

# HOW TO CREATE A MEANINGFUL DASHBOARD

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AN INTRAFOCUS GUIDE

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# MEANINGFUL DASHBOARDS

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## WHAT IS A DASHBOARD?

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At its most basic, creating a dashboard is simply the process of turning raw data and turning it into a graphical representation. Taking tabular documents or spread sheets and creating a collection of visual objects such as gauges, line charts, pie charts, indicators or other graphical items. Over the past few years there has been an emergence of data visualisation *applications* that can take large quantities of data from disparate sources and turn the *data* into *information* by displaying it in the form of dashboards.

This together with the ability to add contextual data and undertake ad-hoc manipulations has meant that the analytical control of existing data sources is now in the hands of management teams and business users. These easy-to-use applications have automated the fundamental aspects of data analysis and have enabled managers to view business activity at a glance. They can now easily identify trends and patterns in the data that were not apparent in traditional tabular representations.

Even hard core spread sheet users are adopting these tools and finding that they can perform tasks in seconds that would normally take hours or days. Furthermore, the dashboard representations are allowing them to ask and answer questions they didn't even know they had!

By turning tabular lists and numbers into dashboards the viewer can quickly see how items of data relate to each other. By including historical data and identifying threshold values all sorts of graphical icons, symbols, gauges, traffic lights and performance meters can be *automatically* added to the visualisation to provide highly effective reports. This means users can spend much more time resolving a problem or pursuing an opportunity

rather than spending time trying to discover what the problem was in the first place.

Advanced visualisations and animations add another dimension to dashboards giving both velocity and direction to the data they represent. Knowing how many sales were made in a month is useful, knowing where they are taking place (geographic), which products are performing best (heat maps) and whether they are increasing or decreasing (trend lines) and at what rate (threshold indicators) and all within a single view provides the tools to the business to make critical decisions quickly, at the right time and when they will be most effective.

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## WHERE ARE DASHBOARDS USED?

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Anywhere, especially where increasing amounts of *data* can be better brought together to provide *information* that can be more easily understood in a graphical form. A few examples include:

- Executive dashboards – probably the most widely known application, sometimes referred to as the ‘digital dashboard’. This is usually made up of a set of gauges and dials representing a business’s key performance indicators (KPIs). The executive team will have chosen the KPIs and set thresholds for a red/amber/green display. The key requirements are to get all the information on one screen and to provide an interactive ‘drill-down’ capability to the second and third levels of source data.
- Financial overviews – this has been the heartland for dashboards for many years, providing a top-level set of graphs, gauges and monitors to display all things financial around revenue and costs and adding specific indicators when and where the business requires them. Financial data is usually integrated into many, many visualisation views.
- Sales Management – Often monitoring and managing sales performance of team and individuals but also tracking what sells and what does not, who it sells to e.g. high-revenue/high profit customers, regions, volumes and discount effectiveness
- Service level agreements – one of the more recent applications. Where in the past service level agreements have been monitored on a weekly or monthly basis, many contracts now require a more instant response. In Facilities Management for instance, penalties are not only paid for business-critical service issues like power outages but also for less critical issues such as broken lights. Real-time dashboards can help avoid these penalties.
- Supply chain management – to plan for peak (and trough) activities, examination of throughput over time, identifying trends in combination

with the knowledge of existing inventories can mean the supply can be adjusted ahead-of or just-in-time.

- Process management – by setting thresholds for known processes a process manager can use statistical control charts, gauges and monitors to determine when transactions or events fall short of predetermined estimates and adjust accordingly.

There are many other examples. Dashboards have the potential to make a real difference to almost every aspect of a business's planning, operations and management. In medium to large businesses it usually falls to the Chief Financial Officer/Financial Director to act as the first champion for dashboards throughout the organisation. Why? Because financial data is required by almost every department and it is here where the first visualisation activities need to take place. Over time other parts of the business will see the effectiveness of the dashboard systems and want to adopt them as well.

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## THE MARKET VIEW

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Use of visualisation tools has become one of the most valuable ways organisations can gain visibility into how they are performing and to help optimise business processes and increase efficiency. Gartner, in their June 17<sup>th</sup> Gartner for Business Leaders publication stated:

*“Visualisation-based discovery tools have far-reaching implications for how business information is consumed and will take an increasingly large stake as the front end for analysis, querying, exploration and dashboarding”.*

Dashboards fit within the Business Intelligence (BI) portfolio of data analysis tooling, but rather than replacing BI a dashboard is an enhancement sitting at the ‘front end’. The reason for this is clear. Business Intelligence software set about to enable business users and decision makers to take advantage of business data, to pull out useful information to help them make better decisions and manage the business more effectively. BI solutions are very good at what they were designed to do, that is, deliver reliable operational data and pre-defined reports. Unfortunately, what BI has not provided is a user driven, self-service means to analyse data on a day-by-day basis in a business that is changing constantly.

In today’s business environment, a business manager’s expectation of the tools available to carry out work has changed dramatically. We live in an always-on, instant-response society. The proliferation of applications from Google and Apple has bred an expectation that for anything we do there “is an app for it” and the “app’ can be used immediately, information gained and then the “app” is discarded. What’s more, the information can be shared, commented upon, reworked, enhanced and even put into the public domain in an instant.

This has driven a new set of tools to augment the traditional Business Intelligence portfolio. Tools that are quick to deploy, based on new architectures, often supplied as a ‘service’ through the ubiquitous ‘Cloud’

and very low in cost to both deliver and run. These tools will happily sit on an existing Business Intelligence stack or interface directly into data sources providing connection technology that administrators (rather than IT specialists) can use to pull relevant data.

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## WHAT SHOULD YOU LOOK FOR?

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When looking at the multitude of vendors providing dashboard software and services it is essential that you first assess what you want out of a visualisation project. If you are not sure but believe there may be benefits, then start with your company finances. Nearly all of the dashboards will refer to finances. This will provide the backbone to develop the platform over time.

Broadly there are three types of vendor:

1. The larger Business Intelligence vendors who have built some level of dashboard into their existing products. These products tend to be high in traditional BI capability allowing the IT group to create data warehouses, slice and dice data to produce pre-determined views and standardised reporting across an enterprise.
2. Specialised dashboard vendors who look at specific areas of activity within an organisation (horizontally or vertically) and provide a flexible dashboard 'infrastructure' to achieve a task or set of tasks. An example might be dashboards for executive key performance indicators.
3. Dashboard framework software vendors who place the emphasis on connecting to existing data sources, some level of data consolidation/manipulation and presenting in a highly graphical and compelling way. These tools tend to be a lot more flexible in the way

they are used to build a dashboard but do require a lot more thought behind what is going to be visualised.

To get up and running quickly, be sure to pick a tool that works with your existing data sources or outputs. If you have a BI platform that generates excel reports that may be good enough, if you can hook into your BI platform or databases directly, even better. Some other key considerations include:

- Data consolidation and search – There will almost certainly be a need to consolidate data into the tool so it can access it quickly and not rely on existing data sources (unless you require real-time information).
- Collaboration – the tool must allow people to collaborate and view data and results together. It is essential when building a successful dashboard.
- Mobile devices – business managers and decision makers need information at their fingertips. This is especially important for the larger form factor mobile devices where data manipulation on the move is becoming increasingly important.
- Less is more – when designing a dashboard there really is no need to include everything. Key Performance Indicators are a good place to start.

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## THE KEY BENEFITS

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When determining the benefit of undertaking a dashboard project, clearly there is a need to focus on the impact to cost and revenue. In many cases the basic reduction in time to render the charts, gauges, trend analysis etc. as compared to the effort expended in the production of spread sheets and documents is justification enough. However, there are many other things that can be taken into consideration as well, these include:

- **The ability to see information clearly** – almost certainly the biggest benefit of all. A picture is worth a thousand words, as the saying goes, or in this case a set of pictures provides a clearer view of the business than a hundred rows data. In the most part, human cognition and perception is better served by (accurate) pictures rather than volumes of data<sup>1</sup>
- **Taking advantage of exiting platforms** – Dashboard products have been designed to augment existing BI solutions, to either sit alongside or on top of them. They have also been designed to connect to existing data sources if BI solutions are not in place. Dashboard products visualise existing data using new software advances that have come about in recent years due to increased computing power and new computing delivery methods.
- **Increased use of collaboration** – An online dashboard tool will include the ability to post comments, either publically or privately, about anything that has been published. Therefore, business managers, decision makers and analysts can exchange ideas and information about the information, look at trends, explain exceptions and make notes about comparisons at any time, not just in the board meeting or at reviews.

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<sup>1</sup> Evidence supports that people learn more deeply from words with pictures than from words alone (Mayer, 1989b, Mayer and Gallini, 1990; Mayer, Bove, and others, 1996.), and overall, several studies combined have shown a median percentage gain of 89% effectiveness.

- **Ability to share and communicate** – in a world that is becoming increasingly used to social networks such as Facebook, twitter and Instagram and information sharing platforms such as Wikipedia and the ability to search millions of documents through Google, the need to collaborate online and share meaningful business information to *inexpert* users had become increasingly important. Publishing key information, complex or otherwise, through an easy to understand dashboards ensures everyone is on the same page.
- **Out of the box graphics** – Dashboard software vendors have already spent millions of pounds developing products in this area. Why spend time and money designing and developing charts, gauges, dials, grids, maps and more and then try to link them to data sources. All of this has been done already leaving enough room to *style* the visualisation to suit a business corporate branding style.

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