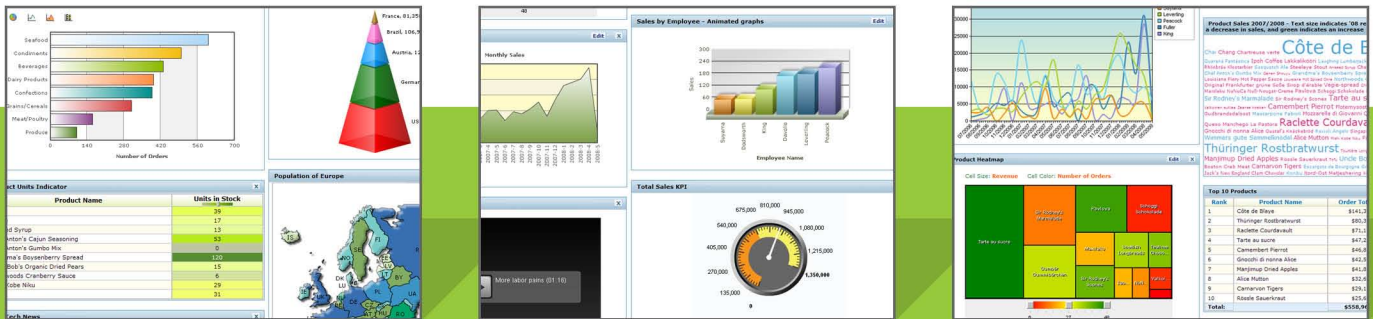# LogiXML™

THE SMART CHOICE FOR
BUSINESS INTELLIGENCE

White Paper

Dashboards: the New Face
of Business Intelligence

An in-depth look at the best-practice standards of Dashboard
implementations in the world of modern BI
By Gabriel Fuchs

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Abstract

Gabriel Fuchs is a renowned expert in the world of strategic IT solutions, including business intelligence, performance management and business analytics. Gabriel has worked within a range of different industries and activities all over Europe, helping organizations align key operational activities with the strategic goals. He has authored a book entitled Dealing with Nasty Colleagues: The Art of Winning in Office Politics While Still Getting the Job Done.

In this report, Gabriel outlines the best-practice standards of Dashboard implementation. Dashboards can be a powerful tool for reporting, analysis and even forecasting. However, they must be implemented correctly, and must be business-driven rather than user-or-technology-driven. By avoiding some common pitfalls in its implementation, a Dashboard can truly help a company become the best it can be.

Contents

Executive Summary

A wise man can see more from the bottom of a well than a fool can from a mountaintop.
- Unknown

Dashboards are becoming the new face of business intelligence (BI). While on the surface, Executive Information Systems (EIS) from the 1980s had a similar look and served a similar purpose, modern Dashboards are interactive, easier to set up and update to changing business needs, and much more flexible to use. This, plus their ability to present data and information at both a summary and detailed level, makes them one of the most powerful tools in the business user's kit.

Figure 1: A modern Dashboard's ability to present data and information at both a summary and detailed level makes it one of the most powerful tools in a business user's kit.

To be useful, however, a Dashboard must be implemented around the needs of the business. Its functions should not be dictated by technology or by the whims of the end users. Also, a Dashboard should be implemented so that it gets used—and so that the decision-makers employing it can act on the information the Dashboard presents.

To implement a Dashboard that is truly business-driven, IT must take other important factors into consideration. Information included in a dashboard must be carefully selected, useful and actionable. Too little information will make the feature all but useless; too much will make for a good managers' meeting conversation piece, but will actually render the Dashboard cumbersome to use. Also, IT should not overlook adding interfaces that are familiar to end-users—such as spreadsheets—and to set up the possibility to print the analysis results. In other words, Dashboards must have as much business brain as technological muscle.

The question of how to calculate the return on a Dashboard investment can be tricky. There is no one-size-fits-all calculation that can predict this with mathematical certainty. With this and other caveats in mind, a company can take an approach based on the premises that ROI calculations can be done, but that they will be more a guideline rather than exact science. ROI is something that needs to be recalculated on a regular basis before, during and after the Dashboard implementation. And when done regularly, the ROI calculation can actually help ensure that Dashboards provide lasting value.

Lastly, today's Dashboards can deliver what users and the organization as a whole need to know so as to understand their current business and even conduct informed forecasts.

Introduction - What's New About Dashboards

If the only tool you have is a hammer, you tend to see every problem as a nail.
Abraham Maslow (1908 - 1970)

Knowing what is going on in your business is not merely good; it is a prerequisite to success. Being able to advance this knowledge to make reasonable forecasts about the business is even better: it is what distinguishes the best from the merely good.

Reaching this business 'maturity' requires a number of factors. Experience and business acumen are indispensable. A bit of luck will also help—even though it usually seems that the well-prepared tend to have more luck than the ill-prepared. Yet, another essential factor is access to hard facts, i.e., timely and accurate business information presented in an intuitive manner.

How Modern Is the Modern Dashboard?

Decision support systems were around as early as the 1960s. With the advent of the client-server architecture in the 1980s, so-called Executive Information Systems (EIS) were presented as the state of the art decision support applications. These EIS systems from 20 years ago had a look similar to today's Dashboards: so why are today's Dashboards considered so new and uniquely valuable?

As good as EIS systems were as an idea, they still suffered from technological constraints. First of all, they were not very interactive, and they were cumbersome to update to new business demands. Furthermore, they were designed around the approach where the business user's questions had to be predicted in advance—not an easy task. If or when the user had additional questions, the EIS system had to undergo some time-consuming redevelopment.

On the other hand, many of the charts used in older EIS systems were very much like what we see in today's Dashboards. User needs and wants have not changed much over time. What has changed is the underlying technology on one side, and users' expectations on the other. Modern Dashboards meet business needs in a practical and actionable way when they can give quick snapshots of the big picture on one hand while being capable of offering detail on the other.

Figure 2 Modern Dashboards meet business needs in a practical and actionable way when they can give quick snapshots of the big picture on one hand while offering detail on the other

The Dashboard Versus the Spreadsheet

Along with modern Dashboards evolving from the old EIS tools, another business intelligence (BI) tool has been with us for a while: the spreadsheet. Most often in the form of Microsoft Excel, the spreadsheet has an intuitive interface and is easy to learn, at least as far as its most

basic functions. It provides detailed numbers, which users can analyze adding their own calculations.

However, while the spreadsheet is easy to use and understand, it is often too detailed to give a quick and comprehensive overview of business data. For instance, monthly sales statistics for 50 products sold in 50 different states will in one year generate 30,000 cells of data (50 products x 50 states x 12 months). And this is a relatively simple spreadsheet. Furthermore, users are likely to reformat this business data in other spreadsheets, adding calculations and aggregations. This will create yet more cells of important business data. Although it is possible to create complementary charts in most spreadsheets, this is a time consuming, manual activity that lends itself to easily-made mistakes.

Nonetheless, many business users stick with spreadsheets because they feel comfortable with them and are reluctant to change to another model. The reality is that not everything can be done efficiently in the spreadsheet; and one should not get stuck with them simply because that's what they have or have been using. This can lead to a situation where it's the limitations of the program—rather than business needs—that determine the scope of reporting and analysis.

With the right underlying technology, today's Dashboards stand out from the spreadsheet, which nevertheless remains the most used BI interface today. Dashboards allow for a quick and easy-to-personalize overview of critical business data in a timely fashion. This added value turns today's Dashboards into the new face of BI.
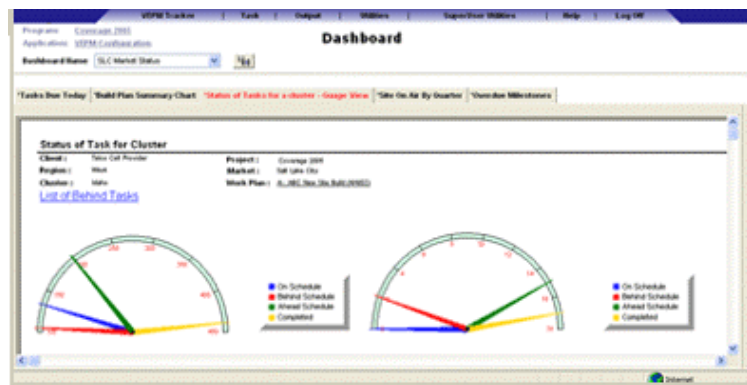

Figure 3 Spreadsheets are often too detailed to give a quick and comprehensive overview of business data. Dashboards allow for a quick and easy-to-personalize overview of critical business data in a timely fashion.

Designing the Dashboard

If you want to seek truth, you must at least at one point in your life doubt all things, as far as possible.
Rene Descartes (1596 - 1650)

How does one design Dashboards that live up to their purpose as efficient and actionable BI tools instead of merely being fancy playthings? The main answer is that anything presented in a Dashboard must have a direct relevance to critical business activities. This means that the business user must be able to act on what is presented. If no action is required or expected from the user, the business information presented, ultimately, serves little or no purpose.
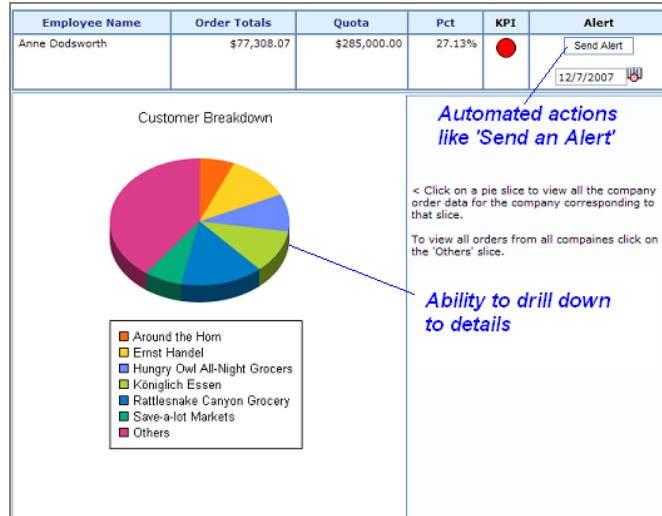
Figure 4 For direct relevance to business activities,
business users must be able to act on what is presented in a Dashboard.

The Business-driven Dashboard

From the business users' perspective, the efficient use of a Dashboard comes with a number of prerequisites. Delivering these requirements allows the Dashboard to become an efficient support-tool for driving the business.

The following are the main user requirements that need to be taken into account when designing a Dashboard.

User Requirement	Description
Easy access to information	…so that there is little need for the business user to spend time preparing the information.
Standardized format of the information	…which facilitates the understanding of the reports and analyses presented.
Correct and comprehensible information	…meaning, for example, that all business definitions are clear, consistent and unambiguous.
Overview and detailed information	…so that any exceptions or outliers can be quickly detected and further investigated. This information can be presented in managed reports that have been set up in advance to answer recurring business questions. Ad-hoc reports and OLAP engines can also be used to access and further analyze, sort, group, and calculate this detailed information.
Spreadsheets	…because of their familiarity to most business users, they can certainly be useful for presenting detailed subsets of information.
Paper	…i.e., the possibility to properly print reports and analyses.
Color, charts and key performance indicators (KPIs)	…these greatly help getting the necessary overview of the state of the business, and drive attention to where performance falls short of expectations. While pie charts and bar charts are common and useful because they are relatively intuitive, heat maps are becoming more and more popular since they provide a better overview for more concurrent data dimensions. GIS Maps are also popular as they are intuitive and reduce the risk of misinterpreting geographical business information.

Ability to share information with colleagues	…which entails exporting information to file formats such as Adobe Acrobat (PDF), Word, PowerPoint and Excel.
Ability to act	…meaning that the information presented needs to be actionable. If not, what is the user supposed to do with the information?

Overall, the Dashboard needs to be easily adaptable to user needs. Furthermore, it must present information that allows the user to act where it matters to the business, which means that the Dashboard must be business-driven rather than technology-driven. It is true that it is only with today's technology that Dashboards can truly help change business behavior, but there must also be business brain and not only technological muscle when designing Dashboards.

The Implications for the IT Provider

Given user and business requirements and preferences, the IT provider must design the Dashboard according to guidelines that will ensure proper user acceptance. These guiding principles are often different compared to how IT develops applications for the day-to-day business operations.

The following are the design guidelines the IT provider needs to observe.

Design Guidelines	Description
Customize the Dashboards	…meaning that different interfaces must be adapted for different user needs, groups, etc.
Assure easy administration	…allowing the Dashboard to remain flexible to changing user demands, thereby becoming truly business driven.
Automate what is regularly analyzed and reported	…do not force the user to spend time on repetitive tasks. This will also help assure user acceptance. Remember the unofficial office maxim: everyone wants to get more done with less work.
Don't discard familiar and widespread solutions	…at least initially. This concerns especially spreadsheet programs. Therefore, a Dashboard solution should leverage existing solutions and offer the capability to export the results to these widespread solutions.
Ensure plenty of support	…so that use of Dashboards can be efficient and trouble-free.
Give the possibility to share key information, business actions and their results	…otherwise, it will be easier to repeat mistakes, while good decisions will go largely unnoticed and will remain undeveloped.
Include KPIs that measure the important activities	…and not simply the activities that are easily measurable.
Limit the information to what's necessary	…because having too many KPIs will drown the truly important ones.

Taking user preferences and business needs into account will ensure a business-driven Dashboard solution. In combination with modern decisions support technologies, Dashboards will become an essential part of business decision-making.

Implementing the Dashboard

See first that the design is wise and just: that ascertained, pursue it resolutely; do not for one repulse forego the purpose that you resolved to effect.
William Shakespeare (1564 - 1616)

Once the Dashboard has been designed in accordance with business needs, IT capabilities and business user demands, its implementation must begin. Implementing a Dashboard is not the same as setting up operational IT systems. Dashboards are often new and unfamiliar to many business users. Furthermore, as few organizations have standardized the way they use BI solutions, Dashboards must be iteratively customized to fit different individual business needs.

Organizational Challenges

Given the novelty of modern Dashboards for many organizations, there tend to be some common implementation challenges. These challenges are not necessarily difficult to overcome, as long as they are properly identified.

Common organizational challenges when implementing a Dashboard tend to be:

Common Organizational Challenges	Description
Little standardization when working with BI applications	…something that in turn results in a lack of a common business language.
Poor communication between different units	…following the lack of a common business language.
Few power-users	…who feel comfortable leading the work around BI applications.
No clear strategy	…on what is expected from the Dashboard solution.
Focus on cost	…a narrow-minded focus on expenses often obfuscates the vision of the true value of Dashboards.
Office politics	…which have a tendency to be reinforced in organizations with relatively strict boundaries between business units. These boundaries will be challenged when implementing Dashboards, as business critical information becomes more widely available.

The challenges must be solved with a project management approach that emphasizes change-management activities. When implementing Dashboards, change management is absolutely essential to achieve the necessary user acceptance.

Also, let's remember that Dashboards may not be the only solution to analyze and act upon key business information. There are other older systems—frequently spreadsheets—with which business users feel comfortable. Consequently, there may not be a feeling among the users that the Dashboards are essential, since there are other ways of getting the job done—even if these older methods are actually more time-consuming and inefficient.

Accordingly, flexibility and follow-up both from the IT and the business standpoint are imperative to succeed with the Dashboard implementation.

Common Pitfalls

Besides common organizational challenges when implementing Dashboards, there are other frequent pitfalls. These pitfalls are independent of the existing organization as they relate more to the behavior and attitudes of the individual business users and the IT provider.

Following are some typical points that will prevent successful Dashboard implementations.

Common Pitfalls	Description
"Cool" trumps useful	…it is easy to get seduced by Dashboards, but their actual business use must always be kept in mind. Looks must coexist with brain.
Users will come automatically	…simply because the Dashboard is such a hip BI tool. Any new solution needs marketing, which is where the change-management aspects are important.
The more advanced it is, the better it has to be	…which might be true. But is it really worth the extra work to train the users on an advanced solution where they may not use more than a small fraction of all the possible features?
More is better	…meaning that an abundance of KPIs are better than a few. Well, it is not.
IT-driven implementation	…where many user needs are underestimated or ignored by an IT department that takes the lead in implementing the Dashboard.
User-driven implementation	…where business users do not take technology constraints or technology standards into account when pushing for a Dashboard.
Little relation between strategy and action	…meaning that many business facts presented cannot be directly acted upon by the end user.
Little understanding of implementing Dashboards	…as the project approach is different compared with other more operational IT applications.
Return on investment (ROI) expectations	…which are sometimes greatly exaggerated to overcome resistance when a new project is implemented. Even though Dashboards normally have a good ROI when used correctly, ROI will not come automatically.
Data quality	…which is the one thing that is constantly underestimated and because of that, the problem just won't go away. As a general rule, data quality is actually lower than anyone thinks; the result is that if this issue is not confronted, it can and will break the users' confidence in the Dashboards.

These wrong perceptions and expectations need to be managed so that the Dashboard can be of value. It should also be remembered that after the Dashboard is implemented, lack of further user demands does not mean that everything is fine. On the contrary, it probably indicates that the Dashboard is not being used. User demands should be seen as something healthy and a proof that users work actively with the Dashboard. A lack of demands typically indicates a lack of interest.

Justifying the Dashboard

They are ill discoverers that think there is no land, when they can see nothing but sea.
Sir Francis Bacon (1561 - 1626)

Is it worth implementing a Dashboard? Why not just go on with the existing spreadsheet solution? This seems to be cheaper for many cost-concerned managers who tend to see the expenses rather than the return when being asked to do something new.

Return on Investment

The expected return on investment (ROI) for IT applications is often the subject of heated debates. Admittedly, ROI can be difficult to estimate, at least initially, and even more so for Dashboards than for other more operational IT applications.

The main reasons for the perceived difficulties of calculating ROI for Dashboards are typically:

Difficulties in Calculating ROI	Description
No one-size-fits-all ROI model	…that can be applied to Dashboard solutions. With operational systems, there are usually standardized processes driving business operations. For BI, there are often no implemented standards. Consequently, there are no widely used methods for calculating ROI, even though there are documented approaches that can be used.
Lack of data	…that will permit relevant benchmarking activities. This means that it might be seemingly hard to define the present costs of reporting and analyzing information and then compare it with the costs and returns of implementing a Dashboard.
No clear business case	…explaining why the Dashboard is being implemented. No matter how much a Dashboard can help an organization, there must be a clear idea where and how it will be leveraged. Otherwise, it risks falling into the "cool trumps useful" pitfall we have seen.
Investment cost takes the upper hand	…i.e., investment cost becomes a major issue overshadowing eventual returns. This happens because costs are easier to calculate and understand than returns.

With these perceived obstacles in mind, a company can take an approach based on the premises that ROI calculations can actually be done, but that they will be more a guideline rather than exact science. ROI will never be correct the first time. It is something that must be recalculated on a regular basis before, during and after the Dashboard implementation. And when done regularly, the ROI calculation becomes an important tool towards assuring that Dashboards provide lasting value.

Assuring Service Level Agreements

There is, however, one area where cost and returns actually become second priority, and this is when assuring Service Level Agreements (SLAs). SLAs make sure that IT services are provided according to agreed standards. For SLAs to become efficient, modern Dashboards are pivotal to measure adherence to the SLAs. This situation is relevant to any organization having outsourced all or parts of its IT.

What is noteworthy is that a Dashboard presenting SLA adherence tends to be operational in character, as opposed to the more common tactical or strategic Dashboards. Important as operational Dashboards may be, one must not lose focus on the goals of the business as a whole. Dashboards linked to the management of SLAs will further increase their value; that is, if the SLAs themselves are defined to truly support the execution of the company's strategy.

Conclusion

You see, but you do not observe.
Sir Arthur Conan Doyle (1859 - 1930), (Sherlock Holmes) A Scandal in Bohemia, 1892

Dashboards must be used. As obvious as this may seem, far too many organizations have spent great resources and much time on implementing something that ends up serving as little more than show-and-tell at monthly management meetings. No one present is really expected to do much once the meeting is over, apart from turning up for the next meeting.

Having a Dashboard without using it shows a lack of management direction. It is also a waste of resources, given that today's Dashboards can and should be powerful management tools where each and every user becomes empowered. Modern Dashboards go further than the common BI solutions that are still to a large extent focused on standardized reports.

Dashboards today can deliver what users and the organization as a whole need to know so as to understand their current business and even conduct informed forecasts. In summary, good Dashboards offer insight, explanations, and shared understanding of business critical information, and then allow the business user to act upon the information when and where necessary.

And this will put the organization among the best instead of the merely good.

About the Author

Gabriel Fuchs

Based in Switzerland, Gabriel is a renown expert within strategic IT solutions, including business intelligence, performance management and business analytics. Over the years, he has witnessed much hype, seen technologies come and go, and observes that basics still surprisingly often rule in the business intelligence world. Gabriel has worked within a range of different industries and activities all over Europe, helping organizations align key operational activities with the strategic goals. His book, *Dealing with Nasty Colleagues: The Art of Winning in Office Politics While Still Getting the Job Done*, can be ordered at www.amazon.co.uk.

About LogiXML

LogiXML, the leader in interactive, Web-based Business Intelligence, empowers enterprises to turn data into business-critical information with pure Web-based reporting and analysis products. The Company offers a comprehensive platform that addresses all key areas of BI— managed reporting, ad hoc reporting, analysis and data services. Used by thousands of organizations worldwide, LogiXML products are built on standards-based technologies for easy integration, implementation and upgrade. LogiXML's per server pricing model makes its powerful technology the most affordable BI solution on the market. Founded in 2000, LogiXML is privately held and based in McLean, Virginia.

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