

THIRD QUARTER 2010

TDWI BEST PRACTICES REPORT

BI ON A LIMITED BUDGET

Strategies for Doing More with Less

By Wayne Eckerson



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About the Author



Wayne Eckerson is the director of TDWI Research. Eckerson is an industry analyst and educator who has covered data warehousing (DW) and business intelligence (BI) since 1995. Eckerson has led numerous in-depth research studies on various facets of DW and BI, including data quality, data governance, operational BI, pervasive BI, data integration, and advanced analytics and visualization. He is a noted speaker, consultant, and blogger, and he is the author of the best-selling book *Performance Dashboards: Measuring, Monitoring, and Managing Your Business* (John Wiley & Sons, 2005). He also is the creator of TDWI's BI Maturity Model and Assessment, which helps organizations benchmark the progress of their BI initiatives, and he chairs TDWI's BI Executive Summit, which helps business and technical executives network with each other and stay abreast of changes and advances in the BI/DW industry. He can be reached at weckerson@tdwi.org.

About TDWI

TDWI, a division of 1105 Media, Inc., is the premier provider of in-depth, high-quality education and research in the business intelligence and data warehousing industry. Starting in 1995 with a single conference, TDWI is now a comprehensive resource for industry information and professional development opportunities. TDWI sponsors and promotes quarterly World Conferences, regional seminars, onsite courses, a worldwide Membership program, BI certification, resourceful publications, industry news, an in-depth research program, and a comprehensive Web site: tdwi.org.

About the TDWI Best Practices Reports Series

This series is designed to educate technical and business professionals about new BI technologies, concepts, or approaches that address a significant problem or issue. Research for the reports is conducted via interviews with industry experts and leading-edge user companies and is supplemented by surveys of BI professionals.

To support the program, TDWI seeks vendors that collectively wish to evangelize a new approach to solving BI problems or to an emerging technology discipline. By banding together, sponsors can validate a new market niche and educate organizations about alternative solutions to critical BI issues. Please contact TDWI Research Director Wayne Eckerson (weckerson@tdwi.org) to suggest a topic that meets these requirements.

Acknowledgments

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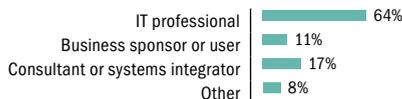
Research Methodology

Focus. This report is designed for BI sponsors, directors, and managers who are responsible for overseeing BI programs and ensuring they deliver significant value at reasonable cost.

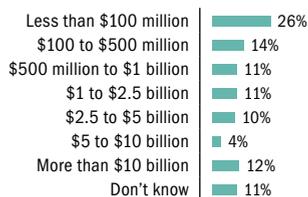
Methodology. The research for this report is based on in-depth interviews with BI practitioners and solutions providers as well as a 20-question survey, conducted by TDWI in February 2010, that was completed by 212 people.

Respondent Profile. A majority of survey respondents are corporate IT professionals (64%), located in the U.S. (59%), who work in a range of industries. The BI programs for which respondents work are neatly divided between beginner (24%), intermediate (45%), and advanced (26%). Almost a majority (46%) have existed for less than two years, and about two-thirds have maintenance and capital budgets of less than \$500,000 (62% and 69%, respectively) and teams of 1 to 10 full-time employees (69%). So the survey attracted respondents whose BI programs are fairly new and with minimal funding.

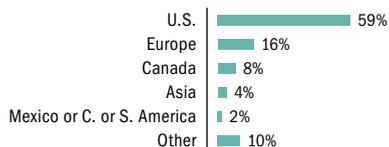
What is your position?



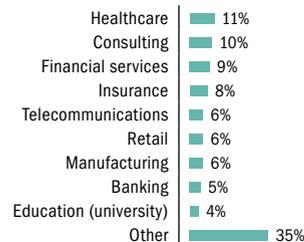
What are the annual revenues of your organization?



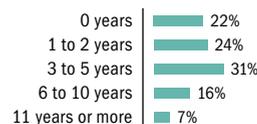
Where are you located?



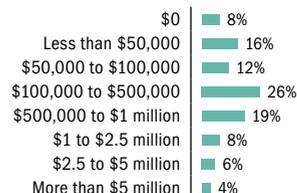
What industry are you from?



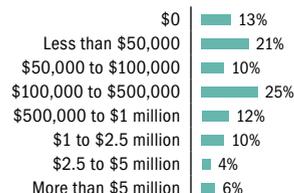
How many years has your organization had a formal BI program?



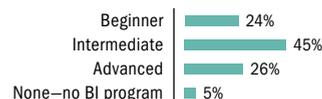
What is your BI maintenance budget this year?



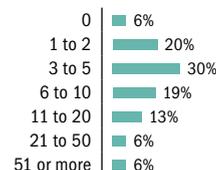
What is your BI capital budget this year?



What is the status of BI in your group?



How many full-time employees are on your budgeted BI team?



Based on 212 respondents.

Executive Summary

The current economic downturn has accentuated the need among business intelligence (BI) teams to do “more with less.” With budgets cut or flat, most BI teams have been forced to innovate and find new ways to deliver projects more efficiently.

Tactics. In the short term, BI teams coped with tactical maneuvers designed to cut costs without sacrificing quality or output. They have canceled low-priority projects, dismissed the contractors and consultants working on them, and avoided new product purchases and costly software upgrades. Some have successfully renegotiated software maintenance contracts while leaning on vendors to provide more assistance, such as building prototypes and delivering proofs of concept free of charge.

Strategy. Longer term, BI teams have put in place numerous strategic initiatives designed to improve operating efficiency and effectiveness. For instance, they are consolidating spreadmarts and data marts, and eliminating redundant data, tools, infrastructure, and staff. They are implementing self-service BI tools to free up the BI team to finish high-priority projects. They are also adopting agile BI methods, more tightly managing scope and risk, creating a network of super users, cross-training staff to handle multiple BI tasks, improving the quality of business requirements, automating operations, and implementing BI competency centers.

SMBs. Doing “more with less” is a natural state of being for small BI teams that are bootstrapping a BI operation. Small companies are turning in significant numbers to new, low-cost offerings, such as open source BI tools, cloud BI solutions, data warehousing appliances and specialized analytic databases, in-memory visualization products, and low-cost departmental solutions. Many BI vendors are eagerly courting small and midsize businesses, which represent a major growth area in the BI market.

New Technology. Companies of all sizes are aggressively investigating new technologies to improve the efficiency and effectiveness of BI operations. Small and midsize companies are turning to new offerings to get into the BI game, while veteran BI teams are replacing existing technology with next-generation capabilities. At the top of the replacement list are dashboards, ETL tools, and ad hoc and standard reporting tools. At the same time, companies are looking to implement scorecards and data quality, data mining, and exploration tools for the very first time.

Like a forest fire, a recession consumes the deadwood of BI programs and frees teams to dream up new ways of delivering BI solutions. The bright side of the downturn is that BI teams are now poised with new processes, organizations, and technology to deliver significant value to their organizations.

The Drive for Efficiency

Impact of the Recession

IT Rollback. As the global economy teetered on the brink of financial collapse in 2008 and 2009, companies rolled back IT budgets, including BI budgets, in a big way. Although some see a coming thaw, most tech spending seems frozen for the time being—with some notable exceptions.

“The impact of the Great Recession was far greater than the dot-com meltdown in 2001. It stands as the largest downturn in IT spending in the history of the software market,” write Lora Cecere and Bob Kraus, analysts at AMR Research, now a part of the Gartner Group, in a recent report.¹

The authors interviewed the CIOs of 65 companies and found that overall IT spending as a percentage of revenue was significantly reduced from three years ago. They expect cost-cutting to continue throughout 2010, with IT spending returning to 2008 levels.

BI Leads the Pack. The encouraging news for BI professionals is that IT spending in 2010 will grow fastest in the area of BI and supply chain integration, according to the authors. The year “2010 will be about data strategies to build robust information layers, the redefinition of predictive analytics, and the use of data to drive insights. Business intelligence is the new battlefield for software providers... As a result, business intelligence will be where strategic relationships are won and lost.”

TDWI’s research reinforces these findings. It shows that BI took a hit during the recession, just like every other area of the business. When we asked BI professionals whether their groups have been tasked to do “more with less” in the past two years, an overwhelming majority replied “yes” (81%). Only 12% replied “no,” and 7% were unsure. (See Figure 1.)

**AMR Research:
IT spending in 2010
will grow fastest in
the area of BI.**

Has your BI group been tasked to do “more with less” in the past two years?

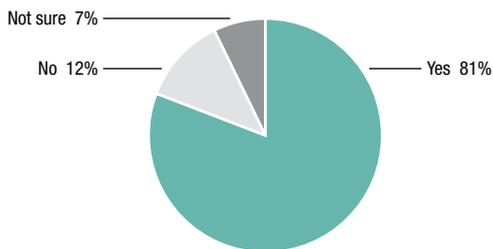


Figure 1. Based on 212 respondents.

Diving into the nature of the cutbacks, more than 80% of BI teams found their headcounts and budgets were held flat or cut. Specifically, BI budgets shrank in 37% of companies and remained constant in 45% of companies. Headcount for BI got cut in 24% of companies and remained flat in 35% of companies. (See Figure 2.)

Which of the following triggered the need to do “more with less?”

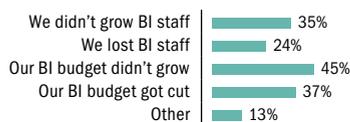


Figure 2. Based on 212 respondents.

¹ Cecere, Lora, and Bob Kraus, “The Impact of the Recession on IT Spending,” December 21, 2009. www.amrresearch.com

For some BI teams, the cutbacks have been draconian to the point of absurdity. One survey respondent noted, “We had to cut out free mid-afternoon refreshments, snacks, doughnuts, and the warm roasted nuts. Second, we imposed both mandatory fixed and mandatory optional furlough days off without pay. Third, we asked employees to pay for their own office medical supplies, such as Tylenol and Band-Aids.”

In other cases, the consequences of the BI cutbacks are dire: “We are working nights and weekends, letting quality suffer, and generally cracking the whip,” offered another respondent.

Small and Midsize Companies

Of course, tight or nonexistent budgets and staffs are par for the course at many small and midsize companies. The recession didn’t change much in the dynamics of how they deliver BI solutions.

For instance, Gazelle.com is a 100-person startup with 40 BI users spread across the sales, customer care, marketing, operations, and finance departments. For the combination of low cost, convenience, and scalability, the company runs its entire IT infrastructure in the public cloud, including its data warehouse—which is an open source database (MySQL)—and its BI tool.

“Our total BI cost is basically my salary plus [two small fees]. In other words, less than six figures.”
—Tom Russell

“Our total BI cost is basically my salary plus a relatively small, monthly Amazon server rental charge and a small yearly BI subscription fee. In other words, less than six figures,” says Tom Russell, senior BI developer at Gazelle.com, which is an online electronics resale and recycling service.

Russell isn’t alone in his quest to deliver BI on a shoestring budget. More than a quarter of our respondents (26%) work at companies with less than \$100 million in revenues, and another 14% have less than \$500 million in revenues. (See company revenues chart, page 3.) At a small company, there often isn’t a formal BI program, which is the case for 22% of our respondents. About one-quarter spend less than \$50,000 a year on BI maintenance, and about one-third spend less than \$100,000 a year. About one-quarter (26%) have fewer than two full-time equivalent staff.

Fortunately, small and midsize companies (SMBs) have many options for delivering BI without breaking the bank. Vendors offer a panoply of low-cost options, from open source tools (reporting, OLAP, databases, ETL, and predictive analytics) and cloud-based BI services to low-cost, departmental BI suites and data warehousing appliances. Despite the tough conditions of a recession, most companies can now afford to deliver BI solutions.

SMB BI Packages. SAP BusinessObjects Edge BI provides operational reporting, flexible ad hoc query reporting and analysis, dashboards and visualization, as well as data integration and data quality capabilities. SAP offers a variety of pricing models including concurrent access licensing as well as named user licensing. Pricing starts at \$12,000.

Not to be outdone, MicroStrategy offers a complete BI solution for free without an expiration date. The MicroStrategy Reporting Suite is designed for departments that want to try out a full-fledged BI solution that runs on multiple operating systems and against any data source at no cost. Although the free version is restricted to a 1-CPU server, it comes with two full developer and professional licenses, e-mail support, and up to 100 licenses for its Web Reporter software, which lets end users view and interact with reports and dashboards.

2010 and Beyond

Fair Winds. The good news, as the AMR analysts predicted, is that there will be an uptick in BI projects this year. A solid majority (58%) of BI professionals said their groups will undertake more projects in 2010 than they did in 2009. About one-quarter (23%) will handle the same number of projects, while 9% will do fewer and 11% don't know. (See Figure 3.)

How many BI projects will your group undertake this year?

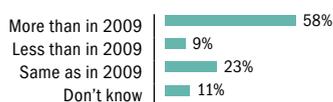


Figure 3. Based on 212 respondents.

Key Strategies

The tight budgets and lean staffs of the past two years have forced BI teams to devise innovative ways to get things done. The recession has made BI teams leaner, yet more efficient. Most have by now made an art out of doing “more with less.”

Business Value Rating

Most Popular Strategies. We asked survey respondents to rate the business value of various approaches to getting more mileage out of their BI budgets and teams (see Figure 4). More than 50% of respondents rated 14 strategies as either “very high” or “high” in business value. More than one-quarter of respondents gave the same rating to another 14 strategies. This huge list shows the lengths to which BI teams have gone in their quest to do more with less.

The top two strategies are “implement self-service BI” (66%) and “implement a BI competency center” (66%), followed closely by “cultivate a network of super users in each department” (65%) and “create small, cross-functional BI teams” (65%). Other strategies rated highly by 60% or more of respondents include: “use existing tool rather than purchase a new one” (63%), “reduce number of spreadmarts” (62%), apply agile or spiral development techniques (62%), “consolidate data marts” (61%), and “consolidate BI tools” (60%).

Strategies rated “very high” or “high” by at least 50% of the respondents are: “have a vendor conduct a proof of concept” (59%), “minimize project scope” (54%), “renegotiate license/maintenance fees” (54%), “co-locate developers and business analysts” (51%), and “partner with a vendor for a total solution” (50%).

The top two strategies for doing more with less are self-service BI and BI competency centers.



Figure 4. Based on 212 respondents who rated the business value of the strategies as either “very high” or “high.”

Very High Value. If we examine “very high” ratings alone, we see a few strategies bubble to the top. These are strategies that respondents feel offer the biggest bang for the buck. The two most valuable strategies are “consolidate data marts” (46%) and “implement self-service BI” (42%). They were followed by “implement open source” (38%), “consolidate BI tools” (38%), and “minimize project scope” (37%). We will discuss these strategies in detail later.

There were also a few techniques that earned significant “very high” scores but few “high” scores. This suggests that the strategies proved very valuable for a small number of organizations, but were not widely implemented. For instance, this appears to be the case with “deploy BI solution in the cloud,” where more than three times as many respondents (24%) rated it as “very high” compared to “high” (7%). The same holds true to a lesser degree for “deploy packaged BI solution” (26% versus 9%, respectively), “implement a data warehousing appliance” (29% versus 14%), “implement an open source solution” (38% versus 10%), and “host BI server offsite” (29% versus 14%).

Since most of these strategies involve using newer technologies that have yet to enter the mainstream, this gap between “very high” and “high” scores is not surprising. The good news is that these new technologies—cloud, appliances, packaged solutions, and open source BI—offer significant value for companies that adopt them.

Lesser Value. There were a few strategies that got less endorsement from BI professionals than expected, such as hiring offshore developers and contractors. While nearly a quarter of respondents rated the value of these strategies as “very high” or “high,” they still were at the bottom of the high-value list.

One former BI analyst who now works at a software company told me that “offshoring has lost its luster.” Many companies are pulling development work back onshore as they discover the hidden costs of offshoring and as salaries in India and other offshore markets rise. Yet, offshoring still makes sense for many companies, especially if they have people who are experienced in managing offshore relationships and have developed processes to ensure efficient and effective communications.

Interestingly, the use of contractors and consultants earned mixed ratings. Many BI teams shed such providers during the downturn to minimize costs, but others hired more contractors for specific tasks or time-bound projects so they could avoid hiring full-time employees. “We brought on contractors for specific project phases to have more hands at minimal expense,” said one respondent.

User Empowerment

Self-Service BI. Self-service BI has been the long-sought weapon of BI managers because it kills two birds with one stone. First, it enables users to create their own reports instead of having to go through an IT intermediary; it teaches them “how to fish,” as one respondent put it. Second, it offloads low-value report development tasks from the BI team so they can focus their efforts elsewhere. In a recession, the need for self-service BI becomes even more paramount. As the BI team shrinks, it needs to safeguard its time and focus on the most value-added activities. If it can offload report development while increasing end-user satisfaction, it wins on two counts.

The Sierra Club has implemented new open source BI tools from Jaspersoft that will eventually enable different types of users—from program managers to board members—to view and interact with data they could never access before without a programmer’s assistance. “We’ve always had a central database,” says IT director Dave Simon, “but our new system will present users with data in more approachable formats and enable them to further access the data on their own. Business people will become more inquisitive and discover things in the data they’ve never seen before.”

Emerging technologies, such as the cloud, open source, DW appliances, and packages, offer significant value but aren’t widely adopted yet.

Offshoring has lost its luster as companies discover its hidden costs.

Self-service BI kills two birds with one stone.

Downsides. However, self-service BI presents some downsides that many BI professionals don't recognize. First, you need to purchase self-service tools and train users on them. In a down economy, most companies don't purchase new tools, unless they eliminate the expensive maintenance fees of an incumbent tool. A BI team that is already overstretched may not have time or resources to adequately train and support users on new tools. In addition, self-service BI tools are typically too complex for most casual users.

Second, power users who do know how to use self-service BI tools end up creating hundreds or thousands of reports, many of which contain inconsistent metrics and definitions. The resulting chaos can actually undermine both user and IT efficiency. Users who can't find the right report or see conflicting results will ask IT to build a custom report, undermining the whole point of deploying the tools.

In addition, power users often use the tools as glorified extract engines to pull data from a data warehouse and dump it into a desktop database or spreadsheet. These runaway queries slow query performance for everyone else using the system. If unchecked, power users can bring a data warehouse to its knees and cause casual users to abandon the system in favor of a local spreadsheet.

Super users act as an extension of the corporate BI team, increasing the number of report writers without adding costs.

Super Users. To combat the downsides of self-service BI, many BI professionals employ "super users" to fulfill ad hoc report requests from colleagues in each department. Super users act as extensions of the corporate BI team, effectively increasing the number of report writers without adding costs. By distributing development, BI teams can do more with less. "We are depending on super users in the business units to create reports and dashboards," says one respondent.

Of course, unchecked super users can wreak havoc as well. But it's much easier for the corporate BI team to manage one or two super users in each department than hundreds or thousands of licensed BI users. The corporate BI team trains super users to use the BI tool and follow standard procedures for creating reports. The BI team also provides the first line of support to super users, answering their questions and helping them with more difficult tasks. The BI team oversees what the super users produce to ensure it aligns with and leverages enterprise resources. For example, one BI manager said his team is empowering super users to build data marts, which the corporate BI team will then "productionize through a centralized unit."

But finding the right super users is not always easy, and sustaining a partnership with them can be difficult. If you ask department heads to nominate people to fill the role, you might not get ideal candidates. One BI manager who is restarting a failed super user program says, "This year we will look for better ways to recognize those people that have natural desire to take on this role. It's better to find them than to have them forwarded [to you] by a department head."

Alignment

BI Competency Centers (BICCs). I was surprised to see BICCs so high on the value list, as few organizations have implemented them—even fewer successfully. However, I think the BICC is really a proxy for better alignment with business needs and interests. When budgets get tight, it is imperative that the BI team focus on delivering projects that yield the highest business value.

The BICC is really a proxy for better alignment with business needs and interests.

The need to prioritize projects was a pervasive theme in the survey comments and in my discussions with BI professionals. “We are being very selective on what projects actually get done,” said one respondent. Another said, “We are forcing prioritization of all business requests through our BI steering committee.” Still another said, “We are creating a BICC to prioritize requests/projects, and they will merge some projects and reject others.”

Business Requirements. Many BI professionals also mentioned doing a better job gathering business requirements. They indicated they would add more rigor to the process to ensure the team focuses its efforts on high-value activities. “We want to get complete requirements up front. No more ‘start coding while I figure out the requirements.’” Another respondent said, “We want to get a better understanding of user requirements so we don’t waste time and resources generating meaningless reports that are never used.”

Agile Development. A popular way to ensure alignment, gather accurate requirements, and accelerate development is to apply agile development techniques to the development of BI solutions. The agile approach calls for small teams of four to six BI developers and a business representative to develop an entire solution in very small increments, each of which produces working code that can be reviewed and tested. The team meets often, even daily, to review progress, and business representatives get to reshuffle requirements at the end of each increment (which ranges from a week to a month), based on their current needs and interests.

One respondent says, “We are developing a more agile approach to BI, keeping projects smaller and iterative to allow us to be more adaptive to business change.” Another says, “We employ an iterative, agile methodology to deliver tangible BI applications faster to our power user team.”

Work Smarter

Manage Scope. Many respondents mentioned the need to work smarter, not just harder, to do more with less. Most recommended reducing the scope of BI projects, partially because there are no funds for big projects, but also because smaller projects are less risky and more likely to meet user needs. “Work closely with business partners to identify smaller amounts of work that help quantify ROI and further investments,” wrote one BI manager. Another recommended delivering only bare-bones requested functionality. “We are delivering core components requested versus a full-blown BI solution, while preserving data integrity and architecture. This allows us to address today’s critical needs and to scale well to meet future needs.”

Smaller projects are less risky and more likely to meet user needs.

Automation. Others mentioned the value of automating operational activities to streamline processes and save operating costs. Peter Csillag, owner of Starschema, Ltd., recommends that BI teams spend time and money to automate the management of back-office operations associated with BI, including backups, user management, version control, usage monitoring, patch management, and password resets. “Total operational costs should get lower in one year,” he says.

Cross-Functional Teams. Respondents mentioned ways to enhance the productivity of existing BI teams. A common method was to cross-train personnel to handle multiple tasks, even those outside the realm of BI. “We are cross-training current staff to assist with development and support.

We won't have specific dedicated BI staff anymore. Everyone will support other systems besides BI." And the reverse is true, too: "We will leverage non-BI team members to provide BI services," says another respondent.

**"What some people call agile is actually quite slow."
—Eric Colson, Netflix**

While cross-training enables a team to avoid hiring specialists, some believe this strategy also speeds delivery of BI solutions and improves the quality of the end solution. "What some people call agile is actually quite slow," says Eric Colson, director of BI at Netflix. Colson believes that one developer trained in all facets of a BI stack can work faster and more effectively than a team. For example, it's easier and quicker for one person to decide whether to apply a calculation in the ETL or BI layer than a small team, he says. (See "Revolutionary BI: When Agile Isn't Fast Enough," tdwi.org/WaynesWorld, January 27, 2010.)

Other BI teams are closely evaluating the contribution of each team member to ensure each is contributing at a high level: "We reviewed the role each person played in the BI group and re-organized to ensure everyone was giving as much as possible."

Consolidate and Negotiate

To reduce costs, BI teams are consolidating data marts and BI tools. "We are looking to consolidate a lot of data silos to save money and staff resources," said one respondent. Consolidation often requires an investment in new tools and training before the benefits of standardization kick in. However, companies can minimize up-front costs by redeploying users to an existing platform.

What works easily in one context may not work so well in another. "One size does not fit all when it comes to consolidations," says Brahmaiah Jarugumilli, enterprise architect at National Life Group. Some consolidations are natural and "pop up by themselves" during analysis, but others are more difficult, he says. "Sometimes, it makes sense to have multiple physical data marts as long as they all conform to a unified architecture."

Each renegade data mart costs eBay \$500,000 a year.

Renegade Marts. eBay is replacing renegade data marts created by analysts with virtual sandboxes in the Teradata data warehouse, according to Oliver Ratzesberger, senior director of architecture and operations at eBay. Each renegade mart, which is typically a SQL or Microsoft Access database running on an analyst's desktop, costs eBay about \$500,000 a year and undermines the single version of truth. eBay allows analysts to upload their own data to a private partition in the data warehouse and maintain up to 100 GB of data there for approximately three months at a time. By encouraging analysts to perform their analysis in the data warehouse, eBay has saved considerable money and prevented information dispersion.

Negotiate. Another way that BI teams are saving money is by renegotiating maintenance contracts with vendors. For enterprise license deals, reducing maintenance fees by a percentage point or two can save tens of thousands of dollars. Some also are cutting back on the level of vendor support they purchase, leaning more on in-house expertise to fix problems, and delaying software upgrades to save the time and cost involved in migrating to new versions.

In addition, some are steering their teams to more favorable terms when purchasing new products. For example, Sierra Club's Simon selected Jaspersoft because it offers CPU-based licensing instead of user-based licensing. "We didn't want to be constrained by the number of users the license supports."

New Technology

Most BI managers are exploring new technology to reduce costs and accelerate deployment.

Replacements

Many are replacing expensive BI tools with lower-cost ones. Figure 5 lists categories of BI tools by the degree to which organizations have replaced them with lower-cost alternatives or plan to replace them in the future. Dashboards, surprisingly, top the charts with a 75% combined score, followed by ETL tools (71%), ad hoc reporting tools (70%), and standard reporting tools (69%). These are very high rates of replacement.

Except for dashboards, each of these BI technologies is fairly mature, and many organizations want to upgrade to the latest generation of tools. With dashboards, many companies are replacing homegrown solutions with dashboard-specific products.

Future Replacements. In addition, a number of tool categories will be replaced at an accelerated rate in the next three years. For example, the replacement rate for scorecard, data quality, data mining, and exploration tools will more than double in the next three years, while replacement for integrated BI suites and data integration suites will increase by 50% or more. As with dashboards, these higher replacement rates reflect the advent of newer technologies as well as renewed interest in these BI niches. Many companies are currently using homegrown tools or none at all, or haven't established an enterprise standard in these categories. This growth rate reflects early adoption by these types of companies.

In which tool categories have you replaced an incumbent tool with a less expensive one in the past several years, or will you likely replace an incumbent tool in the next three years?

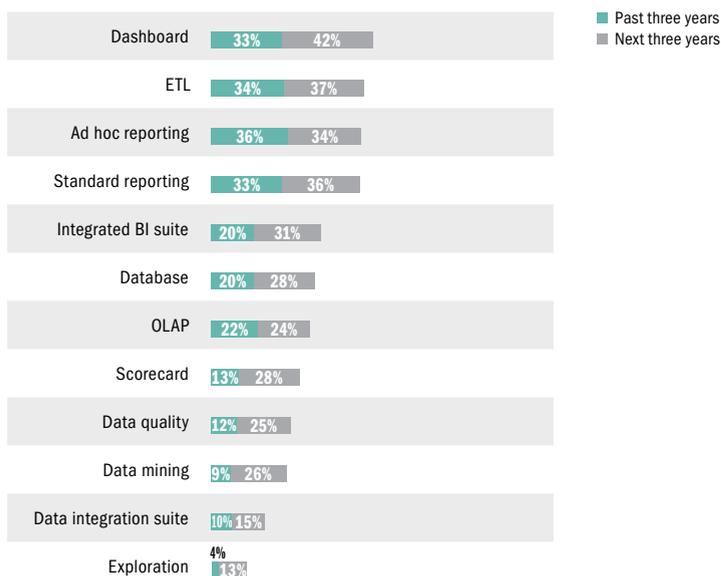


Figure 5. Based on 212 respondents.

Dashboards

Historically, organizations have been forced to build their own dashboards using custom code or reporting or portal tools because few vendors offered dashboard-specific tools. Today, however, most BI vendors and a number of startups offer full-featured dashboards, and user organizations are snapping them up.

For example, vendors that offer in-memory visual discovery tools, such as Tableau Software, QlikTech, Jaspersoft, and TIBCO Spotfire, are parlaying their popularity among power users into attractive departmental dashboard solutions. Tableau provides business analysts speed-of-thought visual analysis on data held in memory in a desktop machine. Power users can easily publish their analyses to a departmental server in the form of a highly interactive dashboard that can be accessed by casual users. “We are now more efficient and productive answering questions about the data,” says Mark Ramirez, head of workforce analytics at AOL.

Mashboards are becoming a popular way to implement self-service dashboards.

Besides visual discovery tools, many departments are implementing “mashboards,” a new type of dashboard being sold by BI vendors such as Jaspersoft and MicroStrategy. Mashboards enable power users to drag and drop preexisting report content (e.g., report parts and controls) and external URLs onto a dashboard canvas to create a custom, interactive dashboard. Like ad hoc reporting tools, mashboards are becoming a popular way to implement self-service dashboards.

ETL Tools. A surprising number of organizations develop ETL code by hand, and the rest have purchased ETL tools that typically cost \$150,000 or more for a handful of licenses. Today, there are lower-cost ETL tools on the market, including a popular one from Microsoft that comes bundled for free with SQL Server. These are motivating companies to replace incumbent tools. In addition, packaged BI tools often come bundled with an ETL tool for free, which may cause organizations to switch tool sets.

Reporting Tools

Reporting tools are the most mature BI technology, and hence, the most ripe for replacement. Some companies are swapping incumbent reporting tools as part of a BI standardization project in which they purchase an integrated, multi-modal BI platform from a single vendor. But others are more tactical, especially departments or business units that have autonomy to select their own tools. Some are experimenting with or implementing open source BI tools from vendors such as Jaspersoft. Others are building their own reports using Web services, or purchasing low-cost, departmental BI solutions with reporting and analysis capabilities.

Open Source BI. Like many open source BI vendors, Jaspersoft offers an integrated suite of reporting, analysis, dashboard, and data integration tools in a community (i.e., free) edition. The premium edition includes extra features and support services. Many BI teams download the community edition of open source reporting tools for free rather than pay for additional licenses to an incumbent BI tool, especially if they are working on a small or temporary project. This “free experiment” often gives BI developers the confidence to deploy the tools in a more standard environment and implement other components of the open source suite.

Integrated BI Suites

A majority of survey respondents (51%) have replaced an integrated BI suite or plan to in the next three years. Although integrated BI suites or platforms are a relatively new phenomenon on the BI scene, they have become a popular method for purchasing BI functionality. Most companies would

prefer to purchase one tool (or suite) from one company rather than multiple tools from multiple companies. Established BI vendors have kept adding new tools to their platforms to maintain premium pricing. These price points, which often exceed six figures for an enterprise deployment, open the door to a host of lower-cost solutions, including those from open source vendors, visual discovery vendors, and cloud BI vendors.

Cloud BI

Cloud BI vendors provide soup-to-nuts BI solutions in a hosted environment, sparing cost-conscious organizations from having to recruit IT staff and purchase hardware and software. Cloud BI tools are garnering attention, and many BI managers are investigating whether such solutions make sense for them. Currently, most cloud BI solutions are geared to small and midsize companies, but some support architectures that can potentially scale to support enterprise solutions.

Constraints. Most cloud BI firms have succeeded in dispelling security fears about managing corporate data in a hosted environment, although many companies are still moving cautiously here. Ultimately, cloud-based BI tools may not make sense for large companies for two reasons: (1) regulatory restrictions may prevent some organizations from storing data outside company firewalls; and (2) Internet data transfer rates make it time- and cost-prohibitive for companies that must update large data volumes in the warehouse.

Most cloud BI vendors charge monthly subscription fees instead of perpetual use licenses, so organizations pay only for what they use as they use it. Most cloud BI vendors provide a complete suite of tools and services for implementing a BI solution, including the creation and maintenance of a data warehouse. Many can be downloaded for free and used in a 30-day trial, and most offer aggressive pricing.

Vendors. Many sponsors of this report have new cloud BI offerings. For example, Birst, PivotLink, and SAP offer scalable cloud BI solutions that build full-fledged data warehouses in the cloud for customers, while others, including Indicee, target individual users and small workgroups. The number of cloud BI offerings from new and established BI vendors is a positive sign for this new delivery platform.

On the scalable side, PivotLink provides a set of canned applications (i.e., metrics, reports, and dashboards) geared to specific industries and functional areas, including sales, marketing, and human capital management, running on a columnar database. PivotLink customer Shaklee evaluated both on-premises and cloud-based solutions to replace a legacy data warehouse. It opted for a cloud-based solution when PivotLink ran three of the team's toughest queries in a three-week proof of concept. "It was an easy decision then, and still a good one today," says Ken Harris, CIO of Shaklee.

SAP offers SAP BusinessObjects BI OnDemand, a full-fledged cloud BI solution that provides exploration, reporting, and sharing for casual business users. Companies can use the product for free or upgrade to one of two paid versions, including one with a data warehouse. The solution also combines the company's data integration tool set, which includes hooks into Salesforce.com and other enterprise applications and a robust portfolio of multi-tenant reporting and analysis technologies, such as SAP BusinessObjects Explorer, SAP Crystal Xcelsius, and SAP BusinessObjects WebIntelligence. It can be easily integrated with on-premises or on-demand BI and business applications.

"SAP's BI OnDemand solution gives our growers information in real time so they don't have to call anybody to get a report," says Joan Richard, IT manager of Rio Grande Valley Sugar.

The number of cloud BI offerings from new and established BI vendors is a positive sign for this new delivery platform.

Birst provides an integrated suite of ETL, ad hoc query, reporting, and dashboard tools for creating cloud-based BI applications, but unlike the others, it can also run against on-premises data warehouses for companies that are reluctant to move data outside their firewalls. RBC Wealth Management, a full-service brokerage with \$160 billion in assets under management, chose Birst when looking to upgrade the client management platform it provides to brokers. “The new dashboard has been a big hit with brokers and a cost-effective solution for us since we didn’t have to invest capital up-front and we have fixed annual costs,” says Shawn Spott, vice president of marketing research and strategic analysis.

For simplicity and speed of deployment, startup Indicee targets individual business users and workgroups with a self-service cloud offering that provides automated hooks to mid-market application packages, such as Intuit QuickBooks, Sage Accpac, and Microsoft Dynamics. Users can use the service free for 30 days and then for \$69 per month for a single user or \$149 per month for a team of five with up to 100 or 250 MB of storage, respectively. “When we went looking for a BI solution, we were horrified by the cost of BI software and setup time until we found Indicee,” says Ben Hume, president of Alco Ventures, a maker of specialty building products such as aluminum railings and retractable screen doors. The company uses Indicee to run reports and ad hoc queries against data from its Microsoft Dynamics application.

Databases

User organizations are starting to implement specialized analytic databases and data warehousing appliances to replace or augment data warehouses or data marts running on traditional relational database management systems. These new systems are geared to accelerate complex analytical queries on large volumes of data at a fraction of the price of traditional systems. Data warehousing appliances are turn-key systems that require minimal configuration or maintenance, while analytical databases can be installed on a variety of hardware platforms, enabling customers to leverage the latest commodity servers to drive down total cost of ownership.

For example, Teradata Corporation, a sponsor of this report, recently launched a line of four purpose-built data warehousing appliances geared to specific workloads to complement its Active EDW 5600 enterprise data warehousing system. The line ranges from the Data Mart Appliance 551, which holds up to 6 TB and is geared to small data marts and test/development environments, to the Extreme Data Appliance 1600, which holds up to 50 petabytes and is geared to deep-dive analytics. All appliances offer attractive price and performance.

Bayer, a manufacturer of pharmaceuticals, agricultural treatments, and high-tech materials, recently purchased a Teradata Data Warehouse Appliance 2555 to replace an aging test and development server. “The appliance was the right size and right price and the performance far exceeded our expectations,” says Stuart Steider, a database administrator at Bayer.

Kognitio also offers a specialized analytic database, but with a twist. It gives customers the option to run the database in a hosted environment on a subscription basis, eliminating the need to purchase and maintain software and hardware licenses. Pricing for “data warehousing as a service” or DaaS starts at \$9,000 per terabyte per month. DaaS customers include BT, ScottishPower, Groupe Aéroplan’s LMG, Kelkoo, Segmetrix, and American Access Casualty Company.

Deployment Strategies

This section examines software, hardware, organizational, and vendor strategies that organizations are deploying for doing more with less.

Software

In terms of software, the top five deployment strategies are:

1. Reusing existing tools
2. Implementing self-service BI
3. Consolidating data marts and BI tools
4. Custom-building BI solutions
5. Deploying packaged BI solutions

Select the *software* strategies that you have applied to your BI systems in the past several years and are likely to apply in the next three years.

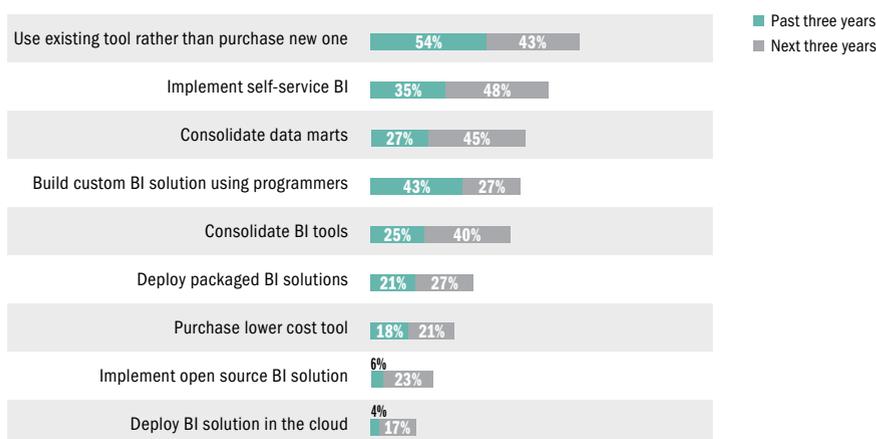


Figure 6. Based on 212 respondents.

Reuse. The majority of companies (54%) have decided to stick with an existing tool rather than purchase a new one, and a sizable percentage (43%) will continue that strategy in the next three years. Obviously, postponing new tool purchases saves capital expenditures and training costs, although users may be stuck with suboptimal tools that could reduce their productivity. When money is tight, intangibles such as quality and productivity suffer the most.

Custom. A high percentage of organizations (43%) have built custom BI solutions, and 27% will continue to do so. On the surface, using in-house staff to build solutions doesn't add expenditures to the bottom line, although maintenance costs will rise in the long term. That's probably why a smaller percentage will continue to build custom programs going forward. Both reusing existing BI tools and developing custom tools are short-term tactics, rather than long-term strategies.

Growth Areas. A large percentage of companies have implemented self-service BI (35%), consolidated data marts (27%), and consolidated BI tools (25%), yet a larger percentage will do so in the next three years (48%, 45%, and 40%, respectively). These ongoing areas of investment represent

strategies for improving BI efficiency industry-wide. In addition, although use of open source and cloud BI is small at present, the percentage of companies adopting these approaches will quadruple in the next three years.

Organizational Strategies

In terms of organizational strategies, the top approaches are:

1. Cultivating a network of super users
2. Agile or spiral development techniques
3. Reducing spreadmarts
4. Implementing a BI competency center
5. Minimizing project scope

Which organizational strategies has your BI team employed in the past three years or is it likely to employ in the next three years, to cut costs, improve efficiency, or boost productivity?

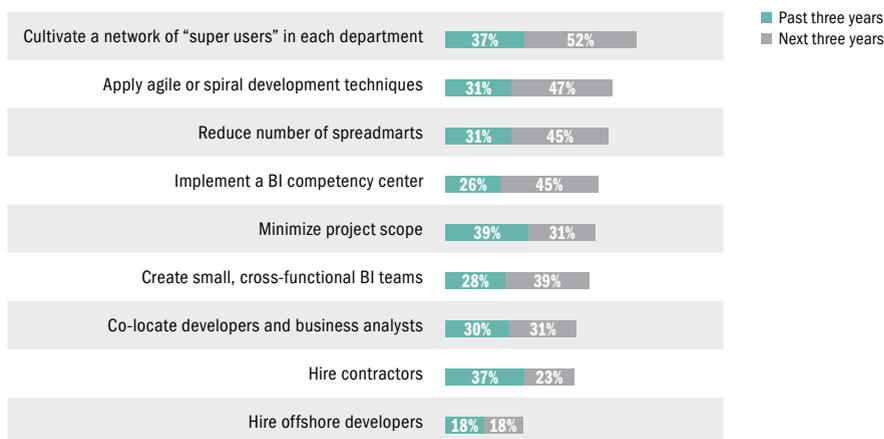


Figure 7. Based on 212 respondents.

In the previous section, we discussed the merits of all of these approaches except spreadmarts, which are spreadsheets on steroids. They are like renegade data marts (discussed in a previous section), except they are more pernicious because it's easier to create a spreadsheet than a desktop database. Organizations need to coax and coerce users via sandboxes, centrally managed Excel-based applications, and robust BI tools to abandon spreadmarts.

Growth Areas. The organizational strategies that will see the most adoption in the next three years are implementation of a BICC (19% increase), agile development (16% increase), cultivation of super user networks (15% increase), reduction of spreadmarts (14% increase), and creation of small, cross-functional teams (11% increase). Before BICCs can take root, they require a high level of BI maturity.

Vendors

Top Strategies. The top five vendor strategies for doing more with less are:

1. Renegotiate license/maintenance fees
2. Have a vendor conduct a proof of concept
3. Ask a vendor to supply free software for a pilot
4. Partner with a vendor for a total solution
5. Ask a vendor to create a prototype

Select the vendor strategies that you have employed in your BI environment in the past several years and are likely to employ in the next three years.

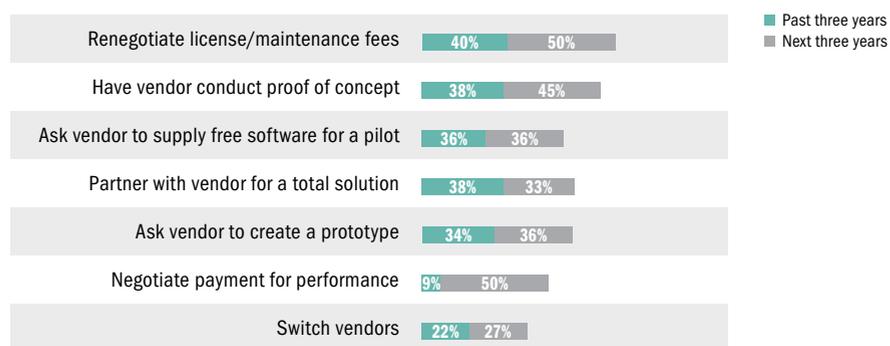


Figure 8. Based on 212 respondents.

Growth Areas. The percentage of companies planning to negotiate payment for performance will skyrocket from 9% today to 50% in three years. (I wonder if the survey planted a seed in their minds!) Also, a greater percentage of companies plan to renegotiate license/maintenance fees (40% to 50%) and have vendors conduct proofs of concept (38% to 45%) in the next three years.

Hardware

Hardware strategies, as a category, got the least votes from survey takers. In some cases, that’s because the BI team doesn’t control the deployment of hardware, and in other cases because hardware costs aren’t as significant as other expenditures.

Top Strategies. The top two hardware strategies for doing more with less are implementation of storage area networks (42%) and installing blade servers (32%). A large percentage of respondents also wrote in “virtualization” as a favored hardware strategy for doing more with less.

Growth Areas. Data warehousing appliances and BI SaaS solutions (servers hosted offsite, also known as software-as-a-service) will exhibit the most growth in the next three years. The percentage of companies that plan to implement data warehousing appliances will grow by two-thirds, from 19% to 32%, while use of BI SaaS solutions will grow from 7% to 17% in three years.

Select the hardware strategies that you have applied to your BI systems in the past several years and are likely to apply in the next three years.

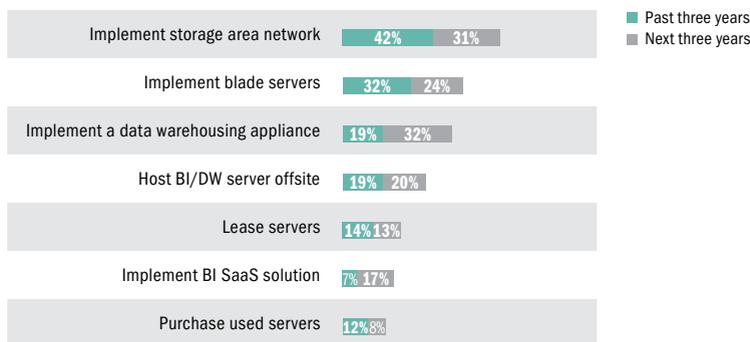


Figure 9. Based on 212 respondents.

SMBs and Budget Trends

Business as Usual. For small and midsize businesses with less than \$500 million in annual revenue, tight budgets are business as usual. Their BI programs always run on a shoestring. So in tough times, there's much less to cut. "Our company doesn't realize that we are doing more with less. We simply try to work with the staff and products we have," said one respondent from an SMB.

One major difference between smaller and bigger companies is the relative youth and size of BI programs. In terms of staffing, almost half (44%) of SMBs have fewer than two full-time equivalents, while only 13% of larger organizations have so few BI staffers. In addition, a majority of SMBs (58%) have BI programs that are younger than two years old, while less than half of bigger companies' programs (41%) are so young.

This section compares deployment strategies by the size of organizations' BI maintenance budgets. We divided the respondents into three groups of roughly equal size:

- **Small organizations** with a BI maintenance budget lower than \$100,000
- **Midsize organizations** with a BI maintenance budget between \$100,000 and \$1 million
- **Large organizations** with a BI maintenance budget exceeding \$1 million

Software

In terms of software, while all organizations have been reusing existing tools rather than purchasing new ones during the past three years, it appears that fewer smaller companies (35%) will follow that strategy in the coming years compared to midsize (48%) and large companies (51%). Consequently, we can speculate that a greater percentage of smaller companies will be purchasing products in the coming years than midsize or large companies. (See Figure 10.)

One reason for the surge in the purchase of BI tools by smaller companies is that many have yet to buy tools. A greater percentage of small companies have custom-built BI solutions using programmers (50%) than either midsize (40%) or large (38%) companies. Evidently, small companies are more likely to hire a programmer in the early stages of a BI program than purchase a BI tool. A programmer versed in Java and/or Excel and Access can build a satisfactory reporting system from scratch and perform a multitude of other duties in a small organization.

It appears that the BI tools of choice for small and midsize companies are open source software and cloud BI tools. Use of these tools will grow much more dramatically in small and midsize companies than in large ones. Large companies, on the other hand, will be much more focused on consolidating data marts and BI tools and implementing self-service BI tools.

One reason for the surge in the purchase of BI tools by smaller companies is that many have yet to buy tools.

Software strategies by size of BI budget

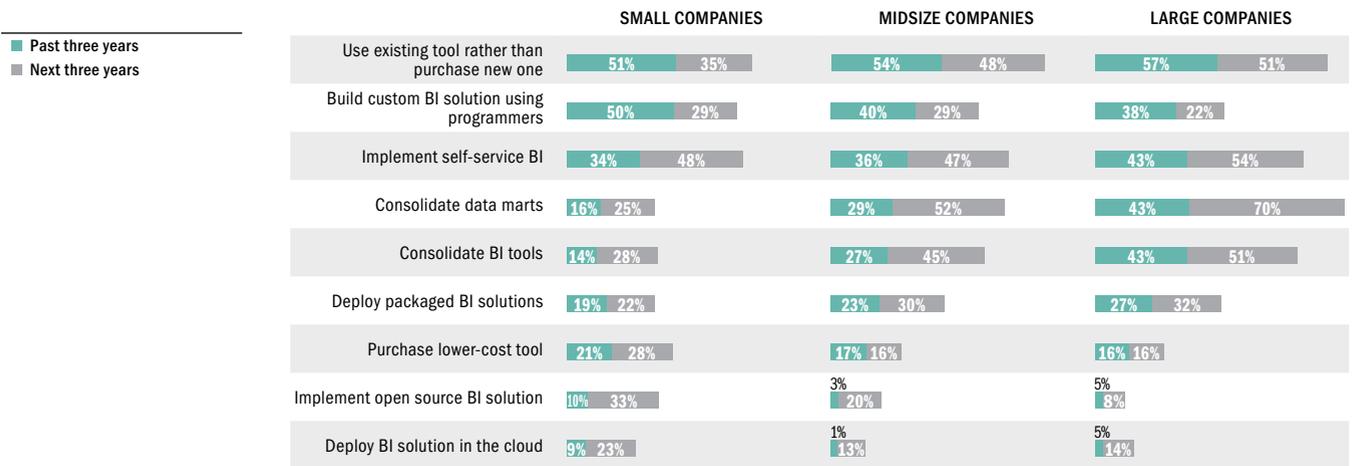


Figure 10. Based on 212 respondents.

Vendors

In terms of vendor strategies, the primary focus of small companies is getting vendors to supply free software, conduct proofs of concept (presumably free of charge), and partner with them for a total solution. Basically, small companies look to vendors for a big helping hand.

In contrast, the top priority for midsize and large companies is to renegotiate license and maintenance fees and get vendors to conduct a proof of concept. Large companies are much more interested in getting vendors to create a prototype than either small or midsize organizations. In fact, the percentage of large companies seeking prototypes will increase 10% in the next three years, from 41% to 51%. (See Figure 11.)

Vendor strategies by size of BI budget

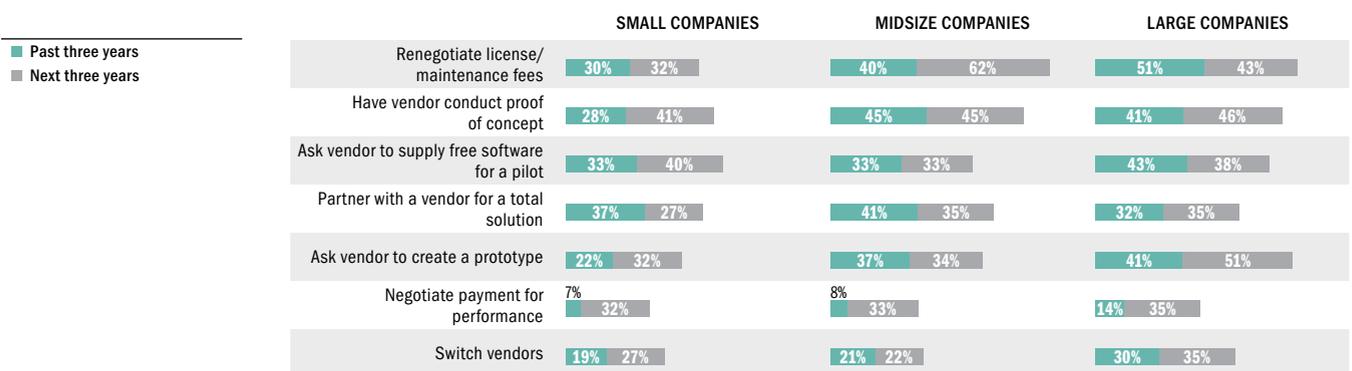


Figure 11. Based on 212 respondents.

Organizational Strategies

Companies of all sizes plan to increase adoption of almost all the organizational strategies listed in our survey. The two notable exceptions are (1) hiring offshore developers, which will surge among small companies, stay flat in midsize companies, and decline in large companies; and (2) hiring contractors, which will decline among organizations of all sizes.

Growth Areas. Strategies that will experience the greatest growth among organizations of all sizes are:

1. Cultivating a network of super users
2. Applying agile or spiral development techniques
3. Implementing a BI competency center

Organizational strategies by BI budget

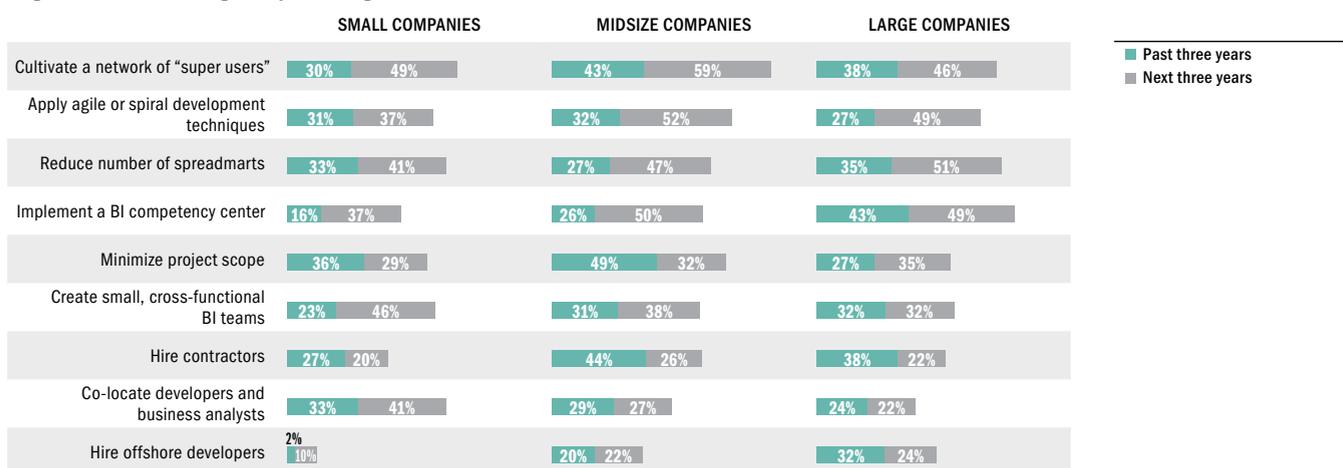


Figure 12. Based on 212 respondents.

Recommendations

To do more with less, organizations need to implement a variety of strategies. They need to evaluate hardware and software options and adopt a variety of organizational and vendor strategies. Here are a few recommendations for doing more with less.

1. **Empower users.** Users overwhelmingly ask for tools that empower them to create their own reports and release the BI team from report writing duties so they can deliver additional value within budget and staff constraints. However, it's important to manage self-service BI so it doesn't create report chaos. To do this, it's critical to train a network of super users to manage ad hoc reporting in each department.
2. **Align with the business.** With limited resources, it's imperative that BI teams focus on high-value projects. To do that, they need to work closely with the business. They need to add more rigor to business requirements processes and implement agile development techniques that involve business users every step of the way and also enable them to reshuffle requirements after each increment. They also need to establish BI competency centers when they have reached sufficient BI maturity.

- 3. Work smart.** When resources are tight, BI teams need to work more efficiently and effectively. They need to learn to make do with existing tools instead of purchasing new ones; they need to postpone costly upgrades and make do with existing functionality; they need to minimize project scope to reduce risk and avoid doing projects that are overly complex and risky; and they need to automate back-office operations to free more time for development. Finally, they need to cross-train staff to handle more tasks and use consultants judiciously to expedite the completion of projects.
- 4. Consolidate and negotiate.** Business intelligence teams can employ several strategies to reduce costs in short order. One method is to negotiate new maintenance licenses with vendors and ask them to donate software to build prototypes and conduct proofs of concept free of charge. The other strategy is to consolidate data marts and BI tools to eliminate analytical silos and reduce overhead costs.
- 5. Explore new technology.** Teams are fortunate today in that many low-cost solutions are available to enable them to do more with less. Open source, cloud BI, visual, and discovery tools, plus data warehousing appliances and specialized analytical databases, all offer more functionality and performance for fewer dollars. These technologies are increasingly being adopted by small and midsize BI programs and forward-thinking, larger BI teams.
- 6. Tactics versus strategy.** When the cost-cutting axe comes down, BI teams should look for immediate tactics to reduce costs without sacrificing output. Other than laying off BI staff, tactical strategies with immediate payback include: (1) dismissing contractors and consultants associated with low-priority projects, (2) renegotiating software maintenance fees, (3) avoiding new product purchases and costly software upgrades, and (4) having vendors deliver prototypes and proofs of concept free of charge. Strategic initiatives include almost everything else mentioned on this page, but especially deploying self-service BI tools; consolidating spreadmarts, data marts, and BI tools; implementing new technologies; adopting agile BI methods; and better managing scope and risk.



Birst
www.birst.com

Birst is the leading provider of on-demand business intelligence solutions. Birst brings fact-based decision-making to a broad audience by making it affordable, fast to deploy, and easy to use. Birst customers enjoy the benefits of software-as-a-service delivery, including subscription pricing and not having to purchase hardware and software. Birst is designed to support groups of all sizes so that everyone can benefit from greater insight into their business. Find out why Birst's customer, RBC Wealth Management, won TDWI's prestigious Best Practices Award for Dashboards and Scorecards in 2009 by visiting www.birst.com.



Indicee
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Indicee provides a faster way to create reports for people who are frustrated with cutting and pasting data into spreadsheets. Users with no IT expertise can combine data and set up reports in minutes by accessing Indicee's online service. Others can then easily share and collaborate on the reports using the integrated social framework. With Indicee's online service, there's no software or hardware to install. And because Indicee can combine and make sense of data from multiple sources, there's no lengthy data warehousing project required either. Indicee is fast and highly accessible—it's the next generation in reporting from the founding team of Crystal Decisions, which created today's top business analysis tool.



Jaspersoft
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Jaspersoft's open source business intelligence is the world's most widely used BI software, with more than 11 million product downloads worldwide and more than 12,000 commercial customers in 100 countries. Jaspersoft provides a Web-based, open, and modular approach to the evolving business intelligence needs of the enterprise, providing a first-in-class, multi-tenant BI environment while providing a common platform for on-premise, virtualized, SaaS, and cloud deployments. Jaspersoft's products span the continuum of core BI requirements, including reporting, analysis, dashboards and mash-ups, data analysis, and data integration. Its BI software is updated constantly by a development community of more than 140,000 registered members working on more than 350 projects.



Kognitio
www.kognitio.com

Kognitio is the provider of Kognitio WX2, a high-performance analytical in-memory database solution that allows organizations to understand more about their business and their customers in shorter timescales. Companies around the world run Kognitio WX2 to analyze large volumes of data quickly, allowing them to make more informed, better business decisions that help them to drive growth and reduce costs. Kognitio WX2 is available as a software-only solution, as a fully configured data warehouse appliance running on industry-standard X86 hardware, or on-demand via DaaS, Kognitio's pay-as-you-go data-warehousing-as-a-service offering.



MicroStrategy
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MicroStrategy, a global leader in business intelligence and performance management technology, provides reporting, analysis, and monitoring software that enables leading organizations to make better business decisions every day. Designed to support the most demanding business intelligence applications, MicroStrategy is ideal for enterprise-wide BI standardization. Companies choose MicroStrategy for its advanced technical capabilities, sophisticated analytics, and superior data and user scalability. MicroStrategy is built from a single architectural foundation, making it the most integrated and efficient BI architecture available. With an intuitive Web interface, MicroStrategy enables business users to seamlessly access enterprise data for enhanced decision making.



PivotLink
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PivotLink was founded on the simple principle that it should be easy for business users to securely analyze any data, any way they want, and share their insights with colleagues and partners in any location. PivotLink's approach puts affordable, secure, and easy-to-use analytic tools into the hands of business users, empowering them to make better, timelier decisions—allowing IT to focus on innovation. Learn how PivotLink's on-demand business analytics can improve productivity for your business by visiting our Web site.



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As the world's leading provider of business software, SAP delivers products and services that help accelerate business innovation for our customers. We believe that doing so will unleash growth and create significant new value—for our customers, SAP, and ultimately, entire industries and the economy at large. Today, customers in more than 120 countries run SAP applications—from distinct solutions addressing the needs of small businesses and midsize companies to suite offerings for global organizations.



Tableau Software
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Tableau Software builds software for data visualization and rapid-fire business intelligence. Our mission is simple: help people see and understand data. Tableau's award-winning products are easy to deploy and make analytics and business intelligence fast, easy, and fun. They include Tableau Desktop, Tableau Server, the no-fee Tableau Reader, and Tableau Public. Tableau Public lets anyone in the world create interactive graphs of publicly available data and publish them on blogs and Web sites—all for free. We understand the needs of people, non-technical and technical alike, when it comes to retrieving and analyzing data to gain insight and make better decisions. Tableau has already attracted over 50,000 licensed users in organizations from one-person businesses to the world's largest companies.



Teradata Corporation
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Teradata is the acknowledged global leader in data warehouse innovation and analytical solution development. Every day we raise our customers' intelligence to higher levels, making them more focused and competitive by gathering enterprise information and extracting actionable insight. Teradata elevates enterprise intelligence by giving every decision maker the insight required for smarter, faster decisions. We add value and reveal opportunity across more dimensions than any competing solution. In every industry and geography, our technologies and expertise make the difference. Simply put, Teradata solutions make companies smarter and give them the competitive advantage to win.

TDWI RESEARCH

TDWI Research provides research and advice for BI professionals worldwide. TDWI Research focuses exclusively on BI/DW issues and teams up with industry practitioners to deliver both broad and deep understanding of the business and technical issues surrounding the deployment of business intelligence and data warehousing solutions. TDWI Research offers reports, commentary, and inquiry services via a worldwide Membership program and provides custom research, benchmarking, and strategic planning services to user and vendor organizations.



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