

# BI Experts' Perspective

## Projecting ROI for Analytics

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**Ashley Mackey** is the BI director at Beautiful Yard Art. BYA sells a variety of yard art—frogs, bugs, sculptures—through specialty stores, big box stores, and over the Internet. It's a profitable business. People like to beautify their yards and make them more interesting.

Ashley has a four-person team that maintains a data warehouse and is responsible for reporting and dashboard applications. Up to this point, the work has focused on typical descriptive analytics applications.

BYA's senior management wants to move into new BI application areas. For example, they want better forecasts of product demand, analyses of what customers are saying about their products on social media, and better insights into their best suppliers and customers.

This is exciting work and Ashley and her team look forward to taking it on. An issue, however, is the company's practice of requiring a business case with rigorous ROI numbers before new projects are approved. Ashley knows projecting ROI can be problematic with decision support applications. Can you help her by answering the following questions?

1. Is it reasonable for management to expect rigorous ROI numbers for analytical applications?
2. Is there a generalized approach that can be applied to all analytical applications, or are the methods of analysis application-specific? If there is a general approach, can you describe it?
3. Is there a good way to get the CFO and other senior executives to buy into the analyses and numbers that are generated?
4. How should "soft" benefits (those that are difficult to quantify) be handled?
5. Recent studies discuss a high ROI (e.g., 10:1) on analytics projects. Are these to be believed, and if so, how can they be helpful?



**JANE GRIFFIN**

**Question 1.** Ashley's

team should be commended for maintaining the data warehouse and dashboard applications that support executive decision making at BYA. Taking analytics to the next level, the company is now looking to improve product-demand forecasting, better understand what customers are saying about BYA's products, and gain better insights into suppliers and customers. Because these are different and important goals, each requiring different data sets and types of analysis, Ashley should work with management to quickly set priorities, focusing first on a pilot study for the objective with the most tangible and measurable results.

The most impactful of these initiatives for BYA is to provide more accurate forecasts of product demand. This ability will allow them to look for inventory improvements, better manage their supply chain, and increase sales by better understanding the product levers. Ashley could recommend that the business focus on the highest tangible initiative: a pilot project to study product-demand forecasting.

What the business *shouldn't* do, especially without adequate staffing and budget, is to work on all of these things simultaneously. They require different team members and a variety of data types and potential sources. Determining what customers are saying about the company involves sentiment analysis of social

media. Although that may be easier to execute than product-demand forecasting, sentiment is more difficult to quantify for ROI. Unless BYA can identify patterns where customers are having issues with a certain product, or the business is looking to publicize what customers are saying, establishing ROI for brand purposes can be tricky.

Achieving better insights into customers and suppliers is a two-fold objective and can be both less tangible and more complex than product-demand forecasting.

Achieving better insights into customers and suppliers is a two-fold objective and can be both less tangible and more complex than product-demand forecasting. Suppliers can be rated on all kinds of things—operational practices, employee welfare, environmental issues, product quality, and on-time delivery, for example. We can also look at the risk, longevity, and viability of the supplier's finances. That's complex data, and it's not all available internally. Similarly, customer insights can be difficult

to discern. If the company is selling through big-box stores, this data is less accessible than when selling through a direct Internet channel.

For these reasons, Ashley should share these factors with the business and ask them to set a priority to focus on the highest tangible initiative based on data complexity, actionable results, and impact that the business can control. Again, product-demand forecasting could be a good choice.

When presenting this business case to management, Ashley must demonstrate the following:

- The goal is tied to a specific, actionable, and clearly defined business strategy that can be aided or achieved through BI and analytics
- Solving this problem will make BYA more efficient or able to make more informed, strategic decisions
- Addressing challenges of product-demand forecasting is feasible given the organization's current capabilities and the required funding and investment

**Question 2.** Like other organizations, BYA must answer some thorny questions to establish a framework for moving forward with an ROI focus. These questions should relate specifically to their initial goal—in this case, better product-demand forecasts. Here are a few questions BYA should consider:

1. Which sales distribution channels produce the highest revenue and which should we analyze first?
2. What sales channels should we optimize first: specialty, big box, direct, Internet?
3. Of these four sales channels, which has the highest ROI?
4. Are we forecasting demand for all of the channels accurately?
5. What product categories are seasonal or have geographical factors?
6. Should we segment products and channels beyond the existing models?

Ashley can use these questions to assess feasibility and set some measurements going forward. From an IT perspective, Ashley has her own questions to answer to ensure BYA's data house is in order. These include:

- How is the health and depth of our data?
- Do we have the right information in the right place? Must we address any master data management concerns before we can proceed?
- Are there data-related requests we can systematize to save future time-consuming efforts?
- What data needs to be pulled together and where is it?

- How quickly can we procure missing information to enable analysis?
- How can we manage unstructured data?
- Are we ensuring data privacy and security where necessary?

Pulling together disparate sources into a usable data set is the “special sauce” that can ensure success.

**Question 3.** Visualization can go a long way in getting buy-in from the C-suite, including the CFO. Data visualization can help CFOs and other executives understand the potential impact of better product-demand forecasting.

Visualization is often used to build a prototype to get buy-in and prove the benefits of next-step development. By giving the CFO a view of optimized product inventory and its impact on product sales at a glance, visualization can go a long way in making the business case for BI and analytics.

**Question 4.** Soft benefits include improvement of the brand and its positioning versus the competition. In BYA's case, product sentiment may explain why one product is selling better than another, allowing BYA to adjust manufacturing specifications or marketing approaches. Analyzing product-related unstructured data would be a good way to measure things that are not quantifiable.

**Question 5.** Achieving a tenfold increase in product demand is a

lofty goal. That said, the initial study and pilot can quantify what actions will influence the return and how large an investment is required to do so.

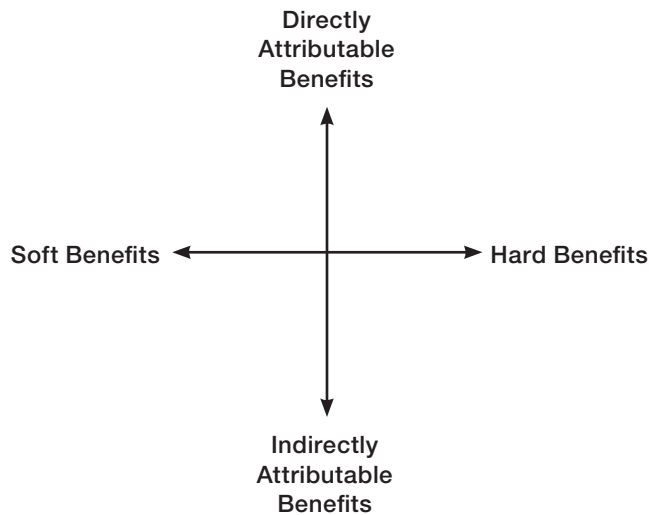


## TROY HILTBRAND

Developing a successful business case that demonstrates a compelling ROI for predictive analytics projects can be a challenge that pushes a team to be creative to fully quantify potential value. Many unknowns are associated with projects of this nature, from how the solution will actually perform in production to what benefits the organization will reap. Ashley must ensure that the business case delivers the right message effectively to senior management and garners their support to move forward.

First and foremost, a business case should never be created specifically to implement an analytics technology; it should always be a business project that utilizes analytics as a key success factor. Leading with the business problem at hand seems like a trivial change to thinking, but it makes a huge difference when trying to sway an executive audience. Business leaders are focused on tangible business outcomes in everything they do. More business investment tends to be allocated to activities that drive these business outcomes.

In developing a business case, ensure that you understand your audience and the challenges they face. They are often precariously balanced between short-term and long-term business objectives with limited



**Figure 1:** Use the two axes to prioritize benefits to present in a business case.

resources. Clearly explaining in the business case how your specific project can impact the business within both time frames is advantageous. It allows decision makers to reconcile this proposed investment and its potential impact against other organizational needs.

To develop a sound business case and ROI, determine how the business measures success and relate how implementing this new set of capabilities will improve the business's ability to achieve this target. Common business outcomes include increased revenue streams, reduced operational costs, increased stakeholder satisfaction, and increasing levels of regulatory compliance.

Next, determine how this business outcome aligns with other projects that have successfully navigated the business-case approval process. Do your research and determine what those projects did to quantify and

qualify their benefits to the organization. Modeling your business case and associated ROI after a related project that was funded will provide a sound foundation.

Another technique is to look at other groups within the organization that have similar objectives and develop a cooperative business case jointly with them. Searching for groups that have earned approval for past projects and partnering with them can give you a competitive edge to move forward.

These groups have most likely figured out what senior management is looking for in a project and have experience navigating the political waters of budgetary approval. Partnering to develop a business case shows a willingness to look at the business in its entirety.

When developing the business case and identifying business value, four

important types of benefits can be placed on two axes. The first is whether business value can be attributed to the project directly or indirectly. The second is whether it is a hard or soft benefit.

Hard benefits that can be attributed directly to the project affect the business case the most. Next are indirectly attributable hard benefits and directly attributable soft benefits, with indirectly attributable soft benefits last on the list. This does not mean indirectly attributable soft benefits should be ignored, but they should be a lower priority compared to the others. Senior management will often make a decision after hearing the first couple of points, and those need to be as strong as possible.

Finally, an area where projects fail to meet expectations is in following up on initial promises. The business case should include a set of measurements that will be used to track success over time. These measurements need to be associated with the business outcome and not simply indicate progress of the project.

Defining up front both the measurement of success for the investment and an indication about how these measurements will be captured and exposed throughout the project will create trust in the business case. Having checkpoints throughout the project to evaluate success demonstrates transparency.

Just as predictive analytics projects are difficult because they are trying to predict the future, justifying

them can be equally difficult. With some creativity and sound investigative work, Ashley can develop a robust business case that will garner support from senior management.



**PAUL G. JOHNSON**

First, congratulations to Ashley and her team for their past success with the data warehouse effort, and the vote of confidence they have received from the executives. Quite a few data warehouse programs don't make it this far.

The scenarios here are more exotic than standard analytics and reporting—they are truly strategic decision support. I believe it is unreasonable to expect rigorous ROI calculations for three reasons:

- The primary purpose of a data warehouse is to support management decisions based on data
- A well-designed data warehouse should be able to answer unanticipated questions
- The executives cannot know in advance what decisions they will need to make

Therefore, it is not reasonable to predict the eventual ROI.

Instead, I believe BYA should view funding decisions for the extended data warehouse capabilities as follows:

- Our competitors are making data-driven decisions
- We need to make better decisions than our competitors to stay in business

- We must build our decision-support system at the lowest possible cost that will guarantee reliability

Leading with the business problem at hand seems like a trivial change to thinking, but it makes a huge difference when trying to sway an executive audience.

Knowing the realities of corporate governance, Ashley may still be required to come up with her best shot at an ROI analysis. From a pure economics perspective, the overall framework for a funding decision is the same for any type of project, from IT development to opening another store. If the expected marginal revenues exceed the expected marginal costs (including cost of capital), the project should be funded.

Ashley's first step should be to identify key people within BYA who can quantify potential revenue opportunities that may be realized as a result of the new capabilities, and forecast these amounts over five years. She should list the opportunities separately, along with her

assumptions, and categorize these as benefits. Then, make a second list of all incremental costs associated with the new functionality. These include hardware, software, and the prorated cost of employee time to build the solution. Most of these costs will be in the first year, but operating the solution over five years will incur ongoing costs.

After arriving at the raw costs and benefits, she should calculate the net cash flow by year. The first year might be negative. These numbers should then be taken to the finance department, which will calculate the net present value over the period. If this analysis comes out positive, the project should be funded. The ROI is implicit in these calculations.

The best way to obtain buy-in from the CFO and other executives is to demonstrate that careful thought and reasonable assumptions went into the scenarios. All assumptions should be clearly listed in the presentation. In some cases, it may be appropriate to provide a range of outcomes, such as high/middle/low, and weight them with a probability factor. The presentation needs to be attractive and uncluttered, with a focus on the high-level results. Supporting detail should be well organized and readily available if the CFO wants to dig into the numbers.

So-called "soft dollars" are always a challenge to handle. I believe most of these can be quantified with enough thought. For example, if the BYA marketing group has to work "all-nighters" to pull together numbers every time a



new question comes up about the latest ad campaign, attrition might be high. Studies have shown that filling a vacancy can cost from 75 to 150 percent of that person's salary, for recruiting, training, and lower productivity while a replacement learns the job.


My recommendation is to make very conservative assumptions, and list them clearly as "soft dollars." If the executives do not buy in to the assumptions, these benefits can easily be excluded from the final analysis.

An area where projects fail to meet expectations is in following up on initial promises. The business case should include a set of measurements that will be used to track success over time.

I fully believe that 10:1 ROIs are achievable on these types of projects. The trends in IT spending for analytics continue to be strong, particularly in the big data arena. Capital is a precious resource, and firms would not be spending on these projects without confidence

that the ROI will be realized. Ashley should strive to keep the incremental costs low, which dramatically increases the ROI potential.

For example, I recently proposed a cloud-based big data solution for a client. With reasonable assumptions, it yielded a potential ROI of 20:1! One driver of this large ROI was the low incremental cost of building the solution in the cloud. Circling back to my original assertion, the need for a decision support capability should not be up for debate, but it should be deployed as cost-effectively as possible.

 **ART MCDONALD**  
Analytics return on investment (ROI) reflects an organization's perception of its analytics program. When considered an expense, analytics investments are minimized and each line of business develops application-specific reports, typically using Excel. The result: long report development and deployment time and high expenses; a long information-to-action cycle; and low analytics ROI.

When analytics is viewed as an asset, organizations understand its power and develop an analytics road map that guides and prioritizes projects to provide business users with immediate insight into organizational processes, markets, and industries to make the best actionable decisions in minimum time. The result: high analytics ROI.

Ashley's BYA data warehouse is a positive analytics asset. Considering

the size of her team, Ashley may serve as the business analyst, so business relationships and her understanding of business information needs may be good. Let's consider Ashley's questions.

Management can and should expect rigorous analytics ROI estimates. However, they should be presented within the context of the overall project income increases and expense reductions. Only when measurable business outcome forecasts are presented can any initiative be considered.

Planning analytics-empowered performance initiatives can employ a standard planning process. The business sponsor defines the business case (the vision for the desired outcome), and then presents the proposed changes in business processes and operating revenue and/or expenses, which includes the time and cost for developing or enhancing the analytic forecasting application.

For example, imagine that one of Ashley's senior managers needs *more accurate forecasts of product demand*. The executive sponsor defines the business case and how it will reduce expenses or increase revenue and net income.

"Improved forecasting will provide specific, timely guidance, enabling us to quickly respond to seasonal changes, develop innovative product designs to appeal to changing customer preferences, and employ just-in-time product manufacturing to reduce inventory costs.

"The new forecasting model will enable us to:

- Generate \$n net income
- Increase sales revenue by an estimated 5%/\$n
- Reduce inventory/cost of goods sold by 10%/\$n

"This can be accomplished with a modest investment of \$n to enhance our analytics forecasting application: an N% analytics ROI."

As the analytics business analyst, Ashley is on the support team with finance, marketing, purchasing, and distribution. Finance provides the numbers, and the estimated results come from the business sponsor, who knows the business and is best able to anticipate the outcomes and validate the numbers. Analytics is the enabler, not the project owner.

When anyone tries to sell "soft benefits," I think of Peter Drucker's quote, "If you can't measure it, you can't manage it." When soft benefits are analyzed and correlated to customer buying decisions and other business metrics, they become measureable, manageable business outcomes. To quote W. Edwards Deming: "In God we trust; all others must bring data."

Although I believe only half of what I see and nothing that I hear (thank you, Edgar Allan Poe), when reputable research firms produce similar results, the conclusions tend to be reliable. Yes, analytics initiatives yield a high ROI. The following analytics ROI white papers

from independent research firms are worth reading.

Analytics ROI surveys in 2011 and 2014 by Boston-based NUCLEUS Research revealed that the average return on every analytics dollar invested in 2011 was \$10.66. The 2014 project revealed the return had increased to \$13.01 for every analytics dollar invested. A 2012 survey revealed that as analytics matures over four stages, ROI progressively increases:

- Initial stage: 188% average ROI (automating reports)
- Tactical stage: 389% average ROI (leveraging analytics to improve decision making)
- Strategic stage: 968% average ROI (analytics strategically aligned; deployed across organization)
- Predictive stage: 1,209% average ROI (analytics extended to larger partner and social media data)

In 2013, Accenture produced *Analytics in Action* based on survey data from 600 director-level executives and managers of organizations with more than 1,000 employees in the U.S. and UK. In addition to reviewing survey data on adoption rates, predictive analytics, barriers to success, and more, the report presents good data on achieving ROI on analytics.

Clear Measures published a white paper—*How to [Calculate] ROI When Investing in a Business Intelligence/Data Analytics Project*—with

excellent points about maximizing analytics ROI, such as the five most common reasons why analytics projects fail.

Yes, Ashley, analytics ROI can be high with proper planning and execution. Remember, however, that analytics is only a part of a business initiative. How analytics productively empowers the business is what we measure. Helping business users develop new insights and minimize the information-to-action cycle time is the analytics team's unique value proposition. Strong, measurable ROI has been proven to result. Good luck, Ashley!



Ashley faces the onerous task of establishing ROI at BYA, and senior management's expectations of rigorous numbers only makes the challenge more daunting. She appears to have solid backing from her team, coupled with enthusiastic senior management eager to move from traditional descriptive analytics applications to advanced analytics. There are a few approaches to formulating a business case and establishing ROI with both quantifiable and unquantifiable benefits in a convincing manner.

The most common approach for ROI depends on alignment to a strategic IT road map, BYA's investment policies, and its appetite for risk.

## Alignment to Strategic Road Map

### Digital transformation and analytics:

Influencing stakeholders to adapt to digital transformation is a challenge, as seen in such cases as the survival of Singapore Post and Australia Post and their transformations with embedded analytics.

### Operating models and SMAC

**technologies:** Ashley needs to align BYA's business models to adapt to social and mobile analytics and have better business insights into customers and suppliers as required by senior management.

### BYA's Investment Policies

Net present value (NPV) is the most common approach to calculating ROI, as explained below:

1. Identify and quantify tangible benefits and convert them into cash inflow
2. Provide intangible benefits accruals to each functional department
3. Identify investment value in terms of hardware, software, and operational expenditure
4. Establish the present value of the cash outflow/inflow at the cost of capital
5. NPV is the net of discounted cash inflow minus discounted cash outflow

The simple decision rule is to accept only projects with a positive NPV. Unfortunately, technology projects rarely recoup costs in the first year

of operation, so ROI calculations typically span three years.

### Appetite for Risk

#### Adapting to the change from user-based to usage-based pricing:

Ashley may showcase the options of hosting on Amazon Web Services (AWS) Redshift analytics in the cloud, based on BYA's appetite for risk.

#### Production support, training:

Building analytics models for customer retention and attrition across the distribution channels of specialty stores, big box stores, and over the Internet needs advanced analytics skills such as R, Python, and Hive.

Ashley can use TDWI's Analytics Maturity Framework to initialize and prioritize investments with senior management. She needs to address relevant questions about framework to assess the stages of maturity in each functional department against the five dimensions: organization, infrastructure, data management, analytics, and governance. Thereafter, she should rank each functional department's probable business opportunities and set targets for improvement based on the maturity levels. Senior management should be interested in funding the investment with highest-yield projects and may consider the following factors:

1. Lower total cost of analytics tools and processes from using cloud infrastructure

2. Visualizations and graphical features to comprehend pattern analysis and demand forecasting over time
3. Customer service support versus managed services by analytics vendors

Once Ashley has established the maturity, she must work on enumerating soft benefits by first identifying use cases of faster reporting, then improving visibility by exploring omni-channel options, customer behavior patterns over the Internet, and the ability to analyze pricing strategies of specialty stores, big box stores, and the Internet.

To address these soft factors, all stakeholders can be influenced to embrace analytics by:


1. Creating a **culture of innovation** in user-driven analytics
2. **Building a team of analytics professionals** with appropriate qualifications in statistics, data science, and data management
3. **Constructing appropriate infrastructure** by building data software and ensuring data management for faster adoption
4. **Recognizing and rewarding** training, innovation, and faster deployments
5. **Planning and executing** experiments to provide ROI faster for mutually dependent and independent analytics projects



The next step is to establish credibility for her business case with assistance from secondary research gathered by analyst firms (such as Gartner) on ROI in analytics.

### **Dramatically reduced storage**

**cost:** Cloud infrastructure has reduced storage costs to as low as \$0.99 per GB on AWS and Microsoft. Innovation has spurred multifold growth in the global retail industry. In addition, geographical and cultural factors influence ROI, including customer behavior. Ashely needs to have confidence in her business case and ROI. She needs to consider all the factors discussed here, in transforming BYA on its advanced analytics journey to providing sustainable business analytics with insights on products, customers, and suppliers.

**A**  **STEVE WILLIAMS**  
**Question 1.** Having completed a dozen BI strategy engagements across several industries, I've observed a range of approaches to justifying investments in BI and analytics. Despite the substantial methodological issues with most forms of ROI analysis that arise from estimating future cash flows, you have to do it in certain companies whether you think it is reasonable or not. Whatever the method of ROI analysis, you are basically creating a model of the future based on a web of assumptions.

For analytics, the assumptions need to be about how the particular analytical application is going to

improve a specific business process in a way that increases revenue, reduces cost, or both. For example, predictive analytics can increase the acceptance of a marketing offer while reducing the cost of transmitting the offer by narrowing the target list to people or groups who have shown a propensity to accept offers. If you can tie the potential investment in analytics to a specific business process in a way that makes intuitive sense to experienced business leaders, you can generate an ROI model that is as rigorous as possible given the inherent limitations of quantified ROI analysis.

**Question 2.** Any analytics application is applied to a specific problem domain. For Beautiful Yard Art, one potential application would be for demand forecasting, which is ultimately used for such business purposes as improving order fulfillment (customer service), optimizing inventory, and planning purchasing. Another potential application would be for assessing supplier performance—perhaps by forecasting their delivery performance, which might be used to continuously reduce raw materials inventory.

The general approach for any analytics application is to understand the specific problem domain, use business judgment about the degree of improvement possible to a business process with the analytics application, and then quantify the improvement. The investment side is simpler because many of the costs are known or knowable, although cost

allocation and charge-back issues sometimes arise.

**Question 3.** The most rigorous ROI analysis I have been involved with was for a five-year, \$40-million BI and analytics program. We created an ad hoc working group with a couple of key SVP- and VP-level business stakeholders, some of their analytics people, and a representative for the CFO. Over 6 or 8 weeks, we framed some key business areas where analytics could make a business impact. Then the people in the working group who knew the most about those areas came up with the assumptions and the quantification to project the financial value of the targeted improvements. This way, the people in the business create the assumptions that drive the ROI model, and they have a vested interest in defending the numbers to higher-ups.

There is just no way that a BI director can match the credibility of someone who lives with the business process to be improved. No one in IT should ever be asked to justify an analytics investment, though some business people like it that way because they can sit on the side with the judges—rather than among the judged.

**Question 4.** It is not always possible, but many soft benefits can be tied to a more concrete value proposition. To illustrate, Beautiful Yard Art is interested in “better insights into their best suppliers.” As phrased, that is a pretty soft benefit. As mentioned earlier, the company might be able

to reduce raw materials inventory by forecasting and then continuously improving supplier delivery performance.

This line of thinking can be applied in many cases, converting soft benefits into more concrete and quantifiable benefits. Otherwise, one can just develop a qualitative business case or value proposition—hopefully to be used in conjunction with a business case including hard benefits as well.

**Question 5.** As a rule, I am skeptical about published ROI information unless it comes from academic studies. I believe ROI is always situation-specific, and it is no surprise that a lot of organizations have a vested economic interest in promoting analytics. For years, major consulting companies have sold all manner of IT projects on the basis of their clients' purported ROI. Unfortunately, there is no way to vet such claims.

I recommend that companies do their own investment analysis—along the lines of what I've suggested here. Another possibility is to seek guidance based on what other companies have experienced using analytics in the same functional area or areas that your company is targeting. The caveat is that senior business leaders tend not to believe ROI claims from companies in different industries. Bottom line: beware of ROI claims from non-academic sources.



## COY YONCE

The value of a BI platform can vary dramatically across industries and organizations, and even over time within an organization's life cycle. The true purpose of BI is to support organizational goals by providing the right information to the right person at the right time. BI is truly a tool that lets you jump in, get what you need, and move on with decision making. Of course, BI is also critical to an organization's strategic direction, but its purpose, in the greater landscape of organizational strategy, is to support decisions. The value derived from this purpose will change with organizational strategy and goals.

Given the close tie between BI and organizational goals, and that most organizations closely monitor and track organizational goals using BI, it is reasonable for BYA senior management to expect to monitor and track the value and success of the BI platform as well. The difficulty lies in determining exactly which metrics to track, as the derived value of data can be far removed from successes and failures that arise from using that data.

For example, if BYA has a goal of creating a new brand of custom topiary products, the new offering would require multiple forms of analysis and many metrics. The BI platform would be used to deliver information for the research, marketing, and product development teams, the topiary creators, and many other individuals to determine

whether the product would succeed in the target market.

If BYA successfully brings the product to market and manages to grow profit because of it, how does BYA know whether the BI platform helped make this happen? There is an assumption that it was helpful because everyone involved in developing and delivering the product would have used the BI platform to access information; however, management still lacks a quantifiable way to determine the true value and ROI of the platform.

Quantifiable metrics are important for determining where new investments should be made in developing analytic applications, where training is required to ensure teams and departments are using the available information, and whether certain departments are seeing better results from using BI than are other departments.

The reality is that tracking the ROI of a BI platform will be a mixture of quantitative metrics that can be generally applied to all projects, quantitative metrics unique to each project or initiative, and qualitative metrics that span both the organization as a whole and the projects individually. It is possible to develop a generalized approach that will need to be flexed or augmented as new projects are monitored. The following example describes useful metrics for BI value.

For most BI platforms, it is possible to track how often analytic applications, reports, dashboards, and other

content is being used, often at a department or individual level. This can be done either with audit tools provided by the BI platform or with applications developed by partners of the platform vendors. Tracking how often groups, folders, or content domains are accessed by the various parts of the organization will allow BYA to determine which BI content has value.

Going a step further, it is then important to determine which data objects (e.g., sales revenue, market share, number of downloads, regions, product names) are used most frequently, and most frequently together. These objects are making users more productive.

Another important metric is how long analytic applications, reports, dashboards, and other pieces of BI content take to develop. By tracking the life cycle from content ideation to deployment, BYA can determine how much they spent to build each piece of BI content and collection of content. This metric will require pulling data from multiple systems.

If BYA employees track their time spent on activities, then this data can be used for tracking how much time they spent on each piece of content; however, if the life cycle is managed properly to take content from development to QA and then to production, then other software can be used to track and compare content creation time in each environment to determine how long the content spent in each stage before deployment.

Additionally, tracking time actually spent on deployment and managing, upgrading, and maintaining the BI platform should roll into ROI calculations. These activities can take substantial time depending on the BI platform deployed, how large the deployment is, and how many time zones the deployment supports.

A final set of critical quantitative and qualitative metrics should focus on customer satisfaction. Tracking whether the BI user community has the information it needs will indicate to senior management whether the organization is actually using the BI platform for making decisions. A survey could pose questions focused on information relevance and availability, data accuracy, and the consistency of the BI platform. This survey should be conducted routinely or at the completion of projects to indicate BI effectiveness and value.

Using these metrics will make it possible to determine who is using BI content, who is using data, how long BI content is taking to create and deploy, how much money is spent on maintaining the BI platform, and whether the organization is actually happy with the information being provided. Analyzing these metrics regularly at an organizational, departmental, and project level allows BYA to monitor the value of its BI platform.

More important, by focusing a centralized team on tracking and monitoring BI platform ROI, BYA can gain further insights into how changes in the BI platform, driven

by these metrics, are resonating with the BI community. This drives even more support for the creation of a BI competency center to be responsible for ROI. In the end, this could lead to more support from executives as the ROI and value of projects using BI become trackable. ■