Becoming a data-driven organization:

7 keys of data discovery

Everyone wants to make intelligent decisions informed by hard data. Unfortunately, in most organizations, only highly trained analysts and BI specialists have the power to manipulate complex data. A critical connection is lost. The people who really know the story behind the data can't get to it directly.

The solution is data discovery. With an intuitive, interactive, and visual data discovery tool, subject matter experts finally have the freedom to explore their own data. No longer compelled to wait on experts to spoonfeed them answers to specific questions, people throughout an organization can reach a whole new level of understanding and excitement about data. They can follow hunches. They can ask new questions. They often find answers to questions they didn't know they had.

And when data discovery becomes part of the organizational culture, something even more remarkable happens. Data becomes a part of the day-to-day conversation. It's not just, "Did you see that report?" but "I noticed this in the data." Individuals start sharing their observations and making connections. Businesses become faster and more responsive. Data drives innovation like never before.

This paper summarizes the seven keys of data discovery, outlines the profound organizational benefits of liberating data analysis for everyone, and addresses a few critical considerations for introducing data discovery in your organization.

What is data discovery?

Data discovery is the ability for anyone to explore data and draw meaning from it. In a data-driven organization, every stakeholder is equipped to translate raw data into actionable insight.

1. Data discovery is accessible

Data discovery sets your data free to do more for your organization. The goal is to create an active culture of discovery, rather than a passive culture of waiting for reports. This starts with making data openly available and providing an easy way for members of your team to

explore that data themselves. Any businessperson or knowledge worker should be able to pick up data discovery quickly and learn as they go. That means no complicated formulas to learn, no programming required, and no extensive training to attend.

2. Data discovery is intuitive

Data discovery should work as part of a natural thought process. People need to be able to explore data without a specific game plan. This works best when they can simply click on what looks interesting and dig deeper through an iterative question-and-answer process. "What about this?" leads to "oh, I see, and could this be related to that also?" New insights arise organically, and open-minded inquiry is rewarded by the thrill of discovery.

3. Data discovery is visual

The human eye is not designed to process rows and rows of numbers. Pictures communicate far more effectively. Data explorers think and question best when they can easily create visuals that make sense for the data, from scatter plots and line graphs to maps. This brings outliers and trends to light. Visualizations also encourage creative thinking—something that's not always associated with data analysis, but often opens the door to unexpected insight.
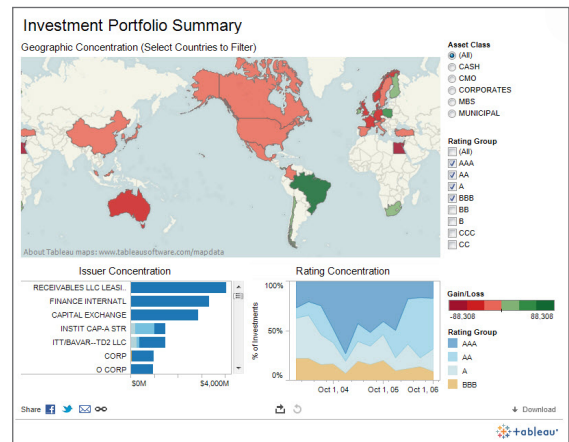

Figure 1: See for Yourself
Data discovery allows you to take in the big picture and drill down selectively. Click in to this example to experience data discovery for yourself by hovering over any chart, adjusting filters, or viewing the underlying data.

4. Data discovery is fast

Data discovery happens in real time. People become accustomed to going straight to the data when they need to know something. They know that they can ask and answer their questions at the speed of thought. Ideally, they can drag and drop pieces of data to consider various perspectives. It also helps if they can move from one type of visualization to another seamlessly, or look at multiple visualizations simultaneously.
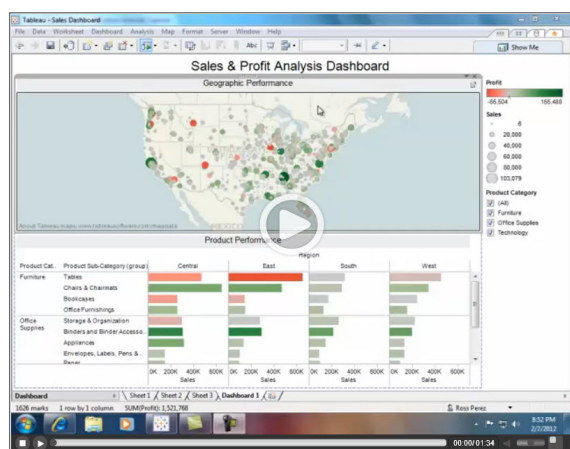
Figure 2: Real Time Q&A
Can data discovery really be that easy? Yes! This *three-minute video* *shows how quickly you can go from looking at an Excel database to asking and answering business questions in a fully visual interface.*

5. Data discovery is flexible

Where is your data? Most organizations have a combination of spreadsheets, databases, data warehouses, and other data sources. Data discovery should be able to integrate seamlessly with any IT/data environment, whether you choose to import data to memory or draw on live data sources. It also needs to be flexible enough to accommodate your existing security and access protocols.

6. Data discovery is nimble

Related data are often stored in separate databases. Historically, visualizing and combining separate data

sources has required an OLAP cube or a painstaking ETL project. Data discovery is most powerful if people can select and combine multiple data sources on demand, or even bring their own spreadsheets into the mix.
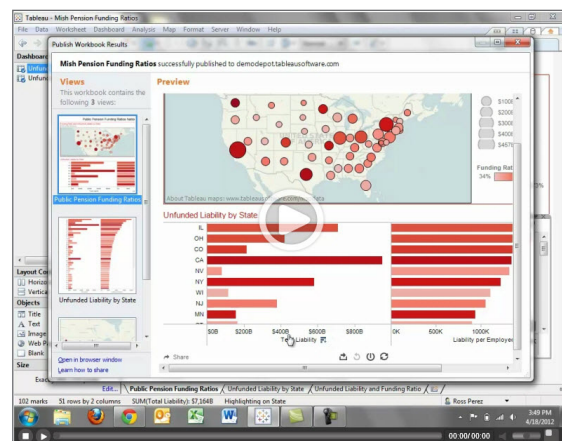
Figure 2: Blending Data
Here's another *short video* *that shows how quickly two data sources can be combined. In this case, the data discovery tool immediately recognizes related fields and quickly leads the data explorer to fresh insight.*

7. Data discovery is collaborative

Let's say a subject matter expert discovers something compelling in the data, but isn't sure what it means. Maybe they want a second opinion before going to their supervisor. Or they've identified something truly game-changing and want to tell the whole company right away. In the past, they might have to send a static report and a detailed email explaining their observations. Or they might need to schedule a meeting and put together a PowerPoint presentation. Today sharing the fruits of data discovery can be as simple as clicking "share" and sending a link to "Look at this!" Recipients can dig right in and add their own insight.

Why data discovery matters

When data is trickling down from IT/BI departments in static monthly reports or simply upon request,

companies miss out on a huge amount of business intelligence. Data discovery democratizes data, allowing organizations to harness its true potential and make better business decisions.

Everyone needs data

Data is a critical asset. People on the ground making business decisions need to know what the data is telling them. Does this gut decision really make sense? How have things changed since the latest strategy shift? What's really happening in this market segment? The more they can get in and see the answers for themselves in the data, the more effective and responsive they can be.

Figure 4:

See how Cheyne Capital, DePaul University, and The Broad Institute are using data discovery to create data-driven cultures.

"A lot of people come in and love to filter and click and re-sort and look at the data in the way that they want to see it, not the way we want to present it to them."

Subject matter experts can do more with data

People want to contribute. They understand and often intuit a lot about their data. When they are empowered to explore that data freely, they can use their subject matter expertise to contribute more. They can prove or disprove their assumptions by the numbers. They can identify problems and opportunities that nobody else would have noticed, because they have insight on what's behind the data. And they can share their ideas.

Data discovery breaks down IT/BI silos

IT/BI teams don't want to throttle the data analysis process, but they often do, simply because they have so many requests. Everybody has to wait and business decisions get delayed—or they get made with inadequate information. Data discovery pushes data back out to everyone who needs it. Instead of spending inordinate amounts of time on repetitive reports, IT/BI teams can focus on improving data sources, driving high-level initiatives, and encouraging a data-friendly culture.

Data discovery drives problem solving and innovation

With everyone primed to draw more value from data, teams can engage in ad hoc analysis to answer questions as they arise. Leaders can facilitate group data exploration sessions that bring together multiple subject matter experts and perspectives. Real-time dashboards can be shared. Data becomes a focal point for collaboration and inspiration, and people often become truly excited about the possibilities.

Introducing data discovery to your organization

The key to equipping your people to explore their own data is choosing the right tool. An effective data discovery tool should encompass all seven keys of data discovery described earlier. Above all, it must be:

- **Easy to learn.** The tool needs to be accessible and intuitive for anyone with basic computer skills. It can't require lots of training or expertise that needs to be refreshed all the time. Ideally, people can train themselves and each other with help from online resources.

- **Visually compelling.** Excel won't cut it. Most people understand data far better when they can see it translated into colors, shapes, and patterns. The interface of the tool itself should be visually interactive, not just the reports it creates.

- **Easy to integrate with your systems.** You need a tool that's easy to install and that can work with your existing data, as well as your permissions structure and security protocols (e.g., ActiveDirectory). You can't set people free to explore data unless you have control over who sees what data, especially if you have strict governance requirements.

Once they identify the right tool, most companies find that data discovery creates its own adoption momentum. Simply encourage a few key people to use the tool, let them see the difference data discovery can make in the way they do their work, and soon everyone will be asking for it.

Data discovery using Tableau

Tableau is a next-generation business intelligence solution that enables true data discovery. Tableau incorporates stunning visualizations and intuitive drag-and-drop functionality to make it easy for anyone to explore data effectively. Unlike other solutions that claim to offer data discovery, Tableau requires minimal training. Most users need only a few online videos or a one-hour training course to get them started. Tableau can also work with virtually any data source, either in-memory or live, and easily blends data from multiple sources.

Download a free, full-featured trial of Tableau and see what you've been missing in your data.

Seattle Children's Hospital

Hospitals are a great example of organizations that collect tons of data, but rarely get full value from it. At Seattle Children's Hospital, data discovery has spread like a positive virus that is literally saving lives. The hospital began by providing a data discovery tool to just ten people, but that quickly grew to 55 and is now nearing 200.

Enabling doctors, nurses and other experts at Seattle Children's to explore their own data has had profound results. For example, clinicians noticed a problem of oncology patients returning to the ER with pain after surgery. The Surgical Services department was able to analyze the return rates to the ER for specific procedures, break that percentage down by time, and identify variations by provider. This led to a collaborative decision to standardize certain practices related to pain medication after surgery, which quickly reduced the overall ER return rate.

"We are seeing data analysts, business managers, and financial analysts, as well as clinicians, doctors and researchers, all using the tool in different ways to solve different problems in ways that we couldn't do on our own before, largely because we didn't have enough time and enough people to do that," says Ted Corbett, Director of Knowledge Management. "I'm really adding two hundred analysts to my team by having them be able to serve themselves and answer their own questions without having to call me for every single one of those questions."

About Tableau

Tableau Software helps people see and understand data. Ranked by Gartner and IDC in 2011 as the world's fastest growing business intelligence company, Tableau helps anyone quickly and easily analyze, visualize and share information. More than 7,000 companies get rapid results with Tableau in the office and on-the-go. And tens of thousands of people use Tableau Public to share data in their blogs and websites. See how Tableau can help you by downloading the free trial at *www.tableausoftware.com/trial*.