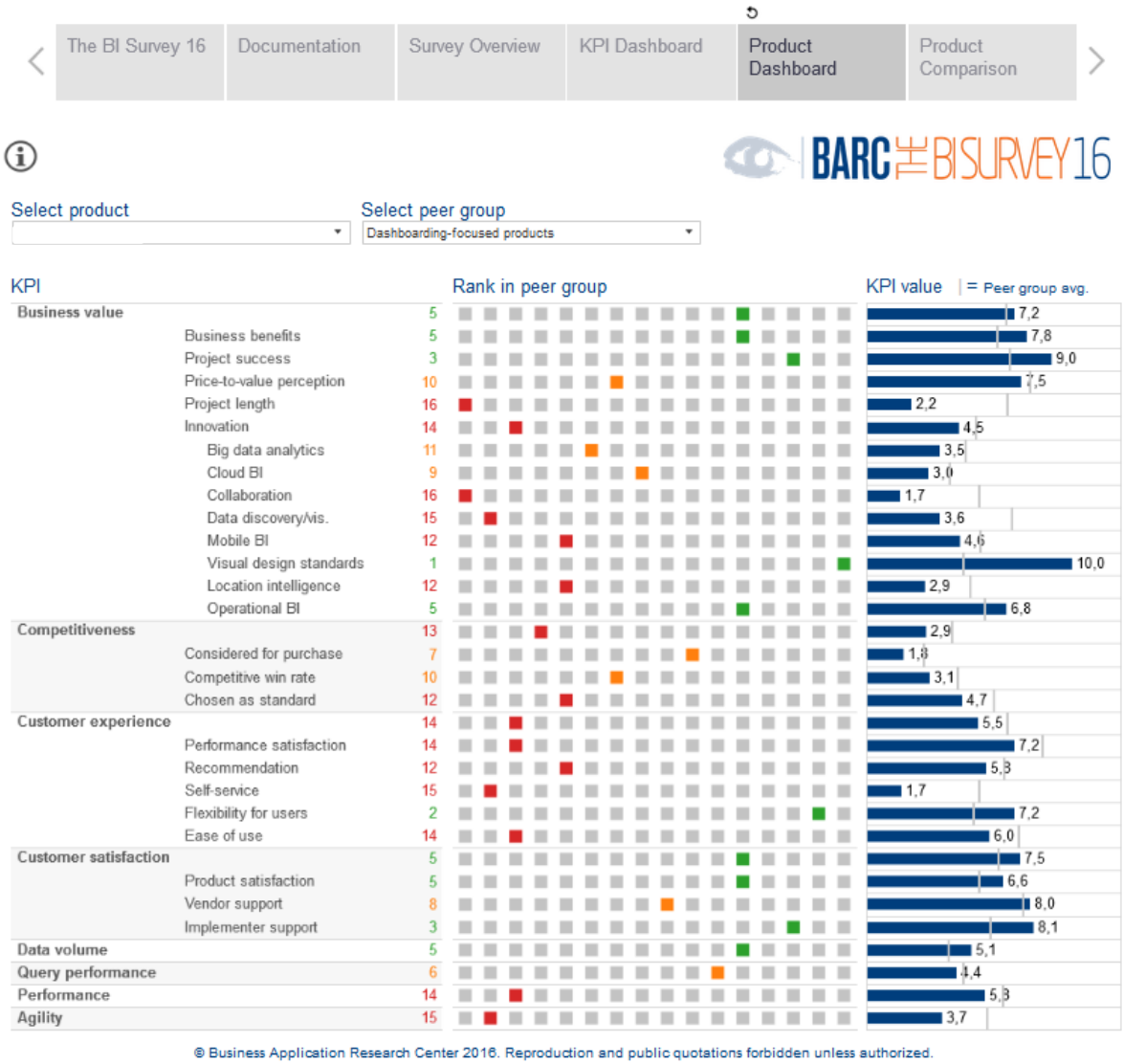

Figure 3: Screenshot from The BI Survey Analyzer Web app

The Survey documents do not need to be read in sequence. ‘The Results’, ‘Best Practices’ and the ‘Vendor Performance Summaries’ can be read independently.

The ‘Sample, Products and Methodology’ (this document) and the ‘KPIs and Dashboards’ documents provide additional background information.

The Sample

Most surveys are conducted or sponsored by an organization based in, and focused on, one country. However, BI is a worldwide market and we wanted, as far as possible, to capture a large international sample. This not only presents a more accurate global picture, but also allows international variation to be analyzed.

The three largest BI markets are the United States, Germany and the United Kingdom, so The BI Survey 16 was produced as a collaboration between organizations in each of these countries, and in partnership with publishers and vendors in these and other countries. It features not just the well-known US products, but also products from other regions including Europe and Australia.

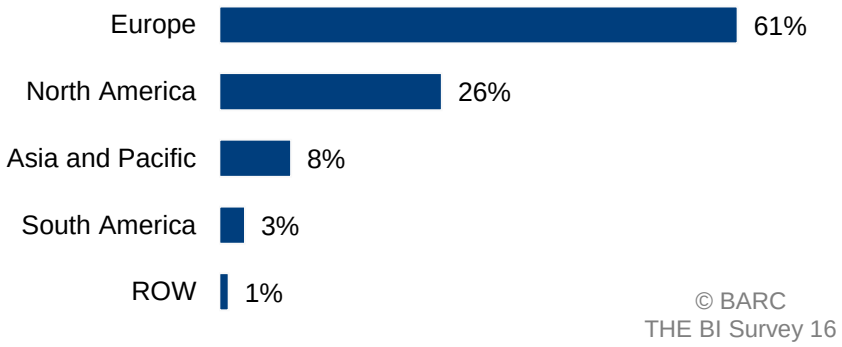

Figure 4: Respondents analyzed by region (n=3056)

The net result was an extraordinarily international panel. Respondents were located in 90 countries. Five countries had 100 or more respondents, and twelve had 50 or more; 26 countries had ten or more respondents.

Sample size and make-up

Hundreds of thousands of people around the world were invited to participate in The BI Survey 16, using dozens of email lists, magazines and Web sites. As in previous years, the questionnaire offered different sets of questions for vendors and users (or consultants answering on behalf of a user). This seems to produce better quality data as in the past some vendors pretended to be users when they saw they were not being asked relevant questions.

Participants from last year who indicated that they would like to be part of our panel received a pre-filled questionnaire with answers from last year's questions that had remained the same. They were asked to update their responses, and then to answer the new questions in this year's Survey.

The results of the online data collected are shown in the following chart, with the numbers of responses removed also displayed.

	Responses	
Total responses	3,137	100%
Filtered during data cleansing	70	-2%
Remaining after data cleansing	3,067	98%
Not yet considered buying	-111	-4%
Total answering questions	**2,956**	**94%**

Figure 5: Responses removed from the samples

The number of responses is split between users, consultants and vendors. Vendors answered a different set of questions to those answered by end users. This document focuses on the analysis of the user results.

	Responses	
Users	2,262	77%
Consultants	389	13%
All users	**2,651**	90%
Vendors/Resellers	305	10%

Figure 6: Total responses analyzed in The BI Survey 16

Geographical distribution

One of the key objectives of The Survey is to achieve a geographically balanced sample that reflects the current global market for BI products. Therefore the online questionnaire was published in three languages: English, German, and French.

Having a geographically balanced sample has two major benefits:

Firstly, results of The Survey are more closely representative of the world market, rather than being largely based on US experience, as is the case with many other surveys.

In regions where knowledge of English is sparse, such as South America and much of Asia and southern Europe, it is difficult to obtain a good level of feedback and the BI market is less mature in these countries. Since the fourth edition of The BI Survey, we have significantly boosted the German sample by specifically targeting users in German-speaking countries, using a fully translated online questionnaire. We also used a French questionnaire, further increasing our European coverage.

Organization sizes by headcount

BI products are most commonly found in large organizations and a high percentage of the responses we receive are from users in companies with more than 2,500 employees. Nevertheless, responses from small organizations have been catching up over the years.

The split between respondents from small and large enterprises is well balanced this year.

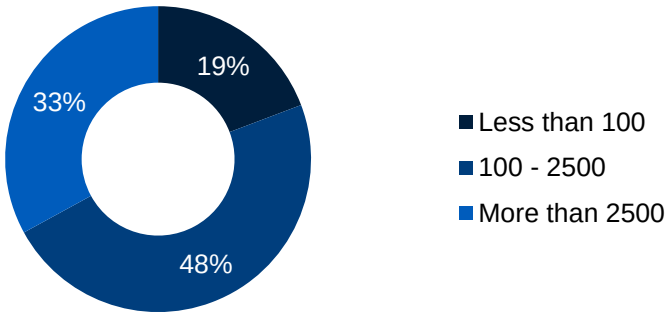

Figure 7: Frequency of employee count in respondent organization (n= 2879)

The following chart shows the median headcount of respondents' companies analyzed by the product they reported on. Of the products defined in the 'Large international BI vendors' and 'Large enterprise BI platforms' peer groups there was a higher median number of employees in customer organizations than the sample average.

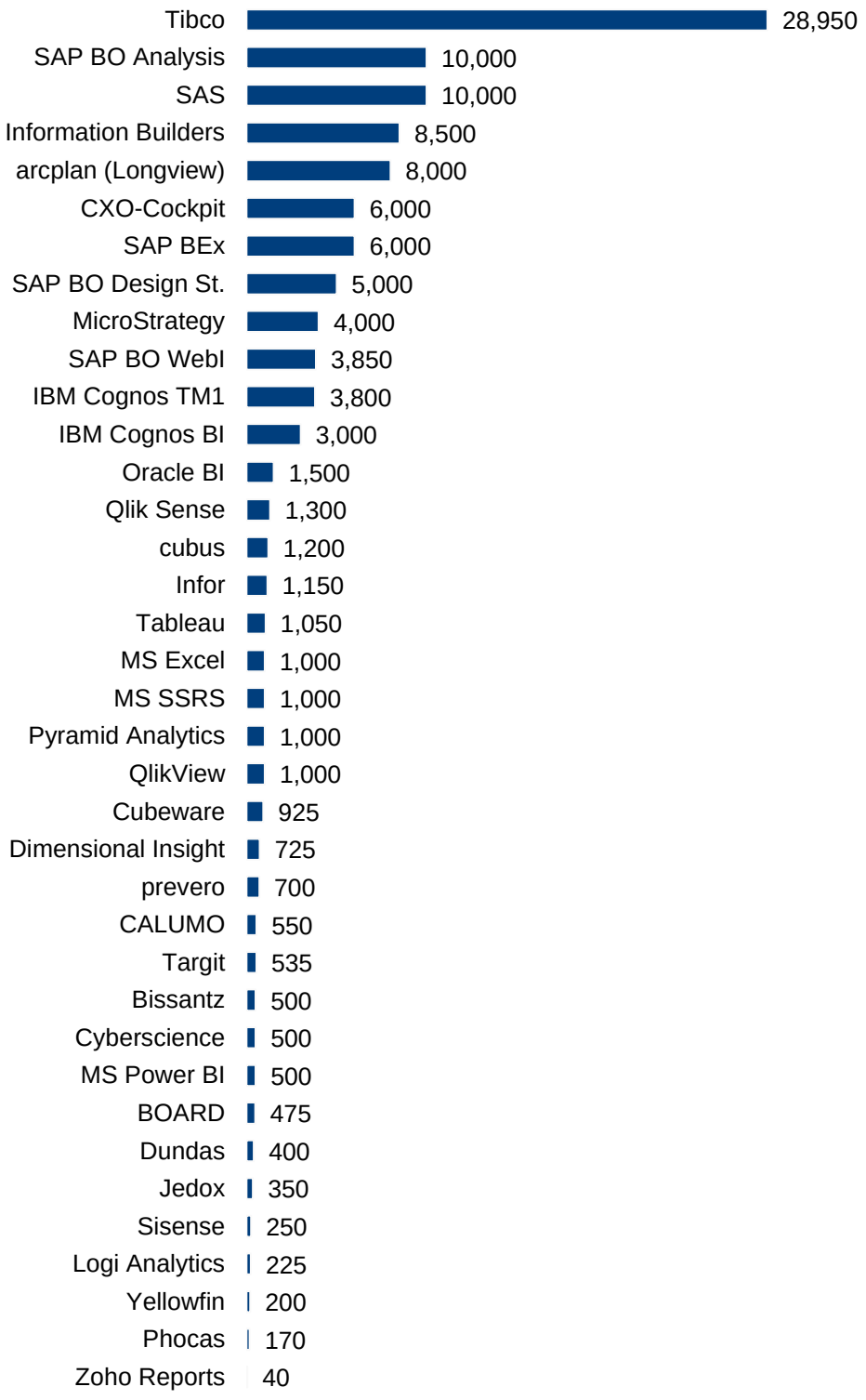

Figure 8: Median employee count of user organizations analyzed by product

Vertical markets

We asked all respondents their company's industry sector. The chart below shows the results of this question and only includes data from respondents who answered product-related questions in The Survey.

Manufacturing dominates the list, as it has in previous years.

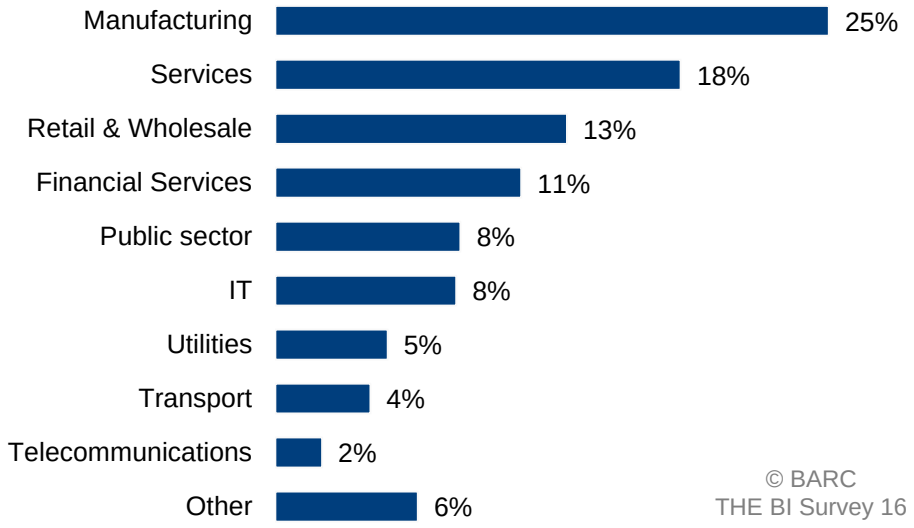

Figure 9: Responses analyzed by industry (n=2758)

Featured products

When grouping and describing the products featured in The BI Survey, we did not strictly follow the naming conventions that the vendors use. In some cases, we combined various products to make analysis more convenient. In those cases, we named the groups of products as shown in Figure 10. Note that the names we use in this document are our own and are not always the official product names used by the vendors.

One of the key reasons for this is that the products we analyze are not necessarily the latest version of the tool. Vendors will often change a product's name between versions, making it difficult to have a single official name for several versions of the same product.

Another reason is that we sometimes bundle related products into a single group to increase the sample size, even if the vendor prefers to view them as distinct for marketing reasons. In both these cases, the point is not to challenge the naming conventions of the vendor, but simply to reduce the complexity of the Survey findings for the convenience of the reader. In some cases, we also shorten the names of the products to improve the formatting of the charts.

We asked respondents explicitly about their experiences with products from a pre-defined list, with the option to nominate other products. This list is updated each year and is based on the sample size of the products in the previous year, as well as additional new products in the BI market. Our pre-defined list can be found at the end of this document. In cases where respondents said they were using an

'other' product, but from the context it was clear that they were actually using one of the listed products, we reclassified their data accordingly.

We solicited responses on all surviving products with more than a minimal response in the last BI Survey, plus a few others whose numbers have potentially grown to the point where there is enough data to be analyzed.

The following table shows the products included in the detailed analysis. The number of the 'other' responses is also included in this chart.

Product labels	Detailed product list	Respondents
arcplan (Longview)	arcplan Enterprise/Edge	36
Bissantz	Bissantz DeltaMaster	94
BOARD	BOARD	58
CALUMO	CALUMO	38
Cubeware	Cubeware Cockpit	77
cubus	cubus outperform	89
CXO-Cockpit	CXO-Cockpit	36
Cyberscience	Cyberscience Cyberquery	79
Dimensional Insight	Dimensional Insight	37
Dundas	Dundas BI	31
IBM Cognos BI	IBM Cognos BI / IBM Cognos Analytics	103
IBM Cognos TM1	IBM Cognos TM1	33
Infor	Infor BI	56
Information Builders	Information Builders WebFOCUS	31
Jedox	Jedox BI Suite	44
Logi Analytics	Logi Analytics	32
MS Excel	Microsoft Excel	200
	Microsoft SharePoint Server Excel Services	
MS Power BI	Microsoft Power BI	44
MS SSRS	Microsoft SQL Server Reporting Services	88
MicroStrategy	MicroStrategy	107
Oracle BI	Oracle BI	43
Phocas	Phocas	35
prevero	prevero prevero	32

Pyramid Analytics	Pyramid Analytics	36
Qlik Sense	Qlik Sense	43
QlikView	Qlik QlikView	239
SAP BEx	SAP Business Explorer (BEx)	92
SAP BO Analysis	SAP BusinessObjects Analysis	37
SAP BO Design St.	SAP BusinessObjects Design Studio	32
SAP BO WebI	SAP BusinessObjects Web Intelligence	127
SAS	SAS Base	37
	SAS Intelligence Platform	
Sisense	Sisense	50
Tableau	Tableau	111
Targit	TARGIT BI Suite	34
Tibco	Tibco Spotfire	28
Yellowfin	Yellowfin	38
Zoho Reports	Zoho Reports	39
Others		245

Figure 10: Products included in the sample (excluding 'don't know')

The last few years have seen an increase in the proportion of German respondents. This is partly due to cooperation with German vendors and the presence of strong German subsidiaries of international vendors, reflected through products like arcplan, Bissantz, BOARD, Cubeware and SAP.

This year we also included a few new vendors including Sisense, Zoho and CXO-Cockpit.

The following table contains the products that had responses but are not included in the detailed analysis. In the BI Survey Analyzer these products are grouped together under the label 'Others'.

Other products
Oracle Hyperion Smart View for Office
evidanza
Pentaho Business Analytics
Corporate Planner
Entrinsik Informer
JReport
Chartio

Other products
prevero Professional Planner
SAP Crystal Reports
SAS Visual Analytics and Visual Statistics
Jaspersoft BI
Oracle Hyperion Planning
Tagetik
Antivia DecisionPoint
Dodeca (Applied OLAP)
Prophix
Birst
Corporater EPM Suite
OpenText Actuate iHub (formerly Actuate BIRT)
SAP BW Integrated Planning (IP)
Domo
GoodData
Halo BI
Looker
SpagoBI
Strategy Companion Analyzer

Figure 11: Products in the sample but not in the detailed analysis

Peer groups

Peer groups are used to ensure similar products are compared against each other both in fairness to the vendor and for the benefit of the end user. 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 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.
Visual 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 12: Peer group descriptions

	Large enterprise BI platforms	Dashboarding-focused products	Self-service reporting-focused products	OLAP analysis-focused products	Visual discovery-focused products	Integrated performance management products	Large international BI vendors	EMEA-focused vendors	Americas-focused vendors
arcplan (Longview)		x				x		x	
Bissantz			x	x		x		x	
BOARD		x		x		x		x	
CALUMO			x			x			x
Cubeware			x	x		x		x	
cubus			x	x		x		x	
CXO-Cockpit		x		x				x	
Cyberscience		x	x						x
Dimensional Insight		x	x						x
Dundas		x			x				x
IBM Cognos BI	x						x		
IBM Cognos TM1				x		x	x		
Infor				x		x	x		
Information Builders	x						x		
Jedox				x		x		x	
Logi Analytics		x			x				x
Microsoft Excel				x			x		
Microsoft Power BI		x	x		x		x		
Microsoft SSRS	x						x		
MicroStrategy	x						x		
Oracle BI	x						x		
Phocas			x		x				x
prevero				x		x		x	
Pyramid Analytics		x	x	x				x	
Qlik Sense			x		x		x		
QlikView		x			x		x		
SAP BEx	x			x			x		
SAP BO Analysis				x			x		
SAP BO Design St.		x					x		
SAP BO WebI			x				x		
SAP BO BI	x								
SAS	x						x		
Sisense		x			x				x
Tableau		x			x		x		
Targit			x	x	x			x	
Tibco		x			x		x		
Yellowfin		x	x						x
Zoho reports		x	x						

Overview of the key calculations in The BI Survey 16

Measuring business benefits

Business benefits are the real reason for carrying out any BI project and The BI Survey has been studying them directly for years. We ask respondents the extent to which they realize a list of benefits.

For each potential benefit, respondents are asked to indicate the level of achievement, if any, with five levels. We use a weighted scoring system, as shown in the table below, to derive a composite score for each of the possible benefits, based on the level of benefit achieved. We call this the BBI (Business Benefits Index).

Level of benefit reported	Weighting
High	10
Moderate	6
Low	2
Not achieved	-2
Don't know	0

Figure 13: The Business Benefits Index weighting system

This rating system is the basis of the most important index in The BI Survey. It is a dimensionless number with an arbitrary value, but as long as the weighting system remains constant it can be used for comparisons between segments of the sample, such as the sample for individual products or regions, to name just two.

Participants were asked to rate each benefit. Business benefits are calculated by counting the number of each reported level of benefit and multiplying this number by the corresponding weighting. The products are then divided by the number of responses for that particular benefit to find the average response.

The figure below shows the overall answers to the business benefits questions using shortened descriptions. Each column is individually color-coded, with higher scores shown on darker backgrounds. The weighted score in the last column shows which benefits were achieved the most.

	High (10)	Moderate (6)	Low (2)	Not achieved (-2)	Don't know (0)	Weighted score
Weighting	**10**	**6**	**2**	**-2**	**0**	
Better business decisions	49%	35%	6%	3%	7%	7.04
Faster reporting, analysis or planning	64%	27%	5%	2%	2%	8.05
Improved customer satisfaction	31%	35%	13%	5%	16%	5.33
Improved data quality	43%	35%	12%	5%	5%	6.50
Improved employee satisfaction	43%	36%	10%	5%	7%	6.55
Increased revenues	14%	27%	17%	11%	31%	3.13
More accurate reporting, analysis or planning	56%	32%	6%	2%	4%	7.58
Reduced costs	17%	29%	22%	13%	20%	3.60
Saved headcount	10%	23%	23%	19%	25%	2.47
Improved operational efficency	35%	39%	13%	4%	10%	5.99
Increased competitive advantage	22%	30%	16%	7%	25%	4.14

Figure 14: Benefits overview

'Faster reporting, analysis or planning' is the benefit most likely to be achieved. This is a similar result to previous years. We would expect this of any system whose primary purpose is to deliver analysis and reports, but a few respondents said that reporting had actually worsened after their BI implementation. A large majority — about 90 percent — said that this benefit had been achieved. It could be argued that improved reporting is not in itself a business benefit; it is how the improved reports are used that determines whether business benefits are achieved.

'Better business decisions' is the third most likely benefit to be achieved, with 84% claiming to have proven this benefit. We expect all BI projects would hope to achieve this benefit, but it is not possible to predict this outcome while planning and attempting to cost-justify a project.

Project Success

The 'Project success' KPI is based on three factors. We asked participants to judge their satisfaction level with their implementations. We also asked the level of success with which their projects were completed on time and on budget and weighted the responses to calculate project success.

The weightings of the possible responses are shown in the following chart.

Level of project success reported	Weighting
Good	10
Moderate	5
Poor	0

Figure 15: Responses and weightings for Project Success

Means and medians

This Survey makes frequent references to different forms of averages — means and medians. Just in case your statistical knowledge is a little rusty, here's a quick reminder of the definition of the terms:

The mean is the usual arithmetic average. Its value is affected by every value in the sample, so a single large outlier can materially affect the mean, particularly with small samples.

The median is the value in the middle of the sample; that is, half of the sample is larger than the median, and the other half is smaller. It could be regarded as the 'typical value', and is affected by the number, but not the value, of outliers. One or two large or small outliers therefore do not affect the median.

Understanding multiple response questions

Several questions in The BI Survey 16 allow the user to make multiple responses. For example, we asked users what problems (if any) they encountered in their projects. Because many users had more than one problem, the number of responses is larger than the number of respondents.

This means that there are two ways to calculate the percentage of a given response: based on the total number of responses, or based on the total number of respondents. We present The BI Survey results based on the number of respondents.

Calculating percentages based on the number of respondents tells us how likely a given respondent is to have the problem, but results in percentages higher than 100 percent when all the problems are added together (e.g. 32 percent of all respondents reported that they have no significant problems). Conversely, calculating percentages based on the total number of responses would result in a total of 100 percent.

Survey data collection

The Survey was conducted by BARC, with data captured from the end of February to mid-June 2016. All data was captured online from a total of 3,137 respondents.

Respondents were solicited individually from dozens of vendor and independent lists and from Web sites from many different countries, with emailed invitations being sent to the lists in a staggered fashion.

At our request, most of the vendors notified their customers about The BI Survey using either their regular newsletters or Web sites. We also asked some bloggers to mention The Survey. Each list and website had a different URL, though in all cases, the same questionnaire (in English, German, and French) was used.

Product picklist used in The BI Survey

Adaptive Insights Adaptive Suite
Alteryx
Antivia DecisionPoint
arcplan Enterprise/Edge
Birst
Bissantz DeltaMaster
BOARD
CALUMO
Chartio
Corporate Planner
Corporater EPM Suite
Cubeware Cockpit
cubus
Cyberscience Cyberquery
Dimensional Insight
Dodeca (Applied OLAP)
Domo
Dundas
Entrinsik Informer
eQ Technologic eQube
evidanza
GoodData
Halo BI
IBM Cognos BI / IBM Cognos Analytics
IBM Cognos TM1
iDashboards
Indicee (D&B Cloud Innovation Center)
InetSoft
Infor BI (formerly PM10 and MIS Decisionware)
Information Builders WebFOCUS
Jaspersoft BI (TIBCO)
Jedox BI Suite (formerly Palo)
JReport (Jinfonet Software)
Lavastorm Analytics
Logi Analytics
Looker
Microsoft Excel (Excel only and Power Pivot)
Microsoft Power BI (released in 2015, not former Excel-based version)
Microsoft SharePoint Server Excel Services (only BI usage, no portal)
Microsoft SQL Server Reporting Services (SSRS)
MicroStrategy
Noetix
OpenText Actuate iHub (formerly Actuate BIRT)
Oracle BI (formerly OBIEE and OBIFS)
Oracle Hyperion Planning
Oracle Hyperion Smart View for Office
Pentaho Business Analytics (HDS)
Phocas
prevero prevero

prevero Professional Planner (formerly Winterheller)
Prognoz Platform
Prophix
Pyramid Analytics
Qlik Qlik Sense
Qlik QlikView
Salient
SAP Business Explorer (BEx) (including SAP Web Application Designer (WAD) and SAP BEx Analyzer)
SAP BusinessObjects Analysis (OLAP or Office)
SAP BusinessObjects Design Studio
SAP BusinessObjects Web Intelligence
SAP BW Integrated Planning (IP)
SAP Crystal Reports
SAP Lumira
SAP Predictive Analytics
SAS Base
SAS Intelligence Platform (incl. SAS Enterprise BI Server)
SAS Visual Analytics and Visual Statistics
Sisense
SpagoBI
Strategy Companion Analyzer
Tableau
Tagetik
TARGIT BI Suite
TIBCO Spotfire
Yellowfin
Zoho reports
Don't know
Other, please specify

Business Application Research Center – BARC GmbH

Germany
BARC GmbH
Berliner Platz 7
D-97080 Würzburg
+49 (0) 931 880651-0
www.barc.de

France
BARC France (Le CXP)
8 Avenue des Ternes
FR-75017 Paris
+33 1 530505 53
www.cxp.fr

Austria
BARC GmbH
Goldschlagstraße 172 / Stiege 4 / 2.OG
A-1140 Wien
+43 (1) 8901203-451

Switzerland
BARC Schweiz GmbH
Buchhaldenstraße 7
CH-5442 Fislisbach
+41 (0) 763403516

Rest of the World
+44 1536 772 451
www.barc-research.com