BI and Data Management in the Cloud: Issues and Trends

BARC
A CXP GROUP COMPANY

Eckerson
Group

Authors

Dr. Carsten Bange

Managing Director at
BARC

cbange@barc-research.com

Wayne Eckerson

Principal Consultant at
Eckerson Group

wayne@eckerson.com

The authors wish to thank Melanie Mack and Jevgeni Vitsenko for their support.

This study was prepared by BARC and Eckerson Group, both independent market analysis companies.

This study is available free of charge thanks to the generosity of Birst, Jedox, Qlik, SAS and Tableau.

Table of Contents

Preface

Growth of Cloud BI. The drumbeat of cloud computing began more than a decade ago when Salesforce.com launched one of the first front-office applications to run entirely in the cloud. Its success has spawned a host of imitators in just about every nook and cranny of the business applications market. The rush of cloud-based applications is shifting the gravity of data from on-premises data centers to cloud platforms.

It appears that 2016 may be the tipping point for cloud computing. This year, many large software vendors got religion about the cloud. Oracle, SAP, Teradata and IBM have joined front-runners Amazon, Microsoft and Google to launch cloud platforms that host a variety of their own and third-party applications. These vendors are working with customers of all sizes to help them understand the value of cloud computing and develop cloud migration plans.

Cloud BI. Business intelligence (BI) and data management vendors have not been immune to the allure of the cloud. There are several pure-play cloud BI and data management vendors, and most other BI vendors offer cloud-only products or extensions that support hybrid computing environments. Vendors now recognize that many customers want to exploit the advantages of cloud computing—faster deployments, minimal IT involvement, no capital expenditures and elastic computing. And they are investing accordingly.

For the past six years, the adoption rate for cloud BI has hovered around 30%. Our current research shows a significant uptick in cloud BI and data management deployments. This indicates that cloud BI and data management is also nearing a tipping point. As data gravity shifts to the cloud, BI and data management is following suit.

This report tracks adoption of the cloud by companies that have BI and data management programs. It also captures the drivers, benefits and challenges companies face when implementing cloud BI. (Note: this report will refer to BI and data management in the cloud as "cloud BI").

Management Summary

Hot Spot 1 — Cloud BI is at a tipping point

Adoption of the cloud BI solutions has grown 50% in the past three years, from 29% to 43%. This mirrors the growth in the use of the cloud overall and its strategic value to companies. As more applications move to the cloud, companies find it easier to keep their data there as well. Although security is still a concern, many companies recognize that data is safer in a shared public cloud than in a corporate data center.

Hot Spot 2 — Power users dominate cloud BI

Power users are twice as likely to use cloud BI as casual users. With the advent of software-as-a-service (SaaS) BI tools, power users can easily create an account, upload data and begin analyzing and visualizing information. Outside of consuming reports and dashboards—a traditional casual user activity—more than half of cloud BI activity involves exploring data and authoring reports, and to a lesser degree, preparing and manipulating data.

Hot Spot 3 — BI before data management

Companies are more likely to run BI components in the cloud than implement data warehouses, data marts and data integration tasks there. As a SaaS application, BI is much easier to deploy in the cloud than a data management solution, which requires infrastructure as a service (IaaS) and platform as a service (PaaS) deployments. Also, companies must assess security, privacy and political issues when moving data in the cloud.

Hot Spot 4 — Public cloud leads the way

Almost half of organizations using cloud BI (46%) use a public cloud for BI and data management compared to less than a third (30%) for hybrid cloud and 24% for private cloud. The public cloud is fueled primarily by organizations that want to build BI environments that don't require on-premises data, and secondarily by organizations that use the cloud to replace legacy data warehouses. However, we expect the percentage of hybrid BI cloud implementations to grow as more large and mid-size firms migrate operations to the cloud.

Hot Spot 5 — Cloud BI outsourcing is real

With the cloud, companies automatically outsource their hardware infrastructure to a third party. But many companies go further. Almost two-thirds let their BI or data management vendor host their cloud BI implementation; one quarter let them operate and manage their cloud BI environment; and 16% let them design their cloud BI environment. Perhaps the cloud fosters an outsourcing mentality that gives organizations greater motivation to embrace managed services.

Hot Spot 6 — Small companies lead the way

Small companies are more likely to implement BI tools and data warehouses in the cloud than large or mid-sized companies. And they are more likely to use the public cloud than private or hybrid clouds. This makes sense since many small companies don't have legacy systems, IT staff or in-house infrastructure to prevent them from embracing the cloud. They can use the cloud to leapfrog bigger companies with more mature BI implementations.

Hot Spot 7 — North America is cloudier than Europe

North America has higher cloud BI usage than Europe. It also has a higher percentage of companies strategically committed to the cloud in general and BI in particular. Interestingly, Europe makes a higher use of private clouds, while North America is much more willing to let vendors manage and operate cloud BI solutions. These trends reflect in part the size of the companies that responded to the survey.

Cloud Strategy and Adoption

Companies are embracing the cloud in general and cloud BI in particular. One quarter of companies (25%) are fully committed to cloud computing, while a slightly higher percentage (28%) view the cloud as strategic to their BI and data management programs.
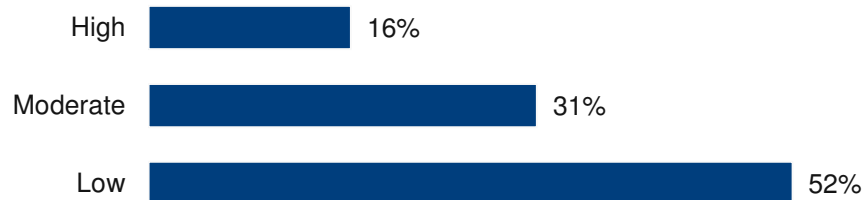
This commitment has translated into significant growth in the use of cloud BI, which has risen from 29% to 43% in three years, a whopping 48% increase. We should note that this survey is not fully representative. Results from The BI Survey, which focuses on BI front ends and large installed bases of BI products, indicate that adoption has risen slowly in recent years to its current level of 12%. By contrast, this report covers all cloud components (including data management) and represents a sample with a high level of interest in the cloud.

In the next twelve months, more than two-thirds (69%) of companies plan to increase their usage of cloud BI and more than one quarter of companies that haven't yet implemented cloud BI say they will do so. Based on current trends, this momentum should take adoption beyond 50% by 2018 (see figures 1 to 6).

Fully committed 25%
Partially committed 29%
Exploring options 39%
Opposed 6%
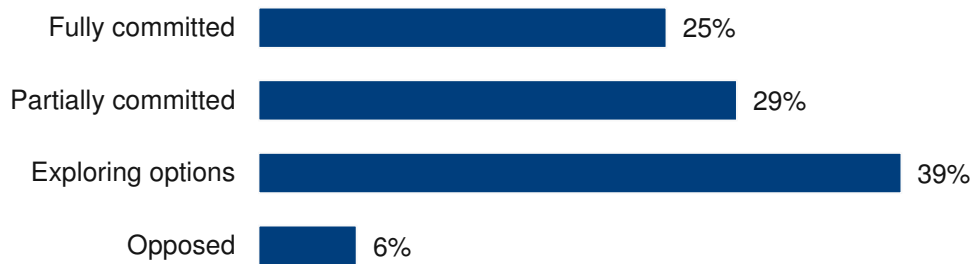
Figure 1: What is your company's strategy for cloud computing in general? (n=347)

High 16%
Moderate 31%
Low 52%

Figure 2: To what degree is your company using the cloud today? (n=372)

High 28%
Moderate 35%
Low 37%

Figure 3: How strategic is the cloud to your company's BI and data management program? (n=373)
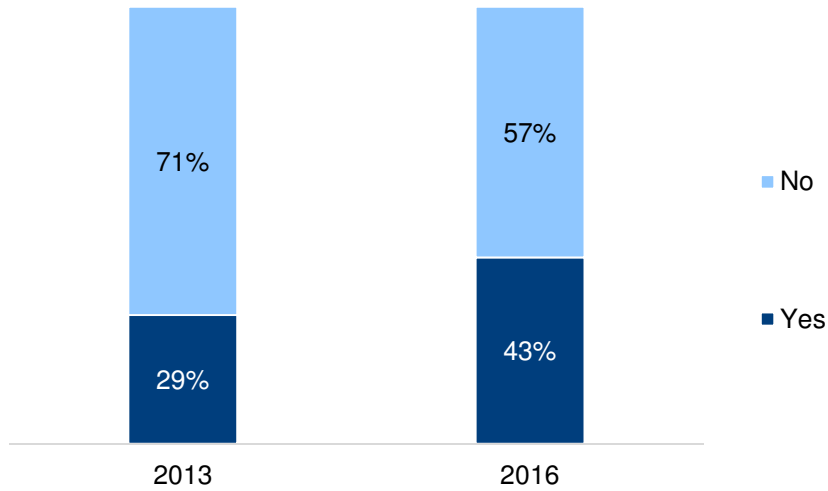
Figure 4: Are you currently using the cloud for any component of your BI and data management program? TechTarget 2013 (n=278), BARC 2016 (n=347)

Figure 5: Are you planning to increase or decrease your use of the cloud for BI and data management in the next twelve months? (n=169)
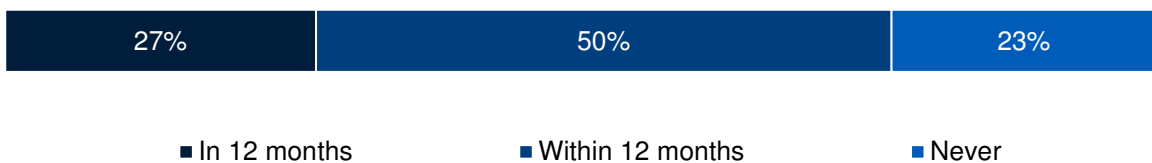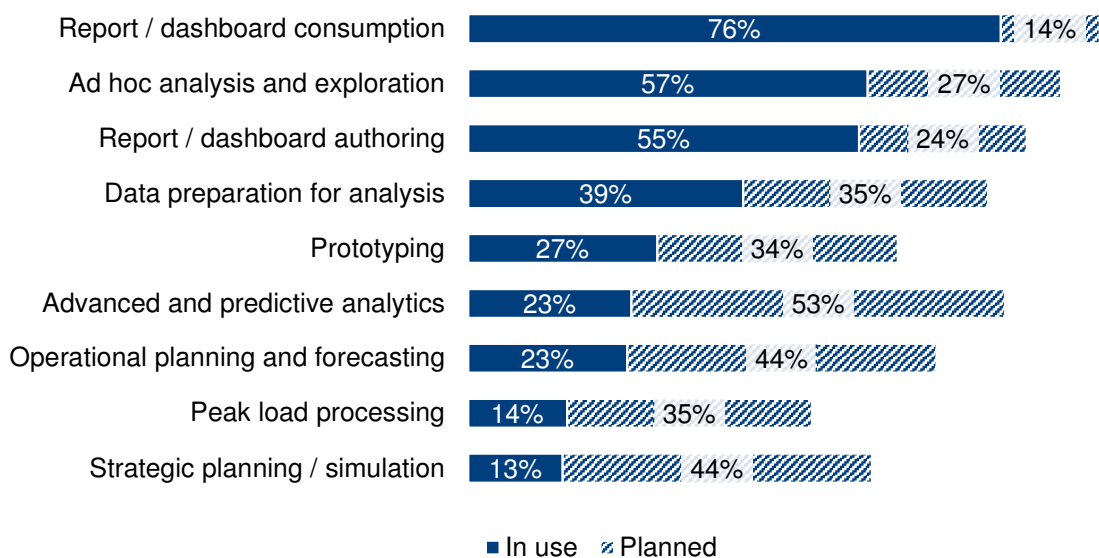

Figure 6: Do you plan to implement BI or data management in the cloud? (n=126)

Use Cases

Not surprisingly, the vast majority of organizations use the cloud to deliver reports and dashboards. The cloud is a convenient way to publish and share report output to a broad, geographically distributed user base. However, more than half use the cloud to perform ad hoc anal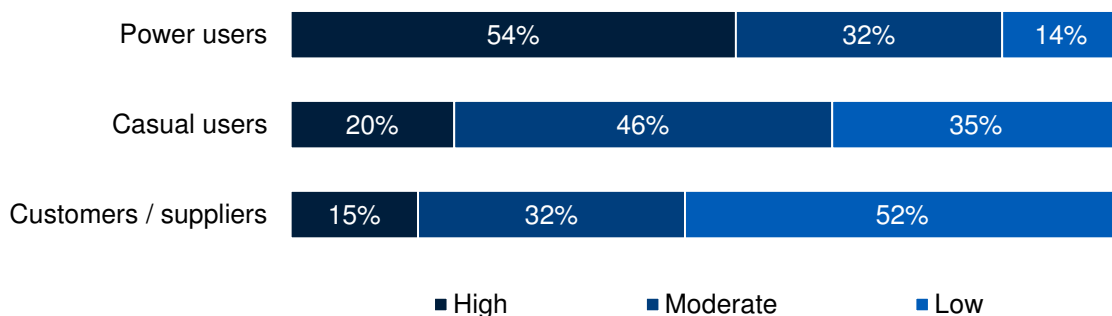ysis and author reports and dashboards. That suggests organizations use software-as-a-service (SaaS) BI products and don't just publish output there. Looking at the plans on use cases for cloud BI, advanced and predictive analytics stands out with 53% of participants planning to implement this use case (see Figure 7).

| Use case	In use	Planned
Report / dashboard consumption	76%	14%
Ad hoc analysis and exploration	57%	27%
Report / dashboard authoring	55%	24%
Data preparation for analysis	39%	35%
Prototyping	27%	34%
Advanced and predictive analytics	23%	53%
Operational planning and forecasting	23%	44%
Peak load processing	14%	35%
Strategic planning / simulation	13%	44%

■ In use ▨ Planned

Figure 7: What are the primary use cases for cloud BI in your organization? (n=164)

Despite the prevalence of report/dashboard consumption in the cloud, power users are much more likely to use the cloud than casual users. More than half use the cloud to run ad hoc analyses and author reports, while more than 20% use it for data preparation, prototyping and predictive analytics. And these power user activities in the cloud will grow significantly in the next twelve months (see figures 8 and 9).

User type	High	Moderate	Low
Power users	54%	32%	14%
Casual users	20%	46%	35%
Customers / suppliers	15%	32%	52%

■ High ■ Moderate ■ Low

Figure 8: To what degree do the following types of BI users use the cloud in your organization? (n=163)
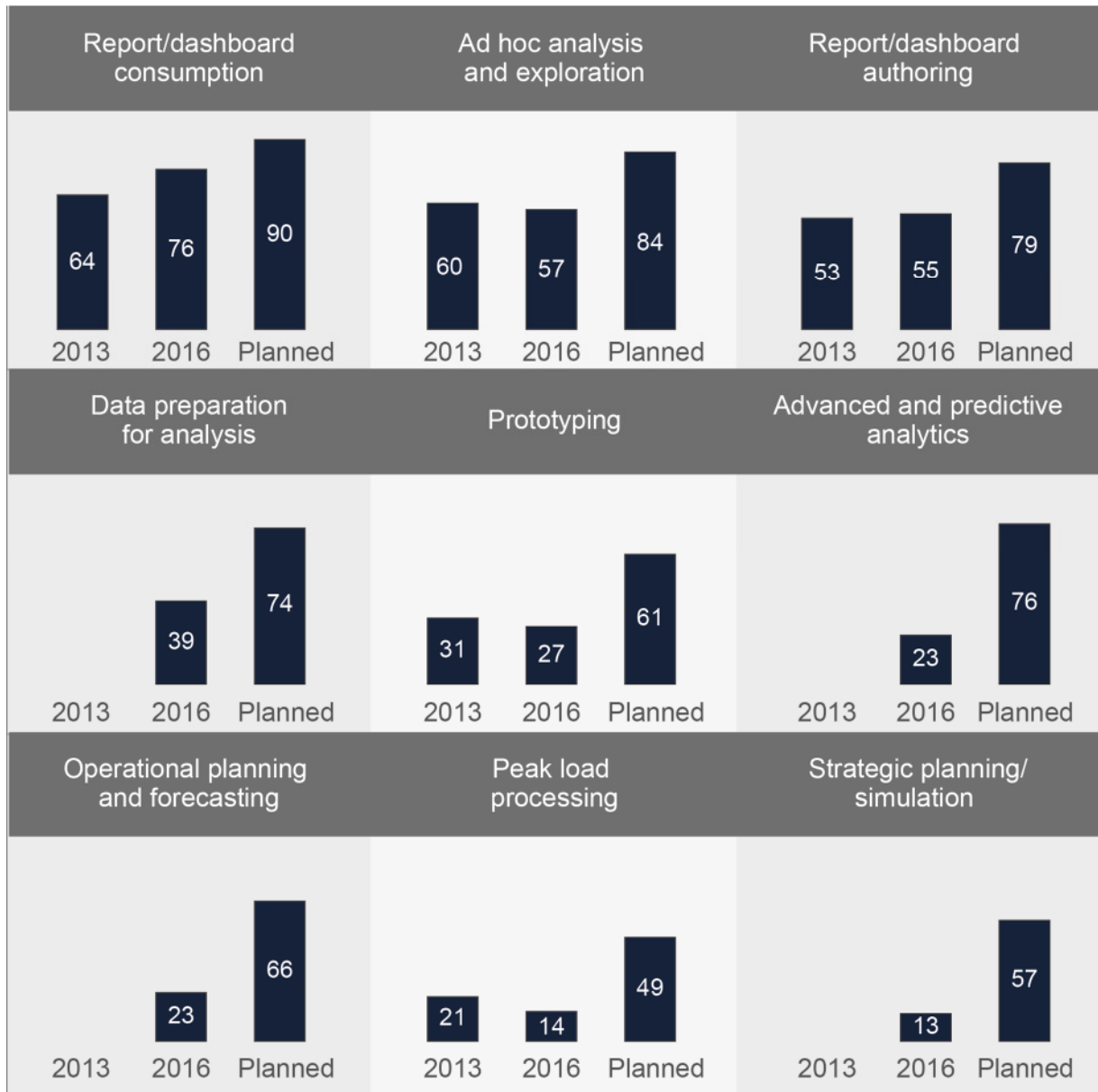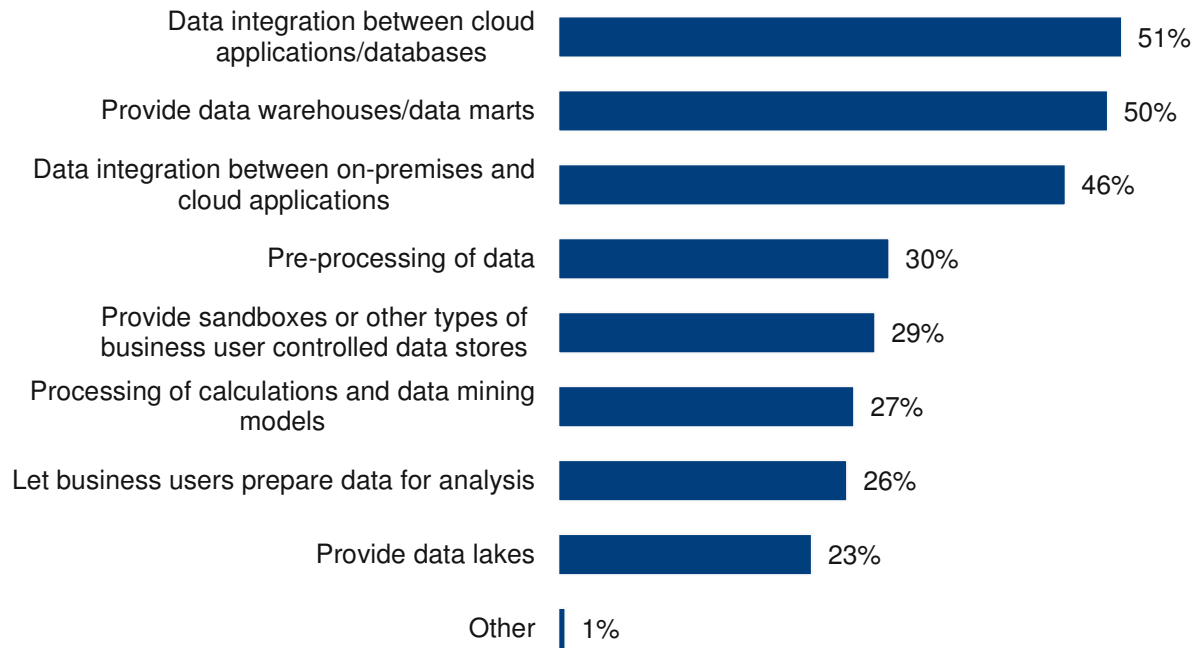
Figure 9: What are the primary use cases for cloud BI in your organization? TechTarget 2013 (n=278), BARC 2016 (n=164) percentage.

When it comes to data management, a large percentage of organizations use the cloud to integrate cloud applications with each other and with on-premises applications. As more organizations move to the cloud, the need to support hybrid cloud architectures becomes paramount.

But companies are also implementing data warehouses and data marts in the cloud. Based on many conversations with industry players, we suspect that most cloud data warehouses are built to support net new applications rather than existing ones, where the costs and complexity of a lift-and-shift strategy preclude many companies from making the change—at least for now (see figure 10).

Figure 10: Data management use cases (n=156)

Data integration between cloud applications/databases — 51%
Provide data warehouses/data marts — 50%
Data integration between on-premises and cloud applications — 46%
Pre-processing of data — 30%
Provide sandboxes or other types of business user controlled data stores — 29%
Processing of calculations and data mining models — 27%
Let business users prepare data for analysis — 26%
Provide data lakes — 23%
Other — 1%

Architecture

The rate at which organizations are moving BI into the cloud exceeds that of data management. More than half run BI tools and servers in the cloud whereas between a third and a half run data warehouses, data integration or data preparation in the cloud. It is harder to move data into the cloud due to security and legal concerns as well as the difficulty in loading on-premises data into cloud-based solutions. Still, there is a broad set of different use cases that are run in the cloud starting with data warehouses (42%) but also data marts (31%) and different types of data integration in roughly a third of respondents' companies: ETL/batch integration, real-time integration and also data preparation (data wrangling) for business users.

Interestingly, the biggest growth in cloud BI adoption in the past three years comes from ad hoc exploration, which rose from 20% to 49%, almost a 150% increase. This is largely due to the growth of exploration (also called data discovery or visual discovery) tools in general and their popularity among power users, who are most likely of all business users to use the cloud. (See figures 11-12).
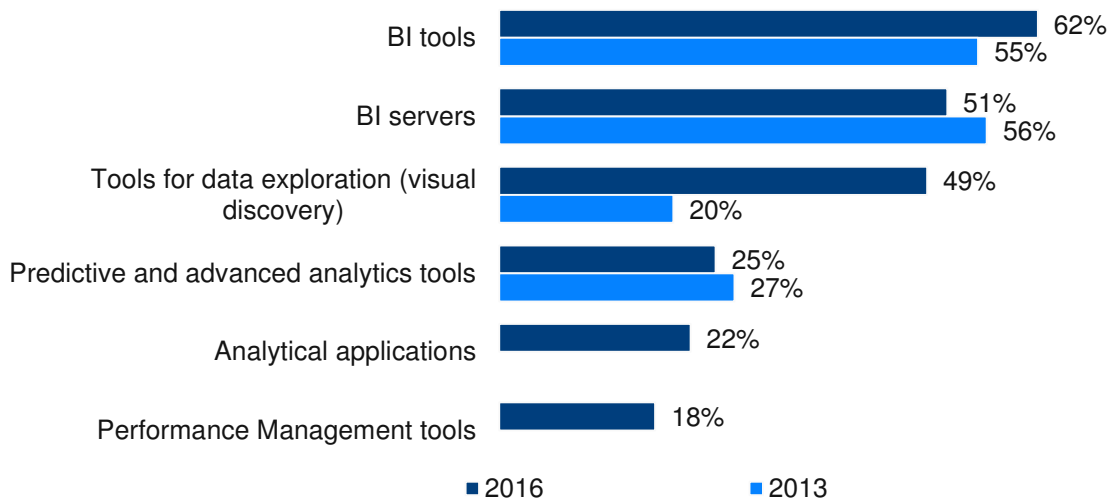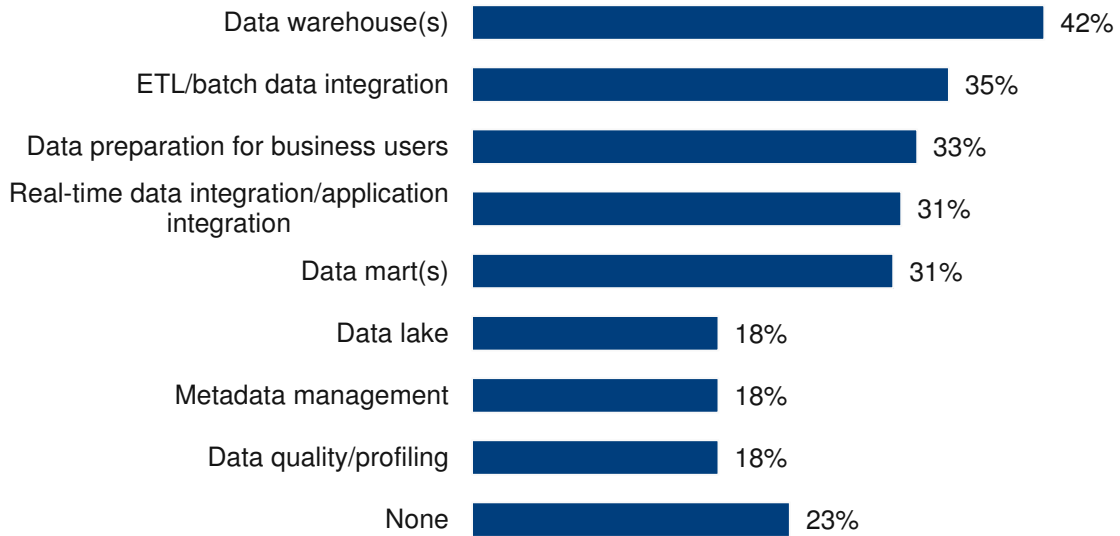

Figure 11: Which BI components run in the cloud? TechTarget 2013 (n=278), BARC 2016 (n=173)

Data warehouse(s) — 42%
ETL/batch data integration — 35%
Data preparation for business users — 33%
Real-time data integration/application integration — 31%
Data mart(s) — 31%
Data lake — 18%
Metadata management — 18%
Data quality/profiling — 18%
None — 23%

Figure 12: Which data management components run in the cloud? (n=172)

The public cloud is the preferred deployment platform for cloud BI. Fewer deployments run on private clouds inside corporate data centers or hybrid clouds that straddle both on-premises and public cloud platforms. Public clouds make it easy and relatively inexpensive to run BI in the cloud. And many companies are recognizing that their data may be more secure in a public cloud than in their own data centers.

In contrast, private and hybrid clouds don't deliver the primary benefit of the cloud—the elimination of on-premises computing infrastructure. In addition, hybrid clouds are complex to manage and raise security concerns when cloud BI applications tunnel through corporate firewalls to access on-premises systems. However, we expect a growth in hybrid cloud computing as more large organizations transition to the cloud.
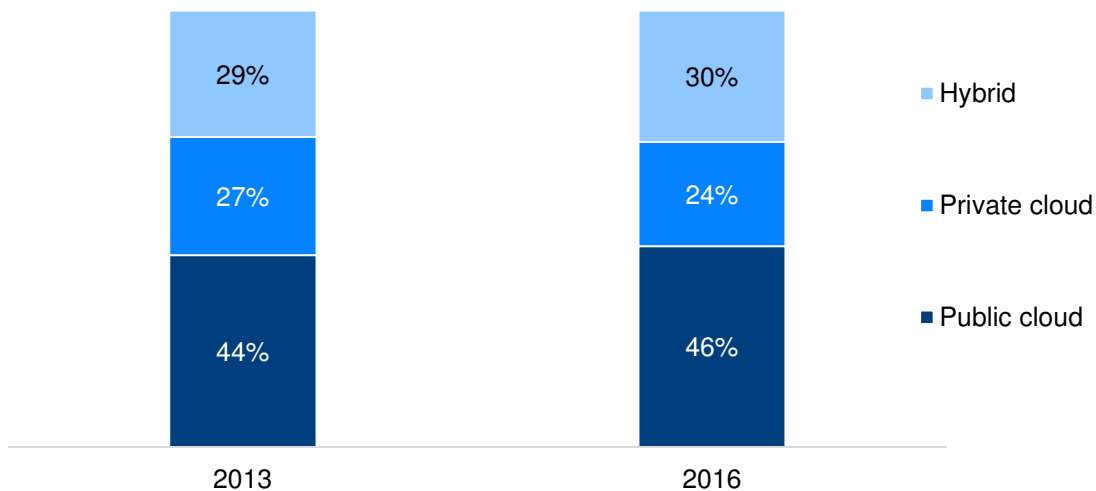
Figure 13: What type of cloud infrastructure do you use to support your BI and data management initiative? TechTarget 2013 (n=278), BARC 2016 (n=163)

Our research shows that software vendors play a large role in cloud deployments. In fact, the cloud has opened up a range of outsourcing opportunities for solutions providers. Since the cloud requires companies to outsource systems management, they are perhaps more amenable to outsourcing other aspects of their cloud BI deployments, including design and operations. In fact, we are surprised that a quarter of respondents said that BI vendors run and manage their cloud BI environments.
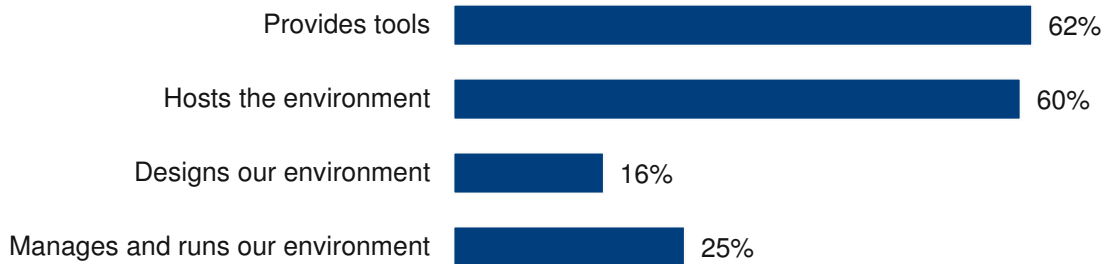
Figure 14: What role does your cloud BI or data management vendor play in your cloud implementation? (n=162)
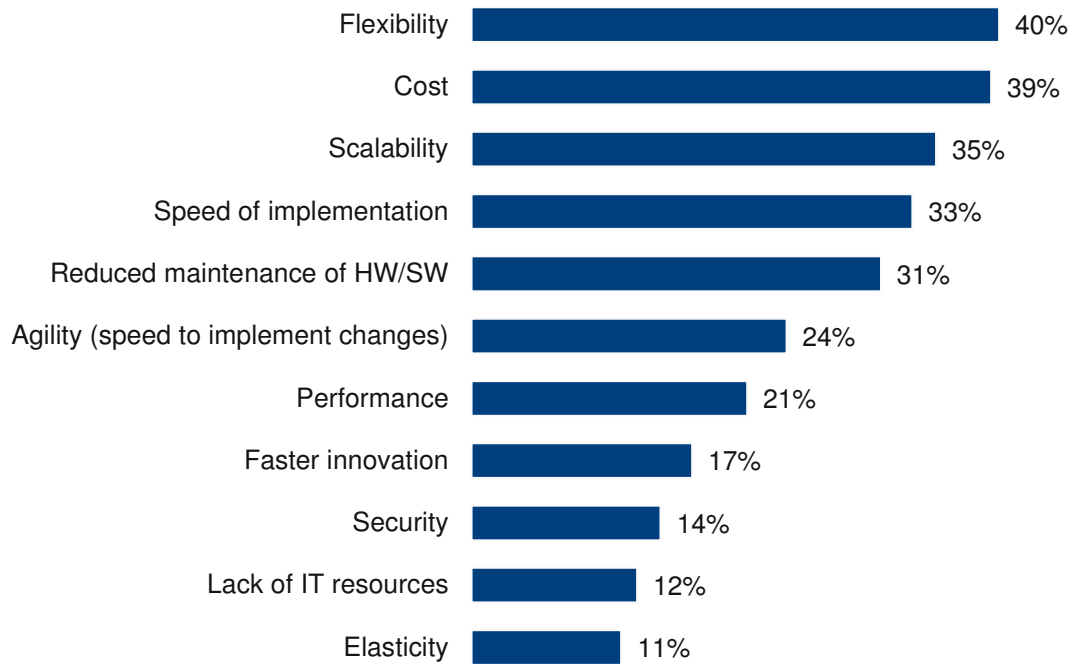
Benefits and Challenges

Flexibility and cost are the two biggest reasons why companies run BI in the cloud, followed by scalability, speed of implementation and reduced hardware/software maintenance.

Flexibility means that organizations can implement BI without first having to jump through a lot of internal hoops with IT, legal and purchasing. This speeds deployment and agility, allowing business people to quickly get their hands on data for a new project. Flexibility also refers to the elasticity of the cloud, which can scale processing to handle peak activity, eliminating the need to estimate capacity upfront or experience significant performance slowdowns.

There is a perception that the cloud is a cheaper platform to run BI, although this is not necessarily true. Costs will vary by customer based on the amount of processing they do on a daily, weekly and monthly basis. What is true is that companies can forego capital expenditures (capex) in favor of monthly subscriptions. Being able to pay for BI out of operational budgets frees up money for other infrastructure improvements.
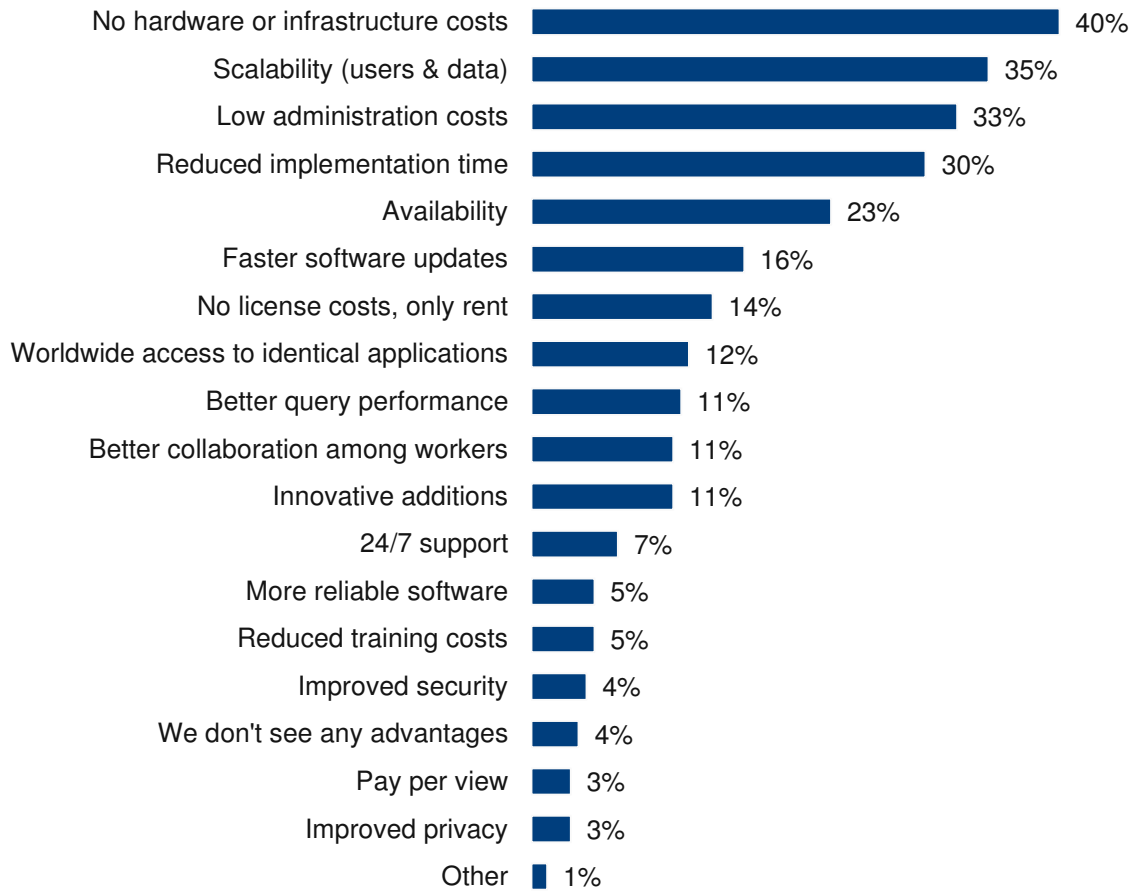
In case a vendor offers both a subscription and a license for purchase model the break-even point where subscription fees add up to the money spend in the alternative license + software maintenance model is often hit in a 3-5 year timeframe.

Flexibility	40%
Cost	39%
Scalability	35%
Speed of implementation	33%
Reduced maintenance of HW/SW	31%
Agility (speed to implement changes)	24%
Performance	21%
Faster innovation	17%
Security	14%
Lack of IT resources	12%
Elasticity	11%

Figure 15: What are the most important reasons for implementing BI and data management in the cloud? (n=169)

When it comes to actual benefits, the elimination of hardware and infrastructure costs tops the chart, followed by scalability, lower administration costs and deployment speed. Handing over infrastructure and maintenance to vendors frees organizations to focus on analytics, not hardware. It is interesting to see that the achieved benefits vary significantly between companies of different sizes (see below).

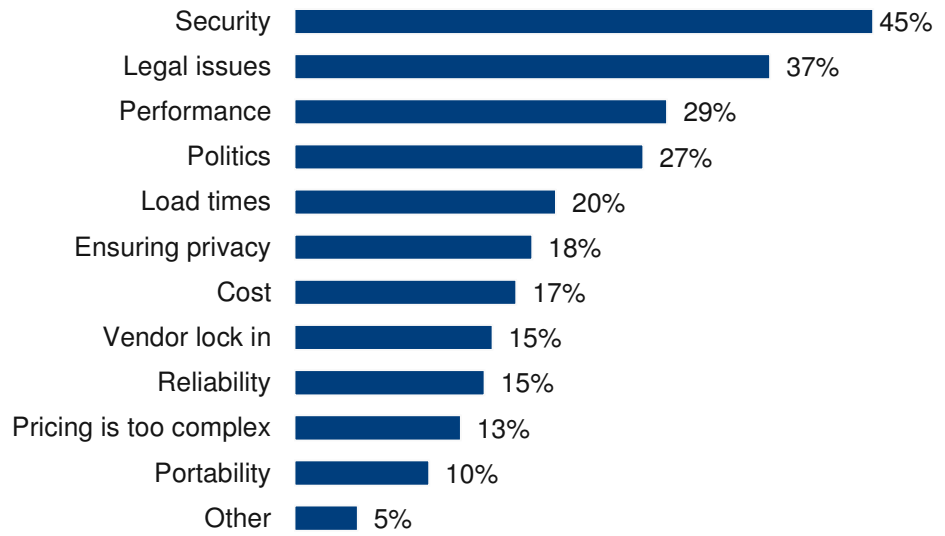|	
No hardware or infrastructure costs	40%
Scalability (users & data)	35%
Low administration costs	33%
Reduced implementation time	30%
Availability	23%
Faster software updates	16%
No license costs, only rent	14%
Worldwide access to identical applications	12%
Better query performance	11%
Better collaboration among workers	11%
Innovative additions	11%
24/7 support	7%
More reliable software	5%
Reduced training costs	5%
Improved security	4%
We don't see any advantages	4%
Pay per view	3%
Improved privacy	3%
Other	1%

Figure 16: What have been the biggest benefits for your organization in a cloud-based BI solution? (n=166)

Security still remains the biggest obstacle to implementing cloud BI, followed by legal issues, such as privacy regulations and contractual issues, and performance. Politics ranks fourth on the list, probably because the cloud represents potential job loss or dislocation for IT professionals.

Given the challenges, more than a third of respondents rate their cloud BI deployments as highly successful, while a slight majority rates them as moderately successful. In the case of cloud BI, the benefits outweigh the challenges—or organizations have been able to overcome the challenges.

Security — 45%
Legal issues — 37%
Performance — 29%
Politics — 27%
Load times — 20%
Ensuring privacy — 18%
Cost — 17%
Vendor lock in — 15%
Reliability — 15%
Pricing is too complex — 13%
Portability — 10%
Other — 5%

Figure 17: What are the major challenges facing your cloud BI and data management initiative? (n=163)

High — 36%
Moderate — 51%
Low — 13%
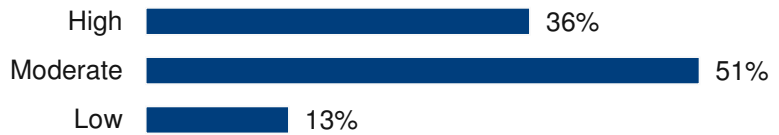
Figure 18: How successful is your cloud BI and data management program? (n=166)

Deployments by Company Size

Small companies are more likely to implement BI tools and data warehouses in the cloud than large or mid-sized companies. And they are more likely to use the public cloud than private or hybrid clouds and tools to integrate cloud applications. This makes sense since many small companies may not have a legacy BI/DW environment and internal data center or the IT staff that can build something in-house. And since many small companies are startups, they likely have a greater affinity for startup cloud vendors and a greater tolerance for risk than mid-size or large companies.
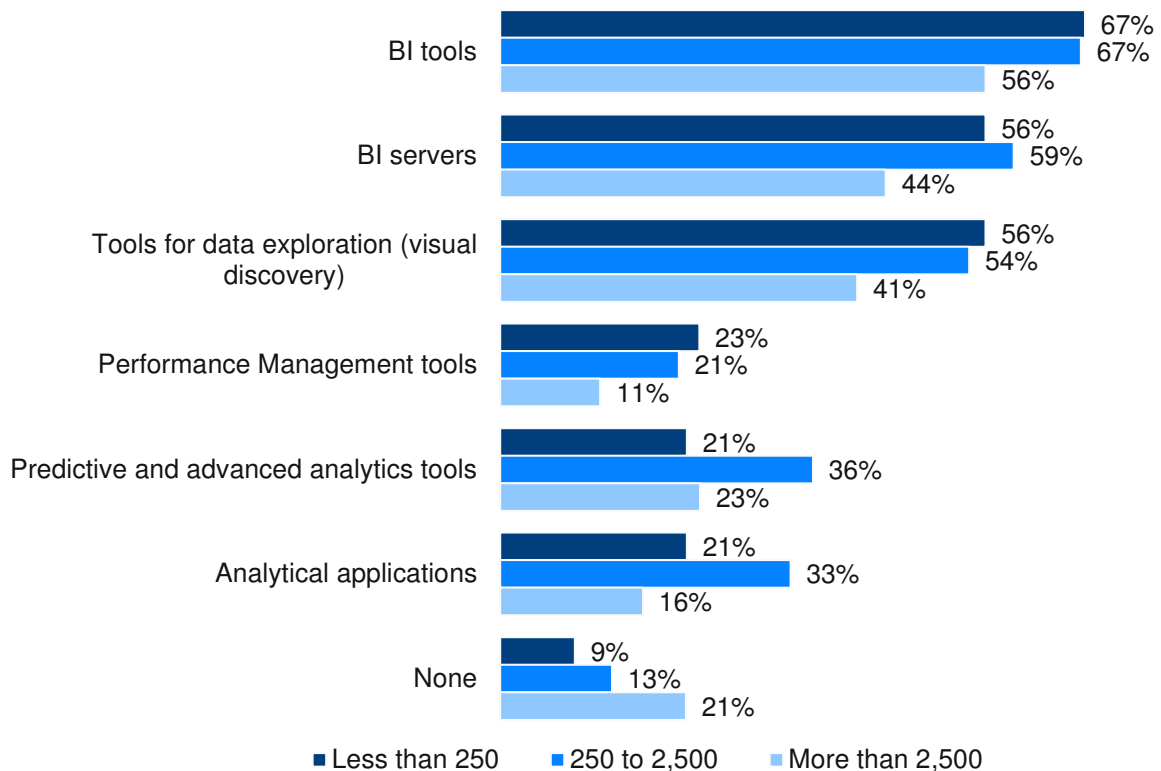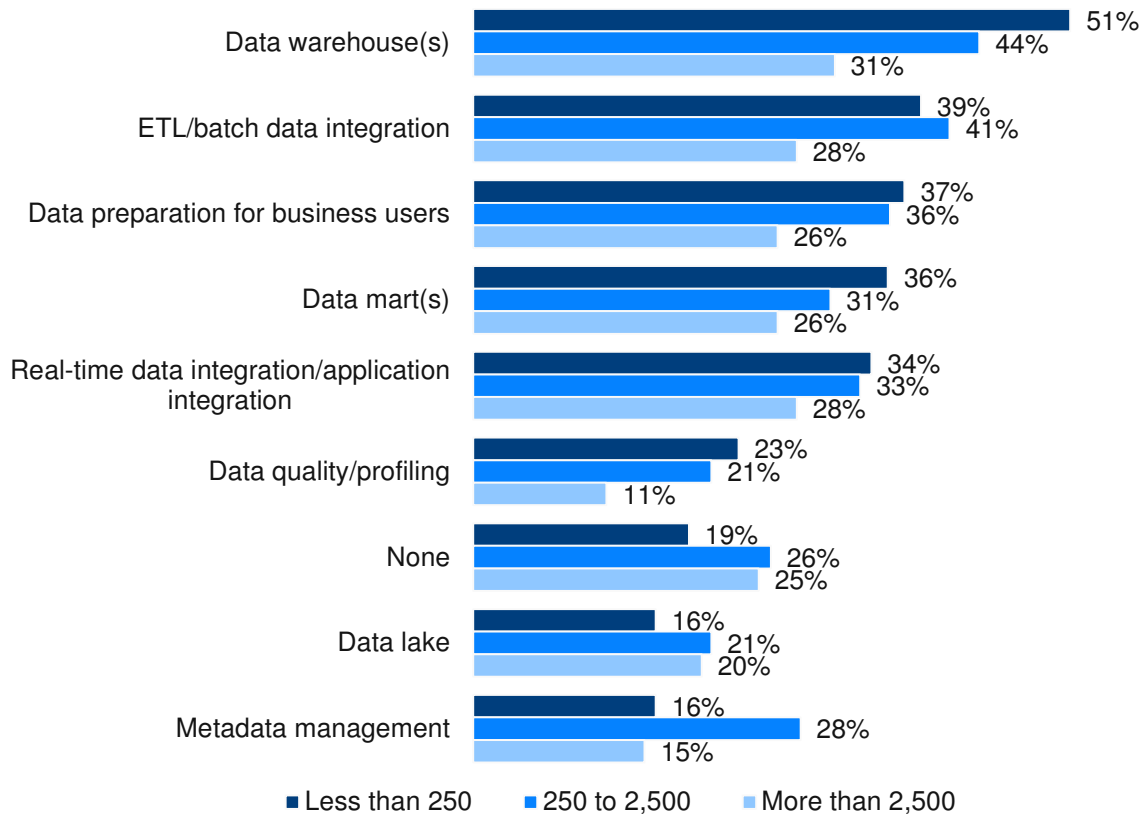

Figure 19: Cloud BI components by company size (n=170)

Figure 20: Cloud data management components by company size (n=170)

Interestingly, large companies are more likely to implement private clouds while mid-sized companies are more likely to implement hybrid clouds and small companies public clouds. This makes sense since large companies are more likely to have implemented virtualization technology to optimize utilization of their data centers. And mid-size companies want the benefits of a public cloud but may not have yet invested in private cloud technology.
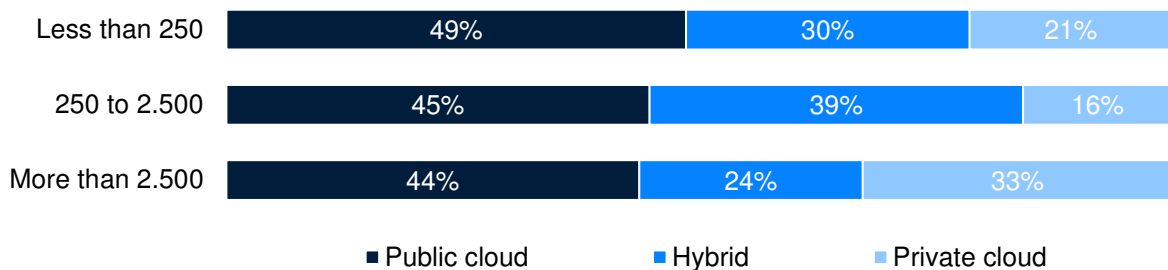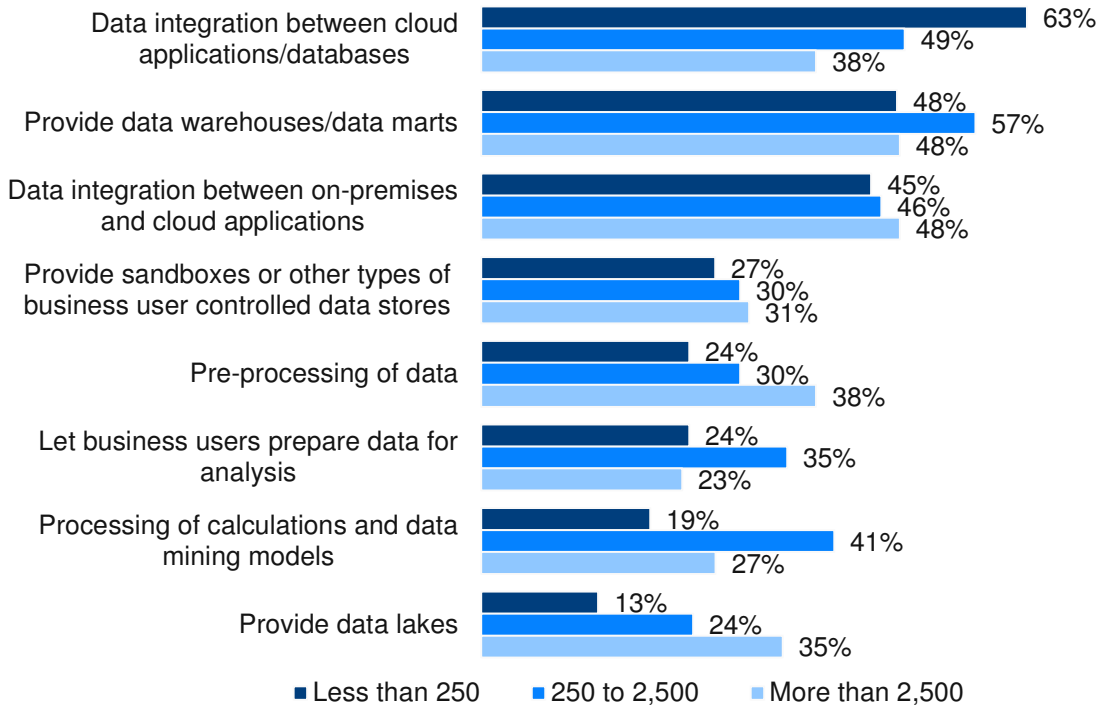

Figure 21: Type of cloud infrastructure by company size (n=163)

It is interesting to see that data integration between on-premises and cloud applications is ranked an equally important use case across all company sizes while the data integration between cloud applications gets more important the smaller the companies are. Using the cloud for processing calculations and data mining

models is especially important for mid-sized companies. We assume that they value the flexibility the cloud provides for this growing and often new topic, while large organizations might have already implemented this on-premises and small organizations are not implementing this yet.

Figure 22: Primary use cases for cloud data management by company size (n=165)

The top drivers of cloud BI differ significantly by company size. Small companies are attracted to the cloud because of flexibility, cost, reduced infrastructure maintenance and scalability. For large companies, scalability is the top driver, followed by speed of implementation, cost and agility. Mid-size firms are driven by cost, flexibility, performance and security.
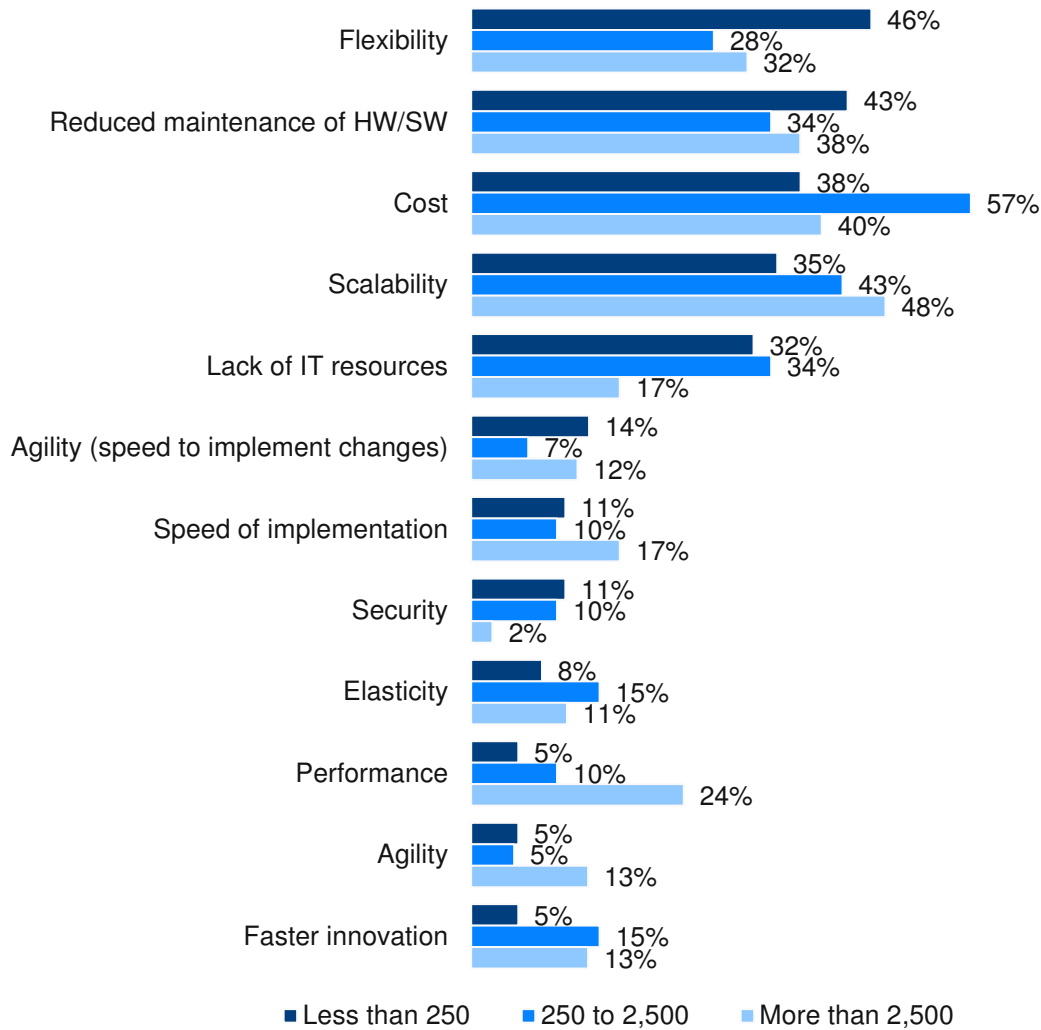
Figure 23: Most important reasons for implementing BI and data management in the cloud by company size (n=162)

Benefits also vary significantly between different size companies. Small and mid-size companies benefit from the elimination of hardware costs, low administrative costs and scalability, while large companies benefit from scalability, deployment speeds and low administration costs.
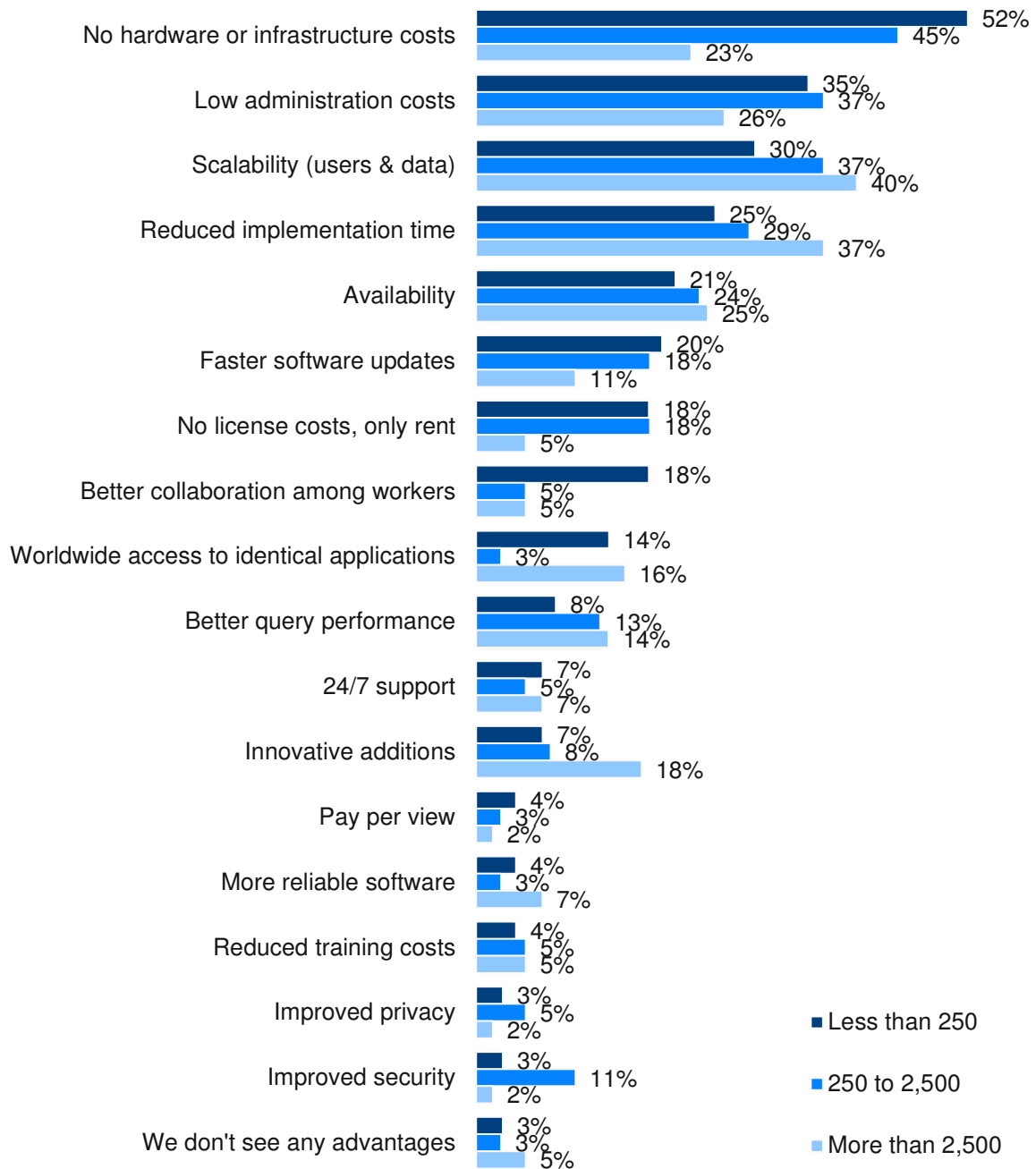
Figure 24: Biggest benefits in a cloud-based BI by company size (n=166)

Security and legal issues are the biggest challenges for large and mid-size companies since they face more regulatory and investor scrutiny than small and mid-size firms. The biggest challenges for small companies are security and politics.
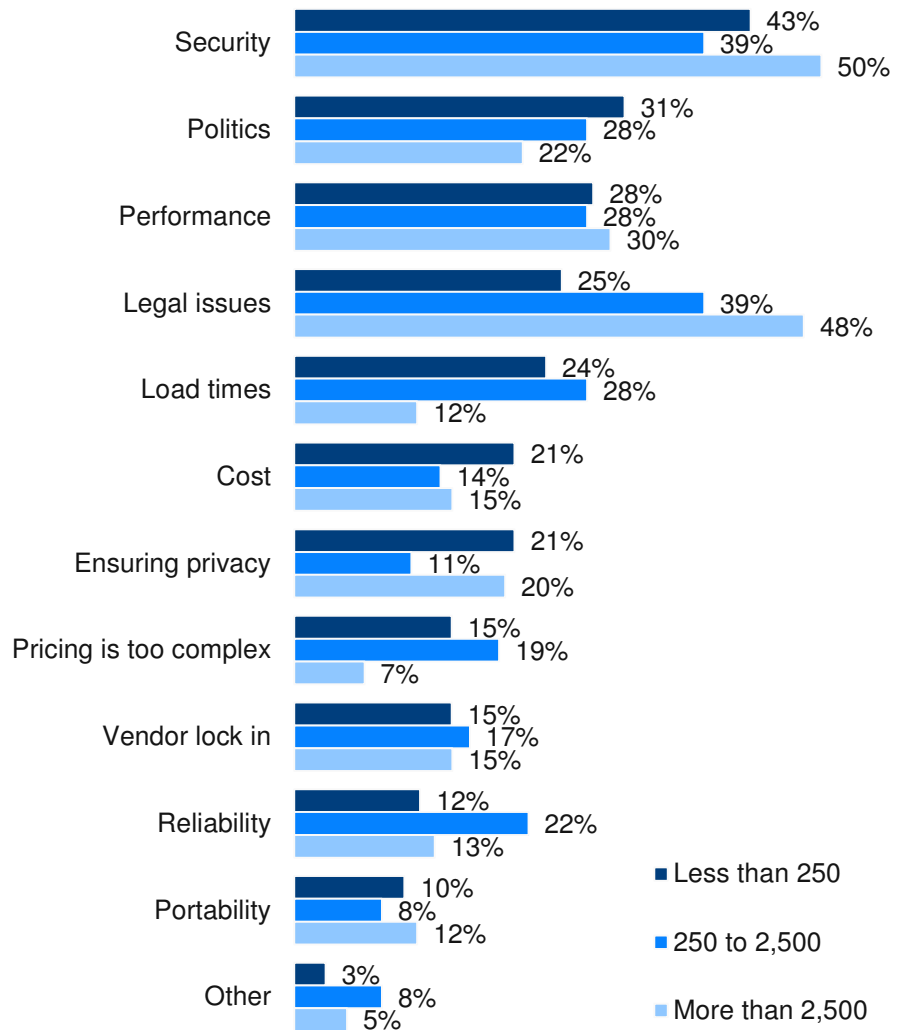
Figure 25: Challenges by company size (n=163)

Companies that have not yet implemented cloud BI cite security and legal issues as the top reasons for holding out, especially large companies and mid-size companies.
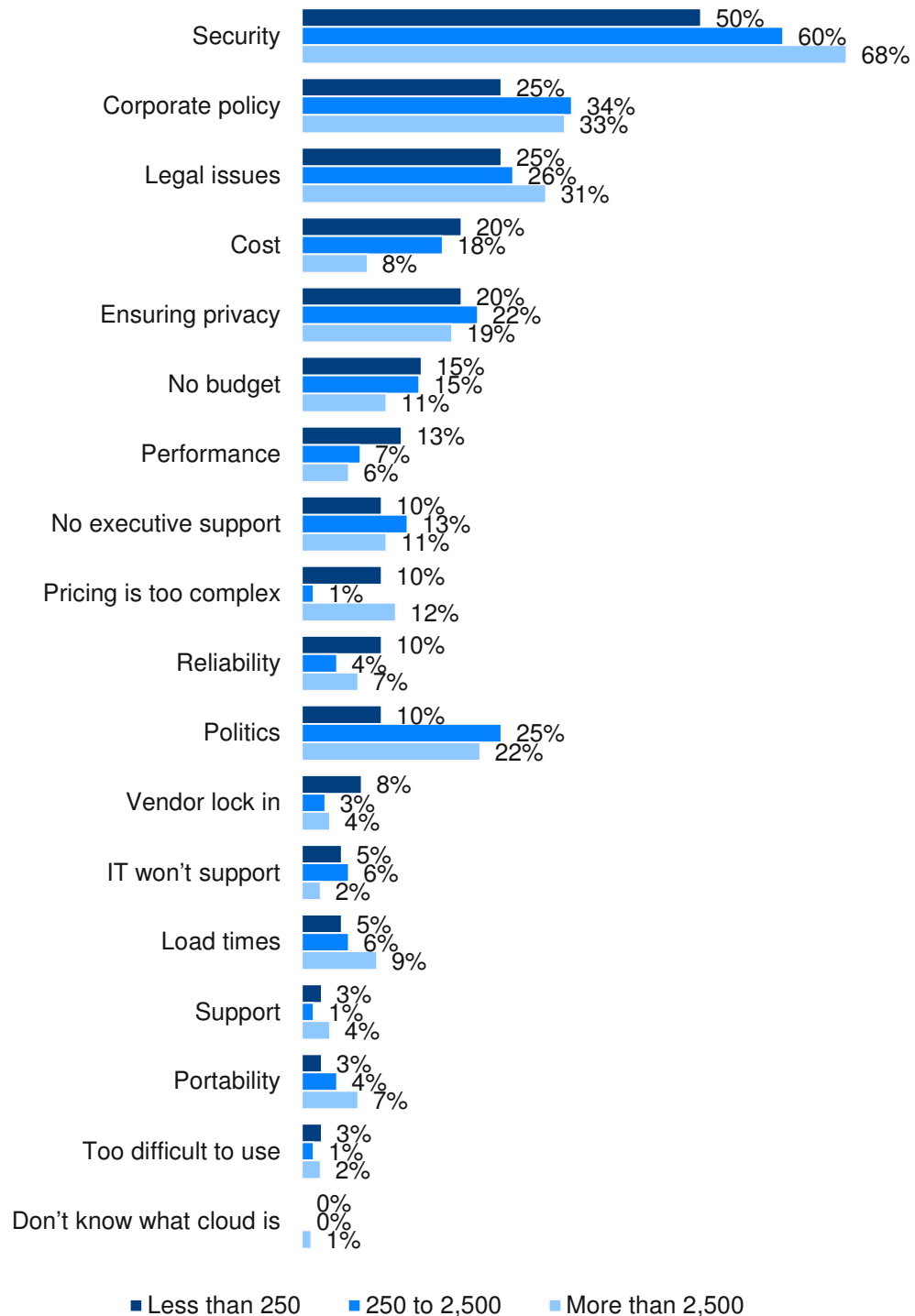
Figure 26: Reasons not to implement cloud BI by company size (n=193)

North America versus Europe

North America has embraced the cloud more fully than Europe at this time. It is more fully committed to a cloud strategy and has double the rate of "high" usage of the cloud compared to Europe. It also has a higher percentage of companies that are strategically committed to cloud BI to a high degree, and it has higher usage as well. This is no surprise since North America has traditionally been a fast adopter of new technologies compared to Europe and is home to many cloud software firms.
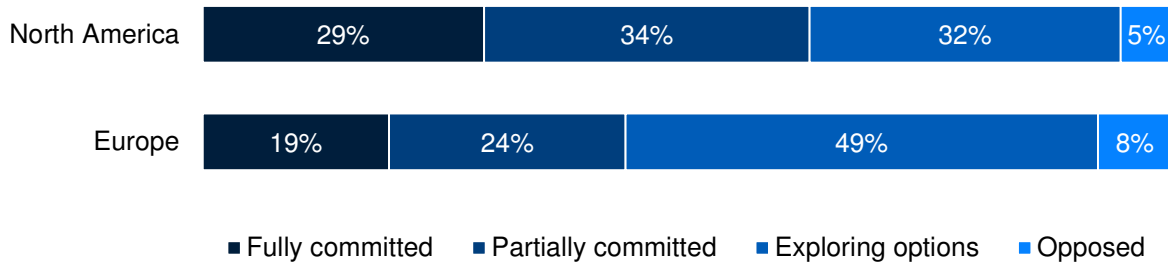
Region	Fully committed	Partially committed	Exploring options	Opposed
North America	29%	34%	32%	5%
Europe	19%	24%	49%	8%

Figure 27: Cloud computing strategy by region (n=340)

Region	High	Moderate	Low
North America	20%	32%	49%
Europe	10%	32%	57%
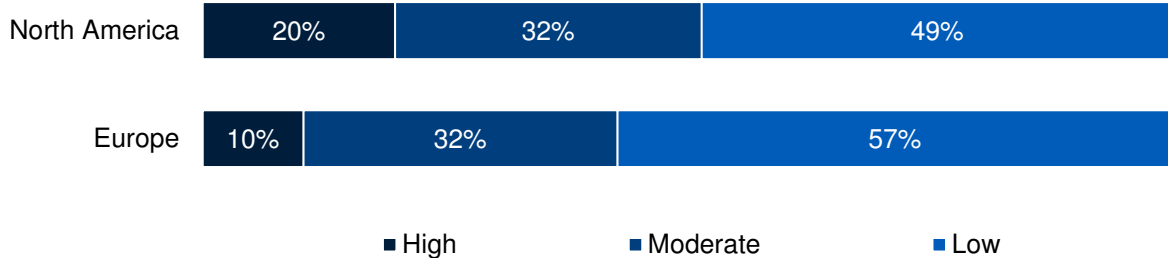
Figure 28: Cloud usage by region (n=365)

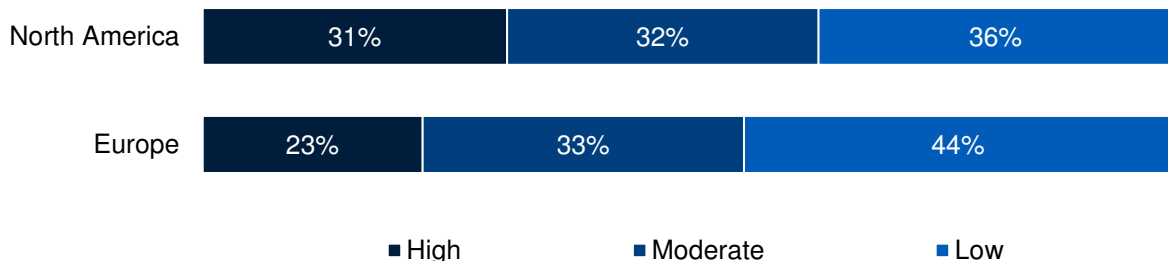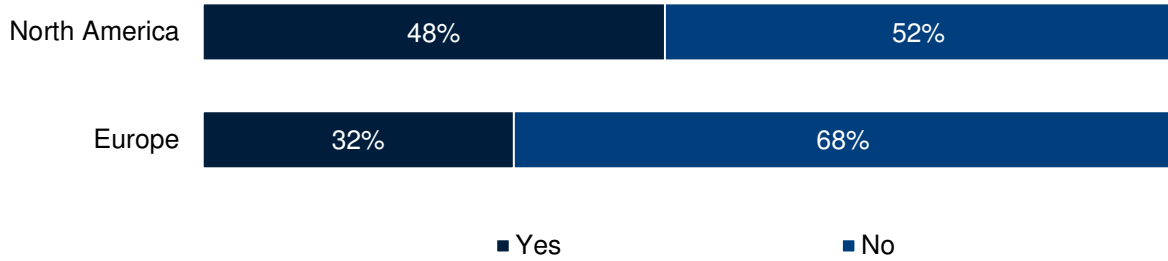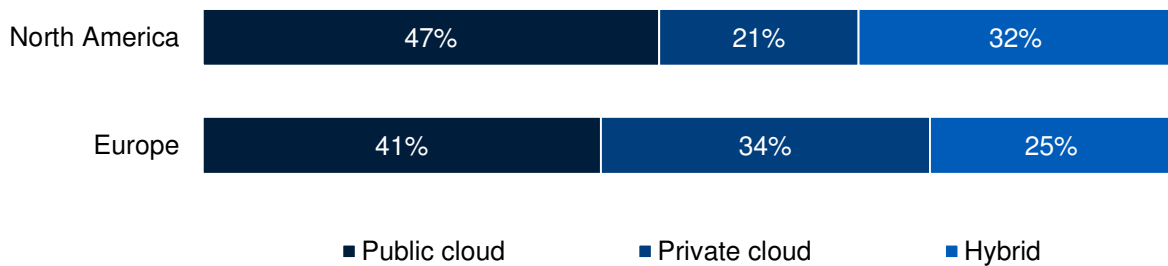| Region	High	Moderate	Low
North America	31%	32%	36%
Europe	23%	33%	44%

Figure 29: Cloud BI strategy by region (n=365)

Figure 30: Cloud BI components by region (n=341)

Both North America and Europe are more likely to use public cloud platforms than either private or hybrid platforms. But Europe has a decidedly greater use of private cloud platforms than North America.
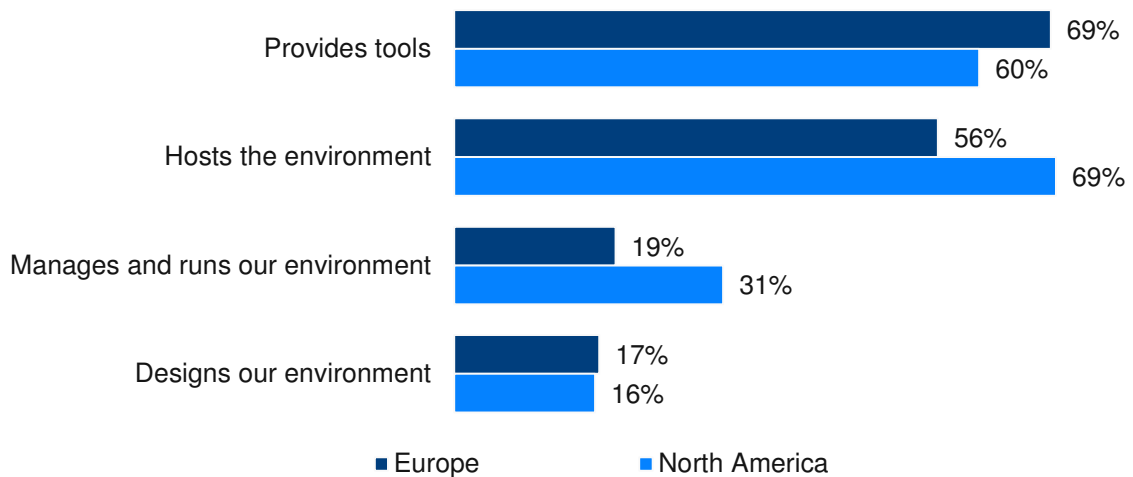

Figure 31: Cloud platform by region (n=161)

North American organizations are much more willing to let vendors play a greater role in their cloud BI solutions than Europe. They are more likely to trust vendors to host the BI solution and manage and run the environment compared to Europe.

Figure 32: Vendor role by region (n=159)

European cloud BI implementations are much more driven by flexibility and scalability than North American ones, which favor cost and deployment speed as their primary reasons for deploying cloud BI. In terms of actual benefits, European companies find more benefits in outsourcing hardware and lower administration costs, while North American firms benefit most from scalability and speed of deployment.
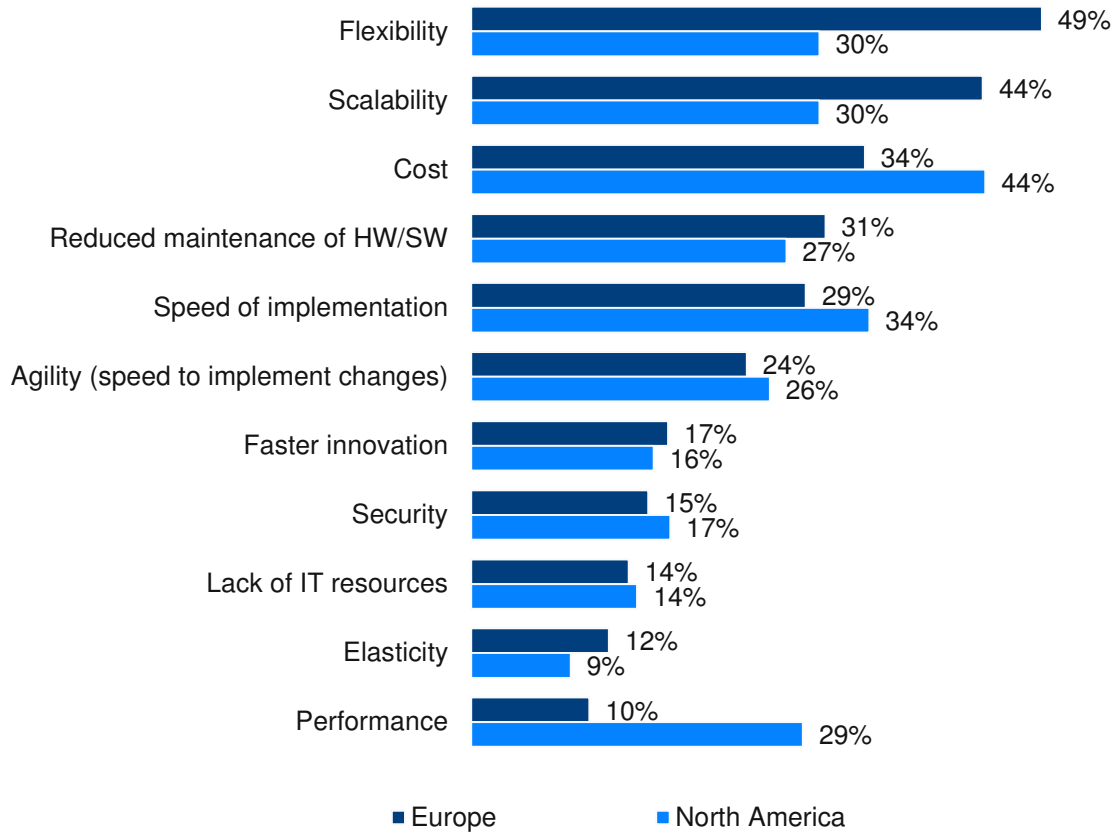
Figure 33: Drivers by region (n=166)
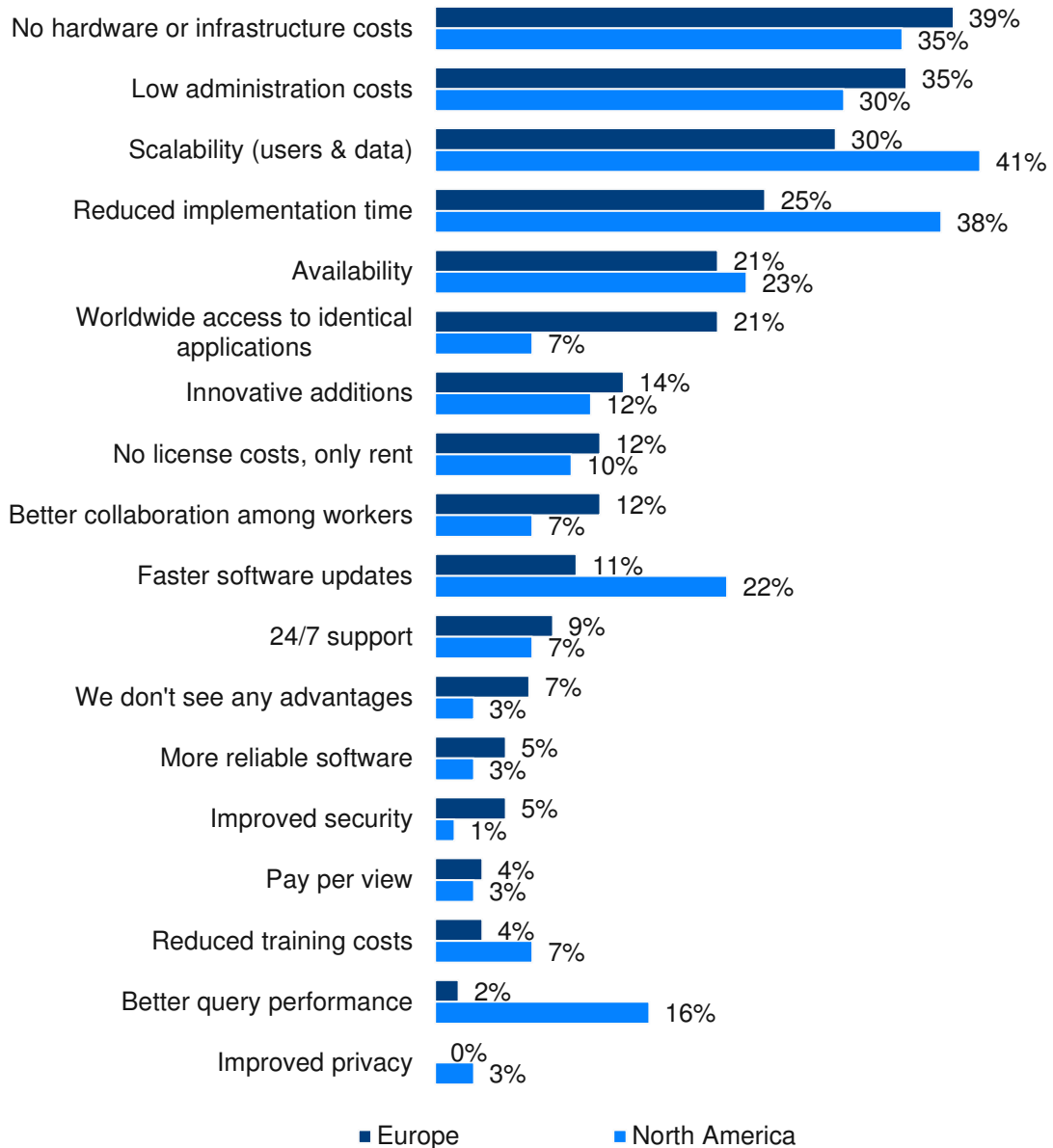
Figure 34: Benefits by region (n=164)

Both North America and Europe cite security and legal issues as the primary challenges, but Europeans to a much greater degree. This is probably due to the more stringent privacy laws in Europe.

Security — Europe 53%, North America 36%
Legal issues — Europe 46%, North America 33%
Performance — Europe 30%, North America 30%
Politics — Europe 25%, North America 29%
Ensuring privacy — Europe 19%, North America 20%
Load times — Europe 16%, North America 18%
Vendor lock in — Europe 14%, North America 20%
Cost — Europe 14%, North America 18%
Portability — Europe 14%, North America 9%
Reliability — Europe 12%, North America 20%
Pricing is too complex — Europe 11%, North America 14%

■ Europe   ■ North America

Figure 35: Challenges by region (n=161)

Conclusion

Cloud BI and data management has reached a tipping point. After years of stasis, cloud BI and data management adoption is growing, fueled by the rising number of cloud applications and easing concerns over security and privacy. Organizations embrace the cloud to gain greater flexibility, speed deployments and lower costs.

Many entrust BI and data management vendors to do more than just provide hardware and software in the cloud, relying on them to design and operate their BI and data management environments. In this way, cloud BI and data management provides opportunities for both user organizations and solutions providers.

Attachment A: Methodology and Demographics

The online user survey was conducted worldwide in September and October 2016. BARC promoted this survey through Web sites, at events and in email newsletters. A total of 370 people participated in this survey. Most participants came from Europe and North America (47 percent and 37 percent). Participants from Asia Pacific and South America were distributed relatively evenly (8 percent and 6 percent).
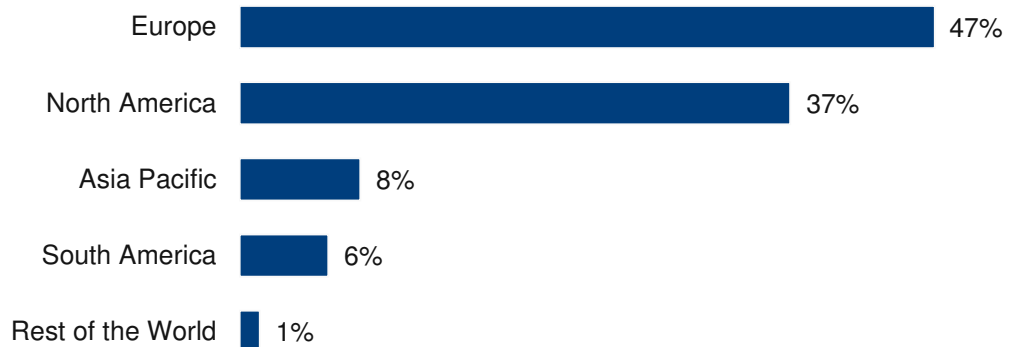
Figure 36: Regions (n=367)

Figure 37 shows respondents' company sizes by the number of employees. Organizations with more than 2,500 employees were the best represented in this study. However, companies of other sizes were also well represented with 31 percent having less than 250 employees, and 29 percent with 250 to 2,500 employees

Figure 37: Company size (n=370)

Business Application Research Center (BARC)

Company profile

BARC is a leading enterprise software industry analyst and consulting firm delivering information to more than 1,000 customers each year. Major companies, government agencies and financial institutions rely on BARC's expertise in software selection, consulting and IT strategy projects.

For over twenty years, BARC has specialized in core research areas including Data Management (DM), Business Intelligence (BI), Customer Relationship Management (CRM) and Enterprise Content Management (ECM).

BARC's expertise is underpinned by a continuous program of market research, analysis and a series of product comparison studies to maintain a detailed and up-to-date understanding of the most important software vendors and products, as well as the latest market trends and developments.

BARC research focuses on helping companies find the right software solutions to align with their business goals. It includes evaluations of the leading vendors and products using methodologies that enable our clients to easily draw comparisons and reach a software selection decision with confidence. BARC also publishes insights into market trends and developments, and dispenses proven best practice advice.

BARC consulting can help you find the most reliable and cost effective products to meet your specific requirements, guaranteeing a fast return on your investment. Neutrality and competency are the two cornerstones of BARC's approach to consulting. BARC also offers technical architecture reviews and coaching and advice on developing a software strategy for your organization, as well as helping software vendors with their product and market strategy.

BARC organizes regular conferences and seminars on Business Intelligence, Enterprise Content Management and Customer Relationship Management software. Vendors and IT decision-makers meet to discuss the latest product updates and market trends, and take advantage of valuable networking opportunities.

Along with CXP and Pierre Audoin Consultants (PAC), BARC forms part of the CXP Group – the leading European IT research and consulting firm with 140 staff in eight countries including the UK, France, Germany, Austria and Switzerland. CXP and PAC complement BARC's expertise in software markets with their extensive knowledge of technology for IT Service Management, HR and ERP.

Eckerson Group

Eckerson
Group

www.eckerson.com

Company profile

Eckerson Group is a research and consulting firm that serves business analytics leaders and helps them use data and technology to drive better insights and actions. Our research analysts each have more than 20 years of experience in the field and are uniquely qualified to help business and technical leaders optimize their investments in business intelligence, advanced analytics and data management. Our consultants help clients develop forward-thinking strategies and roadmaps using the latest technologies and techniques.

Sponsor Profiles

Birst

Company profile

Birst is the world's most advanced networked business analytics platform. Organizations can now achieve a new level of trusted insight and decision making by connecting their data and people via a network of analytics services. Birst scales from individuals to the enterprise in a manner that is smarter, more connected, and more scalable than any previous analytics and business intelligence platform. Learn more at www.birst.com and join the conversation @BirstBI.

On Nov. 29, 2016, Birst launched Birst 6, the next evolution of its networked business analytics platform that empowers business users to connect to a new level of trusted insights.

With Birst 6, business users can transform raw data into connected insights quickly and effortlessly. Connected insights means people can connect their prepared data to a network of analytics, enriching their own insights and those of others throughout the organization via Birst's enterprise-scale, multi-tenant cloud architecture. Only Birst enables people to extend their analytics, data models and visualizations through a seamless, networked integration of data and analytics deployments across their organizations.

The Birst 6 networked business analytics platform empowers business users to connect to a new level of trusted insights – delivering business analytics that are "Connected," "Smart," "Trusted" and "Enterprise Class."

Connected: Birst Connected Data Prep

Birst's Connected Data Prep experience enables business users to leverage powerful data blending, transformation, and networking capabilities to prepare data for analytics via an intuitive users interface – all without the need for IT intervention. Birst Connected Data Prep eliminates data silos across the enterprise, while enabling everyday business users to easily access and work with trusted data. They can connect their insights to their company's network of analytics, for smarter, confident business decisions.

Smart: Birst Machine Learning Automation

With Birst's Machine Learning Automation, enterprises can extend the benefits of advanced analytics to a broader audience, empowering them with the ability to predict outcomes, so they never miss business opportunities. Smart prediction capabilities in Birst 6 will help business people enhance their analysis by forecasting, using trend lines, with just one click. Birst's Machine Learning Automation delivers faster time-to-insight, with less human intervention.

Enterprise Class: Birst's cloud-scale architecture

Birst's cloud-scale architecture delivers world-class performance on top of a modern, multi-tenant platform that, unlike traditional solutions, has no single bottleneck to hinder performance. Birst 6 will deliver performance and scalability improvements to support even larger data volumes and concurrency levels.

Jedox

Company profile

Jedox simplifies planning, analysis, and reporting with one unified and cloud-based software suite. Jedox empowers decision makers and business users across all departments and helps them work smarter, streamline business collaboration, and make insight-based decisions with confidence:

- Enterprise budgeting, forecasting & workflow
- Data entry & write-back with real-time scenario planning
- Data discovery & fluid visualization
- Beautiful operational reporting & dashboards
- Consolidations, KPIs & Financial Performance Management
- Multidimensional predictive analytics

Jedox empowers you to analyze historical data for meaningful insight, and to plan and forecast intelligently. Jedox unleashes your capabilities in one solution, unifying Business Intelligence and Corporate Performance Management into your competitive edge. Beyond data discovery, Jedox's powerful and intuitive write-back mean you can streamline any business process, in any department, where you capture, calculate and present data. This flexibility means Jedox evolves with your business and you can consistently drive progress through Jedox. And your ROI multiplies.

To simplify planning across the organization, Jedox comes with prebuilt components for building integrated planning, analysis and reporting processes. The "Jedox Models" for Profit and Loss, Cost Center, HR, and Sales, are out-of-the-box planning applications that users in the Office of Finance and business departments can easily adapt for their own organization, processes and

business needs. "Jedox Models" use proven modeling techniques and industry best practice to easily link financial planning processes with operational planning and sub-budgets.

Jedox is easy to deploy: May it be on your local machine, as an on-premises solution or in the public, private or hybrid cloud, Jedox can easily be used on any device, allowing access to your data on the fly anywhere in the world. Jedox provides a highly scalable, analytical engine that delivers real-time performance across rapidly changing enterprise data. The powerful Data Integrator efficiently connects to your most divergent data sources, from Salesforce, SAP, Qlik, Tableau and many more sources, for real-time insight. Jedox Excel Add-in, Jedox Web, and Jedox Mobile provide the perfect user-friendly experience, with a consistent experience, anywhere.

To stay ahead of the rise of big data, we've revolutionized in-memory with GPU, using the most advanced graphics cards. Every query, every calculation you make, runs in parallel across hundreds or even thousands of GPU-cores on your server. The Jedox GPU Accelerator gives you the key to massively speed-up complex analytics when conventional in-memory just isn't enough.

Over 1,900 organizations in 127 countries use Jedox for real-time planning on the web, in the cloud, and on any device. Jedox is a leading Enterprise Planning and Corporate Performance Management solution provider with offices on four continents and with over 180 certified business partners. Independent analysts recognize Jedox for its leading enterprise planning solutions. Simplify planning with Jedox and start your free trial today: www.jedox.com

Qlik

Qlik

www.qlik.com

Company profile

Qlik® is the leading visual analytics platform and the pioneer of user-driven business intelligence. Its portfolio of cloud-based and on-premise solutions meets customers' growing needs from reporting and self-service visual analysis to guided, embedded and custom analytics, regardless of where data is located. Approximately 40,000 customers across all industries and geographies use Qlik Sense®, QlikView® and Qlik Sense® Cloud to gain meaning out of information from multiple sources, exploring the hidden relationships within data that lead to insights that ignite good ideas. At Qlik, we focus on empowering people—by enabling everyone in an organization to see the whole story that lives within their data.

Our vision

Qlik was founded on one simple belief—Business Intelligence (BI) is optimized by harnessing human intelligence, the collective intelligence of people. We believe that data is nothing more than a source, and that BI, analytics tools and technologies are only as effective as those that use them. That's why we've built a new breed of visual analytics solutions—to bring out the best in the people that use them. Simply put, our focus is to amplify human intelligence.

Enabling agility

Qlik solutions enable everyone in an organization to see the whole story that lives within their data. To deliver on our vision, we must be agile and innovate ahead of the market, building on our foundation of challenging the status quo. As a result, we continue to embrace our core values and partner with our customers for their success.

Our solutions

Qlik supports all of our customers' BI needs with the most complete portfolio available —all powered by our patented associative engine technology. Our core solutions include:

Qlik Sense®: All business users can create their own visualizations or build upon content provided by others through an easy to use, drag and drop self-service application.

Qlik® Analytics Platform: Puts the power of the QIX associative data indexing engine and visualizations in the hands of application developers through powerful, open and modern APIs.

QlikView: IT and technical business analysts can build powerful guided data visualization and discovery apps that deliver interactive access to data to all business users.

Our cloud products include:

Qlik Sense® Cloud Business: Create, manage, and collaborate with visual analytics in the Cloud for up to 50 members. Users can create, edit, access content in group through shared streams of published apps. Manage access, reloads and refresh and define storage.

Qlik Sense® Cloud Plus: Share with an unlimited number of other users on any device for a monthly fee of $20. The Qlik DataMarket® Essentials package, which includes third-party currency, weather, social, and economic data, is included.

Qlik Sense® Cloud Basic: Share fully interactive Qlik Sense apps with up to five individuals for free without the need for them to download Qlik Sense themselves.

Committed to customer success

Qlik brings specific industry and functional-level experience to market. Our world-class consulting, training and support services ensure you get the most from your Qlik implementation. Our extended ecosystem includes a global user community of more than 100,000 participants and a marketplace for sharing applications, data and knowledge, plus a network of 1,700 experienced partners around the globe.

SAS

www.sas.com

Company profile

With more than $3 billion in sales, **SAS is one of the world's largest software companies and the leading vendor of big data analytics solutions**. At more than 80,000 locations around the world, enterprises rely on SAS analytics solutions for a competitive edge in **strategic and operational decisions** by tapping a wide range of business data – both separately and in conjunction with external data of any scale – for solid business insights.

Big data analytics is the key to not only managing, but profiting from the **digital transformation** and successfully putting the **disruptive processes** it entails in place. Thanks to 40 years of experience in the field of data analysis, SAS not only has sweeping vision, but also technology that is pragmatic, proven, secure and built for swift, productive deployment.

SAS systems can be found throughout the business world and in public administration. Its **core industries** are banking, insurance, trade and manufacturing. Banks use SAS to control their processes and ensure regulatory compliance. Insurance companies use it to detect fraudsters. Retailers rely on SAS to optimize customer communication and campaign management, and to improve online shoppers' customer experience. Industrial enterprises use it to manage their service and maintenance processes – for instance to ensure that components are replaced before they cause unplanned downtime.

SAS big data analytics helps enterprises **extract maximum value from their data**. No matter how large and how complex the data sets are – SAS software identifies the relevant structures and relationships. Data become insights, and thus a foundation for solid and prescient business decisions.

SAS high-performance analytics takes full advantage of Hadoop and in-memory computing for fast, economical big data processing. SAS also offers enterprises a platform to analyze, enhance and review data – a major contribution to data quality and governance.

All SAS solutions are also available as **managed services** and can be deployed in the public **cloud**, the private cloud or in hybrid cloud environments. One focus here is on solutions for self-service and mobile business analytics and data visualization that enables individual departments and the management level to gain valuable insights from data without having special knowledge of statistics or requiring support from the IT department.

Background: SAS arose out of a research project at North Carolina State University. Established in 1976 and headquartered in Cary, North Carolina, SAS employs around 14,000 people in 59 countries worldwide. Heidelberg has been the home of SAS' German headquarters since 1982. The subsidiary has offices in Berlin, Frankfurt, Hamburg, Cologne and Munich and currently employs 520 people. German customers include Allianz, Continental, Commerzbank, HUK Coburg, Fraport, DER Touristik, Nestlé, Galeria Kaufhof, BASF and Meyer Werft.
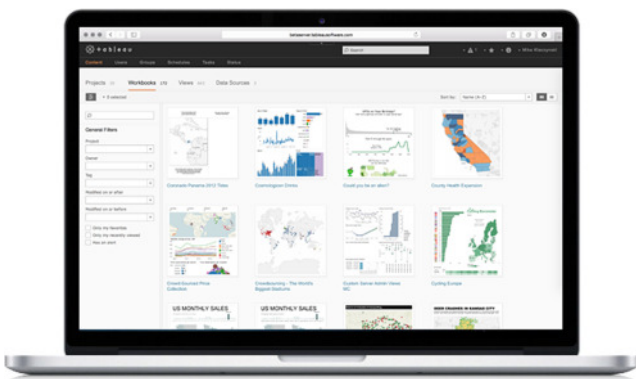
Tableau

www.tableau.com

Company profile

Tableau (NYSE: DATA) helps people transform data into actionable insights that make an impact. Easily connect to data stored anywhere, in any format. Quickly perform ad hoc analyses that reveal hidden opportunities. Drag and drop to create interactive dashboards with advanced visual analytics. Then share across your organization and empower teammates to explore their perspective on data. From global enterprises to early-stage startups and small businesses, people everywhere use Tableau's analytics platform to see and understand their data.

Tableau Desktop

Get results fast with intuitive visual analytics from Tableau Desktop. Connect to any data in just a few clicks. Leave chart builders behind—make discoveries with live visualizations and interactive dashboards. Apply powerful analytics, from forecasting to regressions, that answer deeper questions. Quickly spot trends and outliers to reveal everyday opportunities and eureka moments alike. Tableau Desktop gives you results that matter with analytics that work the way you think.

Tableau Server

Give your business the freedom to explore data and discover opportunities in a trusted environment. Share insights and collaborate with data

sources, interactive dashboards, and ad hoc analyses. Ensure the security of your data with fine-grained control of user and content-level permissions. Choose how to deploy—on-premises or in the cloud—and scale up as your business grows. Tableau Server is true enterprise-scale analytics your business will love, made easy to deploy, manage, and scale.

Tableau Online

Share insights across your organization with a fully-hosted analytics solution. Start publishing data sources and dashboards in seconds, empowering everyone in your business with access to interactive visual analytics. With Tableau Online, your analytics are hosted in the cloud. Anyone—from coworkers to clients and partners—can collaborate with data from a browser or mobile device. Say goodbye to VPNs, software upgrades, and capacity limits.

Tableau Mobile

Tableau Mobile is the fastest way to stay on top of your data. Quickly search and explore content published to Tableau Server or Tableau Online. Filter and drill down with the tap of a finger to make discoveries. Add calculations and edit views to change your perspective. Whether connected or offline, on a tablet or from a phone, your data is secured and your analytics are front and center. Go hands-on with Tableau Mobile.

Tableau Public

Tableau Public is a free platform that lets anyone create, publish, and share interactive visualizations online. Drag and drop to explore your data and create richly interactive data stories. Easily design custom dashboards for desktops, phones, or tablets. Share your work on social media in just a few clicks or embed dashboards on your site or blog, no programming required. Data in. Brilliance out.

Business Application Research Center – BARC GmbH

A CXP GROUP COMPANY

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

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

Switzerland
BARC Schweiz GmbH
Täfernstrasse 22a
CH-5405 Baden-Dättwil
+41 (0) 763403516

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