A New Approach to Business Intelligence:
Rapid-Fire BI

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You work for a large or mid-sized organization with hundreds to thousands of employees. Your organization has silos, divisions, departments, standards, initiatives, roadblocks, politics, and players. You are being asked to standardize on a big, slow-moving, heavy duty business intelligence package to leverage your corporate data. You've also heard of a new generation of business intelligence—led by Tableau Software—but you're not quite sure what it does or how it can help you. This whitepaper is for you. It outlines a new approach to achieve your business intelligence goals: rapid-fire business intelligence.

Tableau's rapid-fire business intelligence products deliver dramatically better business results than traditional business intelligence (BI) systems. They are much easier to deploy, administer and scale. They allow users of all levels to ask and answer questions themselves – in a matter of seconds. They employ cutting-edge advances in computer science to accelerate analysis. The result is that business users can work with data of any size independently, while reducing the burden that heavy BI platforms place on IT.

How do you recognize rapid-fire business intelligence? To deliver the advantages, rapid-fire business intelligence software has certain characteristics.

The Five Attributes of a Rapid-Fire BI Solution

	Self-Service Approach Analytics and reporting are produced by the people using the results. IT provides the infrastructure, but business people create their reports and dashboards.
	Easy Visual Interfaces The software is simple, visual and easy to learn. People answer questions using drag & drop user interfaces and can change reports as needed on-the-fly. If people don't find the software fast and easy to use, they won't use it. End of story.
	High Performance The solution supports analysis at the speed of thought even against massive data. Users can ask and answer questions at speeds that support interactive reasoning.
	Data Blending The reality of most companies is that data has no one home. The solution must enable people to easily combine data from different parts of their business.
	Easy Administration IT can support the product with existing staff and infrastructure.
	Flexible Configurations You can start small but scale big over time. Whether today's need is one business analyst with one data source, or 10,000 field representatives accessing many sources, the software needs to support all stages of a project.

Self-Service Approach

Analytics and reporting are produced by the people using the results. IT provides the infrastructure, but business people create their own reports and dashboards.
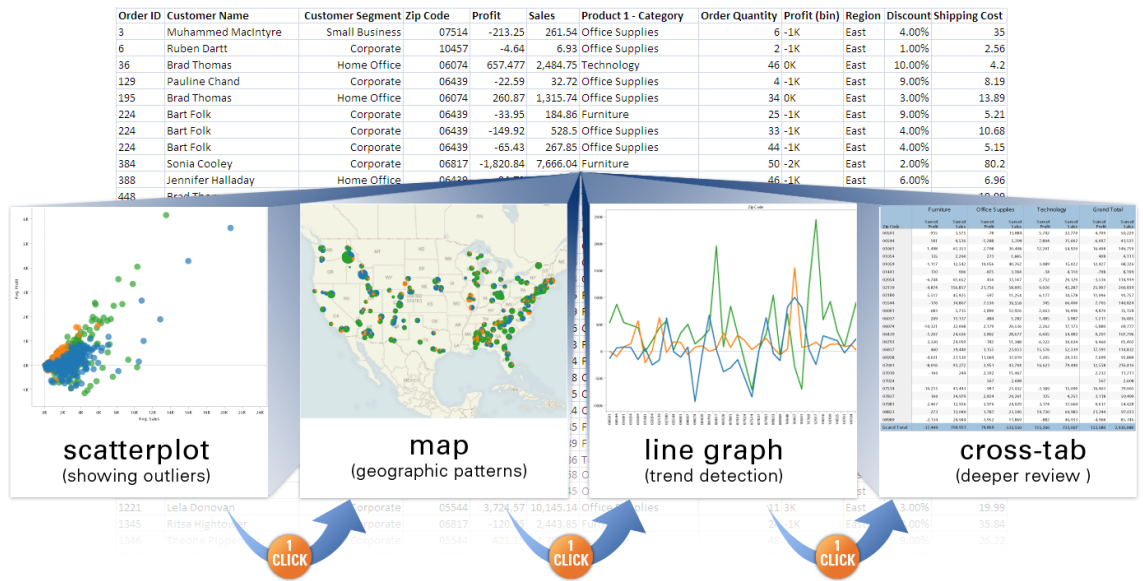
The most important characteristic of rapid-fire BI is that business users, not specialized developers, drive the applications. The result is that everyone wins. The IT team can stop the backlog of change requests and instead spend time on strategic IT issues. Users can serve themselves data and reports when needed.

The traditional practice of trying to anticipate the analytic needs of each employee is impossible – can an IT department really read the minds of business users? Business users are more productive when answering questions with their own tools. Research firm TDWI studied self-service analytical tools and found that "Dashboards built by power users generate greater insight than those built by IT developers. "

So, what are the important elements to look for with respect to self-service BI? Look for a system that:

- Connects to all major databases with a few clicks.

- Supports both relational and OLAP data sources.

- Opens desktop data such as text files and Excel files, without having to reformat or migrate that data.

- Allows easy building of dashboards and reports from disparate data sources and enable modifications as needed.

- Provides built-in best practices to support effective analysis.

- Enables easy sharing through email or web pages.

Order ID	Customer Name	Customer Segment	Zip Code	Profit	Sales	Product 1 - Category	Order Quantity	Profit (bin)	Region	Discount	Shipping Cost
3	Muhammed MacIntyre	Small Business	07514	-213.25	261.54	Office Supplies	6	-1K	East	4.00%	35
6	Ruben Dartt	Corporate	10457	-4.64	6.93	Office Supplies	2	-1K	East	1.00%	2.56
36	Brad Thomas	Home Office	06074	657.477	2,484.75	Technology	46	0K	East	10.00%	4.2
129	Pauline Chand	Corporate	06439	-22.59	32.72	Office Supplies	4	-1K	East	9.00%	8.19
195	Brad Thomas	Home Office	06074	260.87	1,315.74	Office Supplies	34	0K	East	3.00%	13.89
224	Bart Folk	Corporate	06439	-33.95	184.86	Furniture	25	-1K	East	9.00%	5.21
224	Bart Folk	Corporate	06439	-149.92	528.5	Office Supplies	33	-1K	East	4.00%	10.68
224	Bart Folk	Corporate	06439	-65.43	267.85	Office Supplies	44	-1K	East	4.00%	5.15
384	Sonia Cooley	Corporate	06817	-1,820.84	7,666.04	Furniture	50	-2K	East	2.00%	80.2
388	Jennifer Halladay	Home Office	06439				46	-1K	East	6.00%	6.96
448	Brad Thomas										

scatterplot
(showing outliers)

map
(geographic patterns)

line graph
(trend detection)

cross-tab
(deeper review)

- Provides interactive functionality on the web such as drill-down and filtering.

A clear sign of a failing business intelligence system is a proliferation of spreadsheets for tasks that should fall to BI, such as running what-if scenarios, creating dashboards and distributing results. When analysts and business users must work around their BI system, they become frustrated and create gaps in data security. Rapid-fire BI gives people the ability to answer on-the-fly questions and iteratively solve business problems.

Users Drive BI at AAA Allied Group

AAA Allied Group, an automobile association serving over two million members in the Midwest and South, was frustrated that its business-line employees did not have access or control over information when they needed it and that developers were stuck building reports using Crystal Reports. VP of Marketing Thomas Vaughn and VP of Information Services Rob Pickering decided to make a change. They brought in Tableau, and business line employees are now interacting with the data themselves and getting the answers they need directly. Says Vaughn, "Not only is Tableau an extremely cost-effective business intelligence software solution, but by deploying Tableau broadly we are reducing our need for expert developers of Crystal Reports. We are deploying our employees more effectively. Tableau enables us to get more responsive, better quality reports and business dashboards from our business line analysts which leads to better decisions throughout the company. The bottom-line impact is both in cost savings and improved performance."
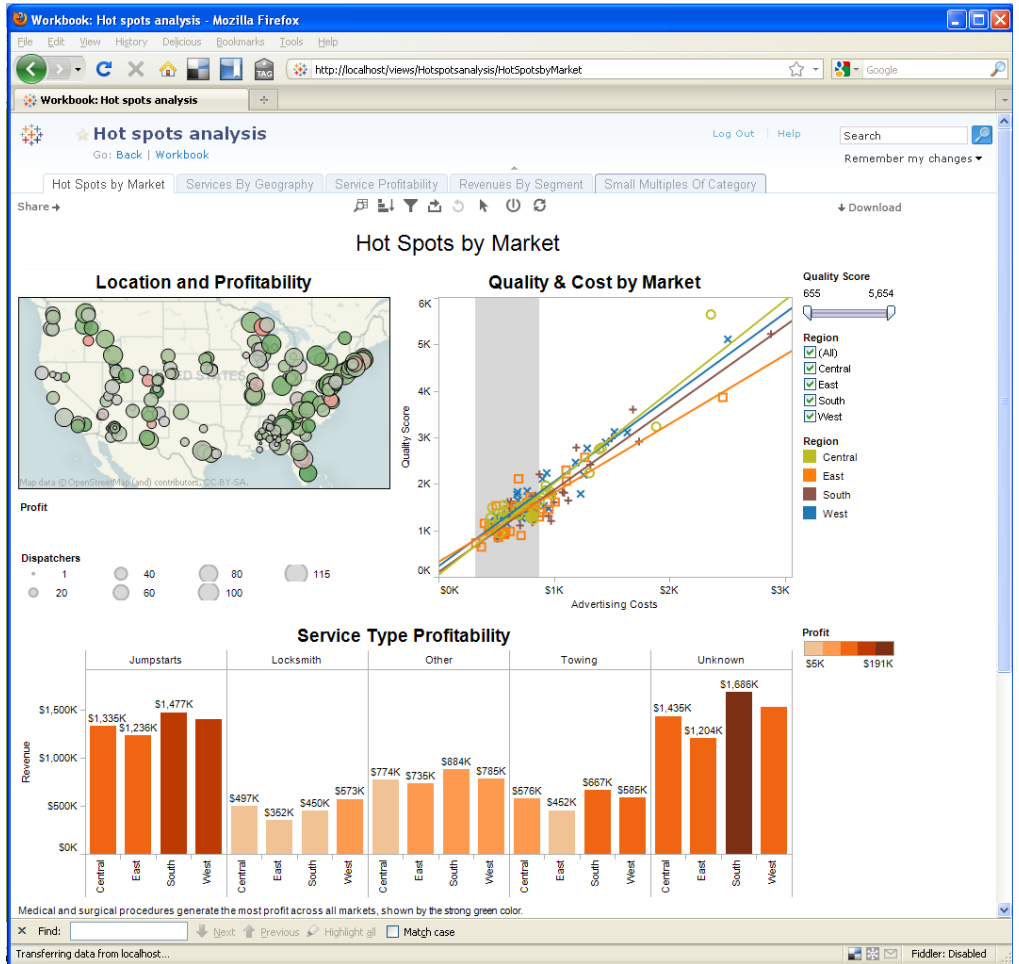
Easy Visual Interfaces

In a rapid-fire BI system, the software is simple, visual and easy to learn. People answer questions using rapid-fire drag & drop user interfaces.

Traditional BI platforms are complex. Over time, they have become hard to use and bloated. Users need tip sheets just to do basic tasks. In fact, a recent survey called "The BI Report" reports that just 8% of potential BI users actually use their BI applications. In other words, 92% of users do not use the BI tools designed for them.

Tableau's visual approach means users are thinking about their questions and their data – not about how to use the software. Rapid-fire BI is based on a new generation of drag-and-drop visual interfaces. They are so easy to use that nearly any user can conduct a broad range of inquiries. (The best way to evaluate a user interface? Get a fully functioning trial version and put it to use).

When people access data in Tableau, they simply point to a data source, identify the tables to use and their relationships, and click "OK". Using data from one source with another takes just a few seconds. Naturally, users can access data for which they have permission. Trust and governance are covered.

FIGURE: Tableau's visual interface means users are thinking about their questions and their data – not about how to use the software.

What are the important elements to look for with respect to easy visual interfaces?

Interactive Data Visualization

Does the system offer data visualization as its primary means of analysis? Selecting and interacting with graphical representations of data results in computations on the data itself. The analysis process is visual from the beginning, rather than the legacy process of write queries – get data – write report – use chart wizard.

Easy to Use User Interface

Does the software have an easy to understand user interface defined in business terms and not jargon? Do users regard the software as easy-to-use and intuitive? New users are often the best judge of effective user interfaces.

Geographic Intelligence

Everything that happens in an organization happens somewhere. Geographic analysis is critical. Is mapping easy to use and complete, requiring no specialty map files, plug-ins, fees or third party tools?

Drill Down and Drill Through

Can the user drill through to the underlying detail in just a few clicks? Is drill-down/ drill-through an automatic occurrence requiring no special scripting or advance set-up? Users should be able to select data graphically and drill to the detailed underlying data at all times.

Free Training

Does the provider offer free online training that is rich enough to help users accomplish their tasks?

Fox Audience Network Works "10 to 20 Times Faster"

Fox Audience Network is focused on selling website advertising inventory. They're collecting 1.5 to 3.0 terabytes of data a day. They brought in a traditional BI platform hoping to arm themselves with a complete range of capabilities. Unfortunately, they learned the hard way that designing reports and publishing them is a "ridiculously" slow endeavor. They require almost continuous IT support, which means analysts are constantly waiting for help. Analysts were spending 80% of their time grinding/ sourcing the data and only 20% analyzing it. However, things changed once they discovered Tableau Software, a software suite built on 21st century BI principals. Now not only are users now independent of IT, they're seeing new visual patterns in their data and are working "10 to 20 times faster."
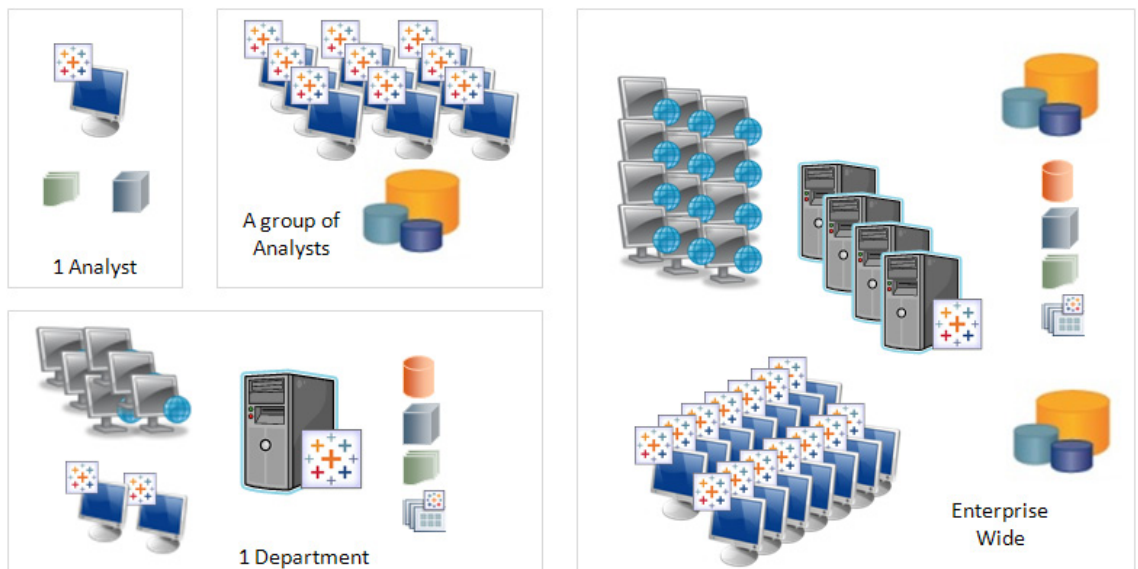
Flexible Configurations

Companies need to deploy BI based on today's needs without cramping future growth.

Now more than ever, the economy mandates that organizations spend wisely on software licenses as they're needed. But because traditional BI is so complicated to install and maintain, no vendor can afford to offer customers small user bundles. Worse, modules for added functionality often mean additional license fees. But people typically want to pilot analytics projects with a handful of users and scale up over time.

Traditional BI forced too much, too soon. It required organizations to buy large minimum-configuration licenses to meet potential needs – not actual needs. Much of the software goes unused.

The new generation of business intelligence proves its value at every step. Organizations can buy and deploy licenses as needed – one license, ten or thousands. Tableau affordably supports virtually any configuration, from one analyst working with local files to thousands of users accessing many data sources via the web. Even better, proofs of concept (PoCs) are as easy as downloading trial software over the web and installing it as needed.

FIGURE: Tableau supports virtually any configuration, from one analyst working with local files to thousands of users accessing dozens of data sources via the web.

1 Analyst

A group of Analysts

1 Department

Enterprise Wide

How do you evaluate whether a system can scale gracefully?

Flexible Configurations

Does the vendor provide software the way you want to buy it: a single license for a single desktop; multiple licenses for a group; browser-based deployments for hundreds or thousands? Can you scale affordably as your needs demand?

Access Unlimited Number of Data Sources

Does the software allow users to connect to virtually any data source as part of the standard license? Can a given user connect to an unlimited number of sources?

Full Version Trial Software Available for Free

Can all versions of the software be trialed at no cost and put to use against production databases? Be wary of software that can't be installed and used on a trial basis – trying software is often how people make a determination of their real need.

Provides Free Help Desk Support

Does the vendor offer free help desk support and free training videos?

Mid-sized Manufacturer Starts Small and Gets Big Results

The IT Vice President at Blastrac Manufacturing needed to provide weekly reports and information to all operations worldwide, including sales, finance, and manufacturing. Data existed in 6 different systems including disparate ERP and BI systems. Collecting and collating the data took six different analysts over a day each; report distribution was insecure (over email) and users complained that the reports were either too detailed or not detailed enough. Fortunately, Blastrac brought in Tableau Software. The first phase of deployment was one installation of Tableau Desktop sharing PDF reports. They discovered Tableau's free Reader and deployed that to the senior management team. Then they added four more Tableau Desktop licenses to serve up analytics. The next step was to bring in Tableau Server to serve their hundreds of US staff. And, a few months later, they expanded to provide Tableau Server worldwide.

High Performance

BI needs to run fast and to scale. Your BI solution musthave multiple means of getting that performance.

Business users are impatient. BI needs to be fast. To get that speed, traditional business intelligence platforms require replicating data into the BI system's proprietary format. So instead of reaping the rewards of better analytics, organizations are paying employees to shuffle data back and forth, from one format to another. Ask a knowledgeable employee about their time spent on data; chances are he or she will say they spend 80% of their time moving and formatting data and just 20% analyzing it.
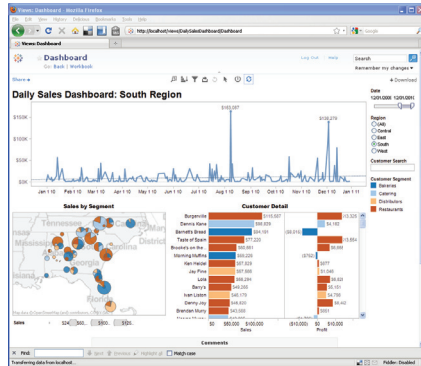
Rapid-fire BI systems account for the fact that real-world data can be huge and support self-service analysis at interactive speed even when that is the case.

If you answer yes to any of these questions, your business intelligence system is not moving as fast as it could be:

- Does your BI solution force you to replicate data even though you've invested heavily in an enterprise data warehouse or fast database?

- Does your BI solution force you to do specialized pre-integration work to access your data?

- Is your BI solution reliant on elaborate scheduling and deliver options as a workaround for slow system performance?

Browser-Based
Dashboards

Self-Service
Analytics

FIGURE: Tableau's
architecture provides
two ways to work with
very large data
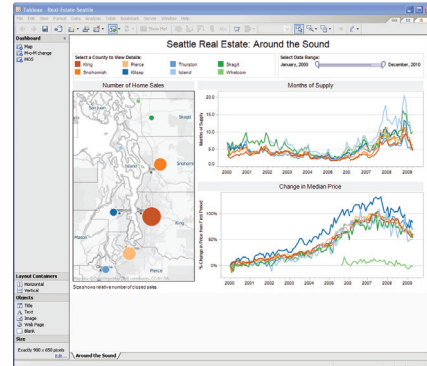sources: in-memory
and live-connection.

Tableau Visualization Engine
(VizQL)

In-Memory
Data

Direct Connection

Databases, Cubes, Flat Files

Consider these factors when designing your BI strategy with big data:

Fully utilizes current-generation, commodity hardware to achieve instant query response on hundreds of millions of rows of data.

Databases have found performance benefits by just using the top-levels of the memory hierarchy on common laptops and requiring all data to be memory resident. A business intelligence solution should take advantage of the capabilities of the latest hardware and the complete memory hierarchy so that users can work quickly even when the data source is slow.

Does not restrict in-memory data to the size of the available memory.

The first generation of "in-memory" solutions made computation much faster, but at the expense of limiting the data to the size of the available memory. Rapid-fire BI represents the next generation of in-memory solutions: by using different levels of memory at different times, it lets customers take advantage of the computing power on every PC without limiting the size of the data to be memory-resident.

No requirement for known query workloads or precomputation of aggregates or summaries.

Rapid-fire business intelligence supports true ad-hoc query of large data sets. This means that customers don't' have to determine in advance which measures to aggregate or query. They can simply load all of their data in-memory and analyze on the fly.

Playdom Analyzes Massive Data in Real Time to Improve its Games

Playdom is a leading social gaming company with millions of users. The company collects massive amounts of data—about a billion rows a day—and uses Tableau for analytics and reporting. Product managers analyze tables of hundreds of millions of rows interactively to understand user dynamics or problems in their games. Vice President of Analytics, David Botkin, describes the impact that fast queries have on their business: "The difference is hundreds of iterations. It means we can ask questions, ask follow up questions, cut the data in many different ways… That's just the right way to do analysis." With Tableau, Playdom's people have the freedom to ask and answer questions visually and in real time, instead of waiting hours to get query results. Tableau gives Playdom "the ability to rapidly understand the behavior of our customers on our games and to figure out what's working for them and what's not."

Data Blending

Business users can work with all the data they need, whether it's stored in the same place or not.

Traditional BI made the assumption that all important data can be moved into a consolidated enterprise architecture. But that's not the reality for most companies, who have different databases in different places, who are short on time and staff, and whose needs change constantly.

Here are some questions to consider about your existing BI platform:

- Does IT have to combine disparate data into a single location before business users can begin analyzing it?

- Do users regularly cut and paste data from expensive data warehouses into spreadsheets so they can use all the data they need to model the business?

If you answered yes, you may want to consider a faster and more flexible alternative

Rapid fire business intelligence lets you blend different data sources in real time, without expensive up-front integration costs. That means that users don't need to know the details of how data is stored to ask and answer questions. Whether your data is in a spreadsheet, a database, a data warehouse, or all of those, users can quickly connect to the data they need and consolidate it.

Rapid-fire business intelligence lets users ask questions no matter where the data lives. Look for a system that: *Allows Users to Blend Data Sources*

Does the software natively enable users to look at multiple data sources at the same time? Can users look at sales data in the context of financial data, or blend order data with production data to anticipate supply problems?

Allows Users to Augment Data

Does the software let users bring in data from outside the company on the fly, like demographics and market research, to augment their corporate data?

Reduces Demands on IT

Does the software let users work with the existing data infrastructure so that IT is freed from creating ever-more cubes and "universes" and warehouses? Does it support data security by allowing users to work with data where it's supposed to be, rather than copying it into unmanged and unsecure spreadsheets?

Easy Administration

Support the new BI application with existing staff and infrastructure.

Traditional BI has been a chore for IT: installation, deployment, programming, report writing, change requests, support and maintenance. This doesn't even include the costly professional services that are required.

Even more troublesome, when the business demands changes in the deployment or requires new functionality, traditional BI often "breaks." This causes customers to upgrade late or not at all, reducing their ability to take advantage of advances in technology. And when they do upgrade, it's a massive project involving many resources.

Rapid-fire business intelligence by Tableau Software requires few resources from IT to install or maintain. There are no new databases to configure, no new middle tier servers, no painful data modeling exercises, no week-long administrator training classes, and no new certifications for IT to achieve. Upgrades are seamless. Most importantly, it adheres to existing security and authentication models and does not require new security measures to ensure compliance. Scalability is built-in: The software can scale to thousands of users by leveraging low-cost hardware options.

Ferrari NA's Small IT Department Finds Easy Road to Rapid-fire BI

The IT department of Ferrari, NA needed a means by which all of their regional offices, suppliers, and dealers could track and monitor auto and parts inventory. When a traditional BI system proposed a cost of over $100,000 just to get started, Ferrari NA's Director of Information Technology Sandro Levati became discouraged by the complexity and cost of most of the available BI solutions. Levati told IDC, "It was particularly disheartening to be presented with the huge consulting fees associated with the development of custom solutions that would be capable of accessing our data." So Levati and Ferrari turned to Tableau Software. In less than 3 weeks and with an investment of less than $40,000 fully deployed, Ferrari was able to provide hundreds of far-flung users with business analysis on demand including reports and dashboards at a fraction of the cost of the limited BI pilot. More importantly, Ferrari did not need to hire additional staff (as required by the traditional BI solution), did not have to bring in consultants for an 8-week deployment project, and was able to provide highly responsive IT services that satisfied end-user needs quickly and easily.

Conclusion

There is a sea change occurring in what customers expect from business intelligence. The old models are not only expensive and slow, they don't function in today's business environment. Business users are unwilling to wait in a months-long queue for a new dashboard or a change request while their business evolves around them.

Rapid-fire business intelligence provides end-users with the freedom to answer their own questions on the fly. It leverages existing IT infrastructure and recognizes that not all data is in an enterprise data warehouse. It lets people take advantage of the new generation of easy visual interfaces. And it provides low cost of ownership and a fast path to ROI.

Tableau is a software company that's doing business intelligence right: giving people the tools to get answers right now, right when they're needed. Based on breakthrough technology from Stanford University, Tableau is the next generation of business intelligence software. Try our free trial and discover rapid-fire BI.

Cornell Delivers Ten Times the Analytics in Half the Time

Cornell University struggled to enable its users with capabilities to produce and manage their own dashboards for KPI tracking. A project using a traditional BI platform ran for nine months with no results and no adoption. Cornell's data IT administration team brought in Tableau and suddenly users were accessing and using the dashboards, and creating their own in collaboration with the IT team. When Cornell began using Tableau, they estimated a 50- to 75-percent reduction in report development time, and now almost two years later, it is clear that the savings are in the 75- to 90-percent range. Said Cindy Sedlacek, director of data administration and reporting for Cornell's College of Arts and Sciences, "the savings have been so significant that it has allowed the team to focus on deploying data and metrics in additional functional areas much sooner than anticipated. Switching to Tableau enabled the KPI team to reduce its FTEs from 5.5 to 2.5 and to deliver 10 times as many analyses in half the time."

About the Authors

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Pat is the CANON USA Professor of Computer Science and Electrical Engineering at Stanford University. Pat's research has included visualization, image synthesis, and graphics systems and architectures. He was also a founding employee of Pixar (NASDAQ: PIXR), where he was the chief architect of the RenderMan™ Interface - a protocol that has revolutionized the modern graphics and entertainment industries. Prior to Pixar, Pat directed the 3D computer graphics group in the Computer Graphics Laboratory at New York Institute of Technology. Pat is the winner of two Academy Awards, the Spirit of America Creativity Award, the SIGGRAPH Computer Graphics Achievement Award and the SIGGRAPH Computer Graphics Lifetime Achievement Award. He is also a member of the American Academy of Arts and Sciences.

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Chris is responsible for product strategy, product design and engineering. Prior to co-founding Tableau, Chris spent six years researching the analysis and exploration of multidimensional databases at Stanford University, culminating in the Polaris system which was the basis for Tableau's first products. This research resulted in fourteen landmark research publications and two large-scale visualization systems. Chris was also the CTO and co-founder of BeeLine Systems, a visualization software company that developed a revolutionary map rendering system and was purchased by Vicinity Corporation (NASDAQ: VCNT). He is a co-inventor on five patents related to information visualization. Chris holds a Ph.D. in Computer Science from Stanford University, and a B.S. in Computer Science from Simon Fraser University.

Daniel Jewett, VP, Product Management
Dan has more than 20 years of product management and development experience in a variety of technical and marketing positions particularly for business intelligence software companies. Prior to Tableau, Dan was an early employee at Brio Software where he served in numerous senior roles including VP, Business Intelligence and VP, System Architecture. Dan helped build Brio to hundreds of employees and thousands of customers and continued through its IPO and eventual acquisition by Hyperion Solution. At Hyperion, he played a key role in market positioning, strategy decisions, and the overall product strategy. Dan holds a master's degree in business administration from California State University, Long Beach, and a Bachelor's degree in business (management information systems) from California State University, Sacramento.