

# BI

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*Trends +  
Strategies*

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# JAMES BROWN TO BI USERS: GET IT TOGETHER

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**IT'S TIME TO** break out of that corner office, home office or cozy cubicle and start collaborating. That's the message being heard and embraced in today's forward-thinking enterprises as they develop strategies to deal with new technologies, rapidly growing data volumes, globally distributed workers and customers, and—of course—"big data." Those issues are also key areas that significantly affect many components of the business intelligence (BI) ecosystem. This issue of *BI Trends + Strategies* offers insight and advice on how collaborative BI, location intelligence and data governance can help organizations keep up with ever-changing and often challenging IT and business environments.

The feature article, written by BeyeNETWORK experts Colin White and Claudia Imhoff, outlines the capabilities and [potential benefits of collaborative BI](#), ideally culminating in better business decisions based on BI data. But the journey doesn't have to start with a big first step:

An evolutionary approach can work for companies that don't need the immediate gratification of full collaborative decision-making capabilities.

Next, SearchDataManagement.com contributor Roger du Mars reports on the still-developing relationship between big data and data governance. Proper [governance of big data environments](#) is seen as a must by data management analysts—but there are more questions than answers at this point. Nonetheless, du Mars catalogs some tips on how to get the governance ball rolling.

And BeyeNETWORK expert Steve Benner surveys [the convergence of BI and location intelligence](#), detailing the role that location intelligence tools have to play in making it easier for business users to analyze geographic data. Not surprisingly, collaboration is one of the drivers he sees for increased use of location intelligence technologies.

**JEAN SCHAUER**

*Editor in Chief, BeyeNETWORK*

# COLLABORATIVE BI SETS STAGE FOR COLLECTIVE USER ACTION

*With users working together on business intelligence processes, organizations can make better decisions. And you don't need to go all-in to get started. By Colin White and Claudia Imhoff*

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**C**OLLABORATIVE business intelligence is a relatively new concept in which BI and collaboration technologies are beginning to merge in support of a new and improved decision-making environment.

BI software enables business users to report on and analyze business processes and associated activities, while collaboration tools enable the results of BI queries and reports as well as other related information to be accessed and shared by multiple users.

As a combination of the two, collaborative BI provides three primary capabilities:

- **Collaborative interaction.** Business managers and workers need to interact with one another to improve

communication as part of BI initiatives. They must be able to share BI findings and discuss their meaning and possible options for improving business performance. Ease of discovery and documentation of ensuing discussions are key features of collaborative BI.

- **Information enhancement.** Users also must be able to add their own knowledge to BI results. Through collaborative processes, workers can share information about why events are unfolding the way they are to provide a business context to findings, and they can point to related data and content. Published BI results can be enhanced through feedback mechanisms such as ratings, comments and tagging as well as, in some cases, blogs and micro-blogs.

### ■ Collaborative decision making.

The ultimate goal of any BI program is to make timely and better business decisions. A collaborative BI environment supports team efforts to assess situations and make decisions. It also must enable organizations to track decisions and analyze their validity and business impact. Such analyses provide feedback that can help improve the decision process, allowing companies to document best practices and monitor the types of information that provide useful input for decision making.

Despite the benefits of collaborative BI, not all users need all of its capabilities, and it is important to determine which personnel require what features. For example, users who execute assigned tasks may simply require collaborative interaction, whereas business managers may require all three of the collaborative BI capabilities outlined above. Experience shows that attention to this aspect is a critical success factor. A collaborative BI environment that is designed for the wrong types of users will not be used and will not provide a good return on investment.

Organizations also need not implement a full collaborative BI environment in a single step. The collaborative framework illustrated in **FIGURE 1** (see page 5) suggests an evolutionary approach (going from left to right) to enabling the capabilities of collaborative BI.

The **BI environment** consists of technology that supports the overall BI and data warehousing system. These products are used by the IT staff to create the repository of data that business workers then use to create reports and analytics. Many BI vendors provide support for both collaborative interaction and infor-

## A COLLABORATIVE BI ENVIRONMENT SUPPORTS TEAM EFFORTS TO ASSESS SITUATIONS AND MAKE DECISIONS.

mation enhancement in their software—by enabling the distribution and annotation of reports and query results, for example.

Collaborative interaction is usually supported by integrated instant messaging and email interfaces to applications such as Microsoft Office, Google Docs and Lotus Notes, which are part of the **office environment** in the diagram. Several BI vendors also enable BI results to be integrated into collaboration platforms; that extends the BI environment with content management, search and other collaborative features. In addition, BI vendors may interface to social media sites such as Facebook, LinkedIn, Twitter and YouTube. That can indirectly add social computing capabilities, such

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as communities and user profiles, to BI systems.

The application suites in the office environment include email systems, word processors, spreadsheets, presentation tools and personal databases; in some cases, they also feature on-premises and cloud-based tools for social computing. These applications are most commonly used to share BI findings and communicate about them, including

with users who don't have direct access to BI systems. But Office and rival products can also be used to enhance the content and context of reports and query results through the addition of comments, external information and expert opinions.

The **enterprise collaboration platform** depicted in **FIGURE 1** provides cross-departmental collaboration capabilities and is external to the BI environment. Examples of available

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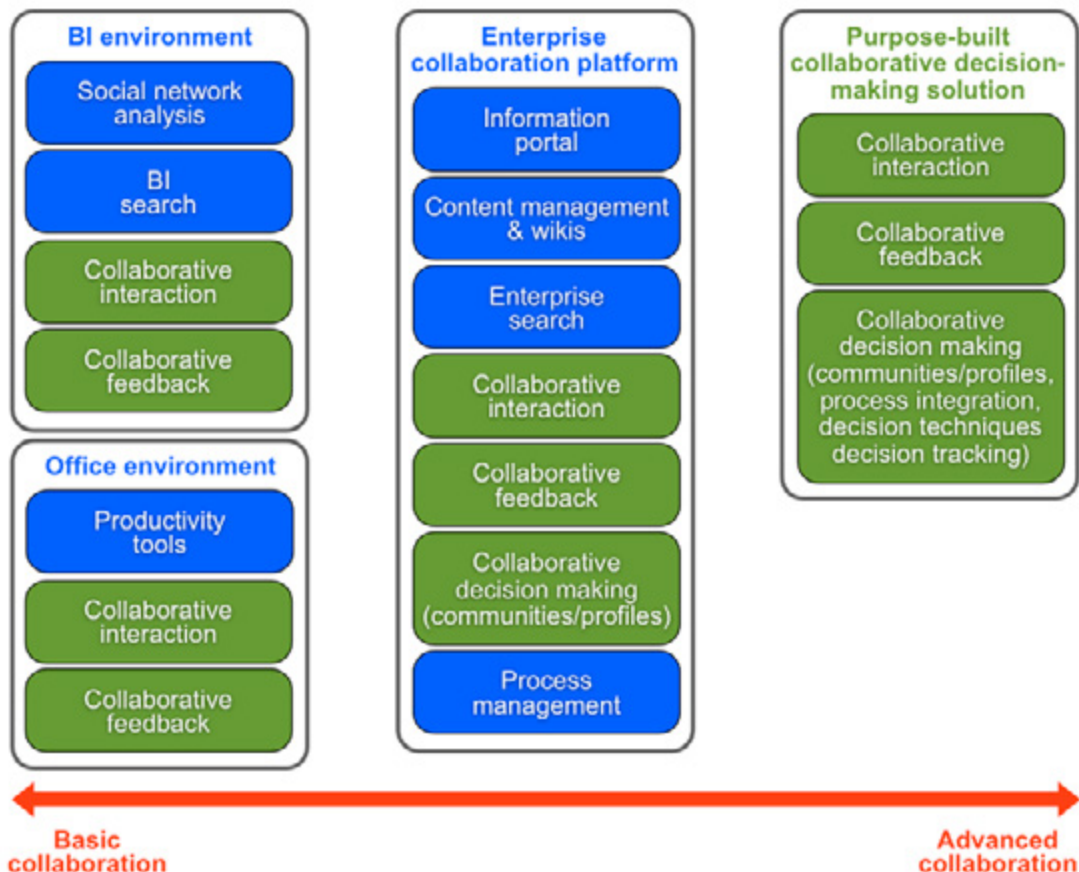
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**FIGURE 1:** Organizations can implement several different levels of collaborative BI and decision-making capabilities.



BI RESEARCH AND INTELLIGENT SOLUTIONS INC.

products in this category include IBM WebSphere, Microsoft SharePoint, Oracle WebCenter and SAP NetWeaver. The technologies and collaborative and social computing features offered by the different vendors can vary considerably. For example, software for content management, search and process management might come standard with one platform and be sold as separate components or options with others. In addition, these platforms usually work with the vendor's own BI tools. The products typically include support for user communities and team-based workspaces, but they often lack formal or informal decision-making procedures, collaborative connections to business processes and workflows, and the ability to record and track business decisions.

Products in the **purpose-built collaborative decision-making system** category are developed from the ground up for organizations looking to implement collaborative processes for making decisions. Both on-premises and cloud-based implementations are available; two exam-

ples of cloud-based offerings are Salesforce Chatter and SAP StreamWork. Products in this category are at various levels of development but are evolving to support the three main features of collaborative BI.

## THE TECHNOLOGIES AND COLLABORATIVE AND SOCIAL COMPUTING FEATURES OFFERED BY THE DIFFERENT VENDORS CAN VARY CONSIDERABLY.

They are also being integrated with the BI and office environments, and in some cases with enterprise collaboration platforms.

Organizations can implement collaborative interaction and information enhancement features using the capabilities currently offered by, or being added to, BI tools. Supporting collaborative decision making, however, requires the use of a collaboration platform or a separate system designed specifically to meet the need for collaboration in the decision-making process.

For many companies, the collaborative BI journey is just beginning. But if implemented properly, the end result will significantly benefit an organization's decision-making abilities. ■

*More articles and other BI-related content are available in [Claudia Imhoff's](#) and [Colin White's](#) **BeyeNETWORK** expert channels.*

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# MISSION IMPOSSIBLE? DATA GOVERNANCE TAKES ON BIG DATA

*For companies to get the most out of this vast, new universe of information, they need to effectively govern it. But how to do that is still a big unknown. By Roger du Mars*

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“**BIG DATA**” alluringly holds out the promise of competitive advantages to companies that can use it to unlock secrets about customers, website usage and other key elements of their business operations. But some caution should prevail: Without proper data governance processes, the zest to spearhead big data projects can unleash a mess of trouble, including misleading data and unexpected costs.

Data governance’s role in keeping big data houses in order is just starting to emerge from the shadows, though. Big data, which typically involves large amounts of unstructured information, is a very recent phenomenon that has found its way into many organizations under the IT department’s radar. As a result, governance of big data environments

is at an incipient stage, and there are few widespread prescriptions for how to do it effectively, according to data management analysts.

“Big data is such a new area that nobody has developed governance procedures and policies,” said Boris Evelson, an analyst at Forrester Research Inc. in Cambridge, Mass. “There are more questions than answers.”

One fundamental problem is that pools of big data are oriented more to data exploration and discovery than they are to conventional business intelligence reporting and analysis, Evelson added. That, he said, creates a vicious cycle: “The data can’t be governed until it is modeled, but it can’t be modeled until it is explored [by data analysts].”

Data governance programs provide a framework for setting data-

usage policies and implementing controls designed to ensure that information remains accurate, consistent and accessible. Clearly, a significant challenge in the process of governing big data is categorizing, modeling and mapping the data as it's captured and stored, particularly because of the unstructured nature of much of the information.

"To get meaningful business information from big data, all sorts of things need to be done, like semantic analysis of the data, which is then rendered into conceptual models or ontologies," said Malcolm Chisholm, president of data management consultancy AskGet Inc. in Holmdel, N.J.

"And all that involves a heap of governance stuff."

#### LOOKING FOR CLUES ON BIG DATA

The difficulty is that everything about the process is so new. "There is a great deal of immaturity when talking about big data, and the majority of data managers really don't have a clue going into this," Chisholm said.

Big data, which can also include large quantities of structured transaction data, has idiosyncratic features. It's commonly defined in accordance with the three V's: volume, variety and velocity. Forrester

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## DOING TOO MUCH A DANGER IN GOVERNING BIG DATA

**ONE OF THE biggest pitfalls in coping with, and trying to govern, the flood of "big data" is to lose sight of business priorities, said Rick Sherman, founder of Athena IT Solutions, a consultancy in Stow, Mass.**

For example, much of the unstructured data being captured by organizations comes from social media, and typically only a small portion of that information is of significant value, according to Sherman. "Trying to manage or control everything in unstructured data would be a big mistake," he said, warning that companies could end up wasting time and resources on unimportant data.

Danette McGilvray, president of Granite Falls Consulting Inc. in Newark, Calif., also said that big data can be a big time-sink for data management and governance teams if it isn't handled intelligently and sensibly. "The only way we can figure out if the data is worth managing is if we know what the business need is," McGilvray said. "When it comes to big data, we still need to be reminded of that." ■



adds *variability* to its definition, while rival consulting company Gartner Inc. tacks on *complexity*.

In addition, the data often comes from external sources, and its accuracy can't always be easily validated; also, the meaning and context of text data isn't necessarily self-evident. And in many cases, it's stored in Hadoop file systems or NoSQL databases instead of conventional data warehouses. For many organizations, big data involves a collective learning curve for all concerned: IT managers, programmers, data architects, data modelers and data governance professionals.

Gwen Thomas, founder and president of The Data Governance Institute LLC, a consulting and training company in Orlando, Fla., recommends that judgments about the quality of incoming data should be one of the top priorities for data governance managers looking to get their arms around big data. Proactive data quality checks can save a lot of time and grief down the road, she said.

### **PROPER ALIGNMENT AVOIDS DISJOINTED DATA**

Frequently underrated, Thomas added, is the importance of mapping the new data to the reference data that organizations use to categorize information. Aligning big data with

existing reference data is "a huge detail," she said. "In fact, if this is not done right, the information that results from the processing of big data may be misleading, inaccurate or incomplete."

To help ensure that the data is mapped properly, the task should be assigned to a senior data architect instead of being left to a less experienced data modeler or someone outside of IT, Thomas advised.

Chisholm said data governance managers should also make it a priority to have productive conversations about the applicable data models with the programmers and business users who often initiate big data installations. Such discussions, though, should begin with a firm appreciation of Hadoop and NoSQL technologies and how they differ from relational databases—and an understanding of the need for a unified approach to managing and governing big data.

What companies should avoid, Chisholm said, is letting programmers and users go their own way and bring silo-driven perspectives to the process of setting up big data systems and doing the required data modeling and mapping work. That could saddle them with big remediation bills, inadequate installations that don't yield the expected business benefits, and wasted investments in unnecessary systems. ■

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# LOCATION INTELLIGENCE FINDS ITS WAY INTO BI PROCESSES

*Slicing and dicing data cubes is no longer the best way to uncover spatial relationships in corporate data. A new set of tools is mapping the route to improved business intelligence. By Steve Benner*

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**B**USINESS INTELLIGENCE (BI) systems have long struggled with the location dimension of the data contained in everything from spreadsheets to data warehouses and the transactional business systems that feed them.

Customer, product or channel dimensions can be visualized and analyzed with a wide variety of graphical tools. But geographic data is forced into these tools like a square peg in a round hole.

Help is on the way. Location intelligence technology brings a new set of tools to the table, ones better suited to the job of tapping into geographic information meaningfully and effectively.

Location intelligence has a role to play in these BI functions:

- **Reporting and visualization.** Traditional BI is dominated by standardized reporting with some limited filtering available to business users. Location intelligence plays a similar role by providing maps that give users the ability to pan, zoom, drill up or down, turn geographic layers on or off and do some limited filtering for thematic mapping.

Within all of the leading front-end BI tools, interactive maps are replacing or augmenting standard table and chart views of geographic data. Business data is typically mapped as dots or icons, shaded polygons or “hot spots” based on some characteristic of the data, such as sales volume or cost. Recently, more advanced geographic visualizations such as three-dimensional representations and space-time animations have found their way into some BI

tools and end-user dashboards.

Whether simple or advanced, visualizing data on maps is often a vast improvement over pie and bar charts. In many cases, it leads business analysts and other users to findings and conclusions in much

## WHETHER SIMPLE OR ADVANCED, VISUALIZING DATA ON MAPS IS OFTEN A VAST IMPROVEMENT OVER PIE AND BAR CHARTS.

less time and with less effort than spinning, slicing and dicing a cube of tabular information looking for spatial relationships—relationships they might never even find using the old method.

### ■ **Data integration and quality.**

Geographic data shares many of the same problems associated with other types of data, such as multiple source systems and spatial data formats, data quality issues and semantic inconsistencies. But it adds a few more, like different geographic reference systems (so things don't line up properly on maps) or different spatial dimensions (for example, one system maps buildings as points, another as polygons).

Location intelligence technology can help with spatial data integra-

tion and quality improvement efforts. Tools are available to convert various spatial data formats into a common one; re-project data from one coordinate system to another; and clean up and validate spatial data before it's used. The goal is to create a single version of the truth for spatial data that can be used throughout an organization to create accurate, meaningful and consistent maps and serve as a foundation for advanced spatial analysis. In the new world of self-service reporting tools for end users, effective processes for spatial data integration and quality management are critical.

■ **Advanced spatial analysis.** In both business intelligence and location intelligence, a relatively small group of people play with the data to discover what they don't know about it, employing heavier-duty analysis methods such as ad hoc querying or data mining. Somewhere, there is an imaginary line that divides simple location intelligence from advanced spatial analysis. One way to think about the line is to say that all analysis that can be done in the average person's head through visualization is on the simple side, while analytical tasks that require spatial statistics, clustering and forecasting or other spatial computations and models fall on the advanced side.

In short, if you can't get it from looking at a map, you need some advanced techniques. Advanced

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spatial analysis tools relate to familiar advanced analytics software for statistical analysis, data mining, real-time forecasting and business optimization, but they're modified to address the unique characteristics of spatial data and relationships.

■ **Collaboration.** Social networks are driving a rush toward increased support for collaborative BI capabilities. Standardized reporting, querying and advanced analytics all have their limits, and it's often difficult to uncover information about the cause and impact of business problems and corrective actions that could be taken. But often, multiple users working collaboratively can fill in data gaps, raise new considerations and make collective judgments and decisions.

Maps have always been magnets for people, as evidenced by the countless social media sites that use Google Maps, and many busi-

ness professionals want the same kind of collaborative experience to be available in the workplace. These "prosumers" have been heard, and maps now can easily be created, shared, annotated, extended and re-shared using cloud offerings without

## SOCIAL NETWORKS ARE DRIVING A RUSH TOWARD INCREASED SUPPORT FOR COLLABORATIVE BI CAPABILITIES.

the need for IT resources or in-depth location intelligence skills. Self-service has come to location intelligence along with collaboration.

It's easy to see the parallels between BI and location intelligence, since they share major areas of focus and serve similar purposes. But until now they largely have evolved independently of one another. Today, a perfect storm of technology, data and a DIY mentality among end users is bringing these two ships together and creating a wave of intelligent maps and location-based analytics. ■

*You can find more articles  
by Steve Benner in his [Beye  
NETWORK Expert Channel](#).*

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