A Guide to Creating Dashboards People Love to Use

Part 1: Foundation

Dashboard Design Matters

Dashboards have become standard business practice over the last decade. Dozens of dashboard building tools have sprung up to meet the demand. Yet in the flurry of technology and enthusiasm, little attention has been paid to how to design focused, thoughtful, and user-friendly dashboards. Our three-part guide will show you the concepts and give you the best practices to create a high-impact dashboard that people love to use.

Traditional dashboard design focuses almost exclusively on defining the right success metrics, then piecing together a bunch of charts and gauges on a single page. These techniques result in solutions with a hodgepodge appearance and confusing information.

Traditional dashboard design techniques result in confused solutions
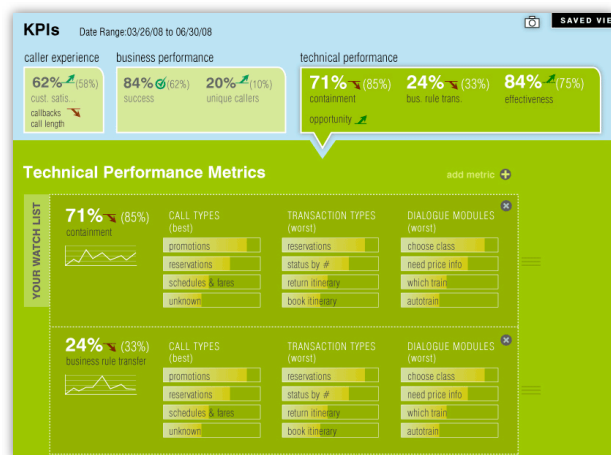
This guide will help you design more intuitive and effective dashboards

In the early days of the world wide web, it was good enough to simply have the right information on the web page. The current industry-standard dashboards are no more ambitious. However, modern web design has moved on to seek a union of utility, usability and beauty. With regards to the way business displays data, we must seek a similar union.

This document will approach dashboard design in a holistic way, beginning with general goals and evolving to specific data presentation. *Part 1: Foundation* will help you identify your target audience, understand what type of dashboard you want to create and why it is valuable to your organization. It concludes with guidance regarding how to focus your

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message on the information and metrics that matter. *Part 2: Structure* will get you started on designing your dashboard, including what form it should take, how to arrange for audience understanding, and what navigation, interactions, and capabilities will make the dashboard useful and engaging. Finally, *Part 3: Information Design* dives into the details of interface and information design. You will learn how to lay out your dashboard and best practices for charting and data presentation.

A Purpose-Filled Dashboard

We've all heard reasons why business dashboards are useful: that which we measure we improve, and the importance of a shared understanding of the state of your business.

You need to find the specific reasons why *your dashboard* will be useful to *your organization*. This section offers exercises to define and refine the purpose for your dashboard. With this purpose in mind, the real work of creating a dashboard will come more easily. Better yet, you will have a standard against which you can evaluate success. There are three key questions:

1. Who is my audience?
2. What value will the dashboard add?
3. What type of dashboard am I creating?

Who is my audience?

Dashboards need to start with an audience in mind. Who is the consumer of the dashboard? What are their information needs? What do they already know? What are their experiences and prejudices? As we design the dashboard, understanding the consumers of the dashboard will help us craft a product that they love to use.

A complicating factor is that most dashboards have multiple audiences. In fact, delivering the same dashboard across an entire organization has the potential benefit of getting everyone on the same page. However, a diverse audience is hard to serve well. Therefore, try to prioritize the audiences so conflicts can be more easily handled.

Here are a few of the factors to consider about your audience, and the implications for a dashboard design:

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	Questions	Implication
Role	What decisions do they make? What questions do they need answered?	Structure the information to make it super easy to answer high priority questions.
Work flow	In what context will they be reviewing the dashboard? What information are they using on a daily basis? How much time do they have to review the numbers?	The form and information display needs to fit into an existing work flow. For example, an on-the-road sales person may need information delivered to her BlackBerry, not designed for an online wide-screen monitor.
Data comfort and skills	How sophisticated are they with using data? Are they proficient in Excel? Do they enjoy digging into the numbers?	The dashboard's level of detail and analytical capabilities should match the audiences' comfort zone.
Business and data expertise	How familiar are they with the key performance metrics? Do they understand where the data comes from? Are they familiar with internal company or industry terminology?	This determines the need for embedded explanations and use of natural language.

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What value will the dashboard bring?

Dashboards can serve many purposes. Take a moment to consider what you want to get out of your dashboard. Check the top three reasons below.

- ☐ Help management define what is important
- ☐ Educate people in the organization about the things that matter
- ☐ Set goals and expectations for specific individuals or groups
- ☐ Help executives sleep at night because they know what's going on
- ☐ Encourage specific actions in a timely manner
- ☐ Highlight exceptions and provide alerts when problems occur
- ☐ Communicate progress and success
- ☐ Provide a common interface for interacting with and analyzing important business data

What type of dashboard am I creating?

We've seen a lot of discussion about the definition of a "dashboard." Some people argue that something only qualifies if it fits on one-page or shows real-time information or offers a comprehensive view of a business. We find those requirements too constraining. Dashboards can come in many flavors. What never changes is good dashboards focus on the most important information and communicate this information clearly and concisely. The delivery channel, level of interactivity, timeliness of data, and analytical capabilities will vary based on the situation.

Below is a list of options for your perfect dashboard. Check the boxes that best fit your situation.

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Scope	☐ **Broad**: Displaying information about the entire organization		☐ **Specific**: Focusing on a specific function, process, product, etc.	
Business role	☐ **Strategic**: Provides a high-level, broad, and long-term view of performance		☐ **Operational**: Provides a focused, near-term, and tactical view of performance	
Time horizon	☐ **Historical**: Looking backwards to track trends	☐ **Snapshot**: Showing performance at a single point in time	☐ **Real-time**: Monitoring activity as it happens	☐ **Predictive**: Using past performance to predict future performance
Customization	☐ **One-size-fits-all**: Presented as a single view for all users		☐ **Customizable**: Functionality to let users create a view that reflects their needs	
Level of detail	☐ **High**: Presenting only the most critical top-level numbers		☐ **Drill-able**: Providing the ability to drill drill down to detailed numbers to gain more context	
Point of view	☐ **Prescriptive**: The dashboard explicitly tells the user what the data means and what to do about it		☐ **Exploratory**: User has latitude to interpret the results as they see fit	

Information Discrimination

The single most common mistake we see in dashboard design is treating all information as if it is equally important. Amanda Cox of the New York Times design group said it perfectly: "Data isn't like your kids, you don't have to pretend to love them equally."

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Too often the criteria for including information in a dashboard is whether someone influential thought it might be interesting. We propose a more stringent requirement: Will the information drive productive action? Here are a few strategies to help narrow down to the information that really matters:

"Data isn't like your kids, you don't have to pretend to love them equally."
Amanda Cox, NY Times

- ▸ **Find the core.** Your dashboard should be more than a lot of data on a screen. It should have a core theme based on the essence of the problem. A sales dashboard may be about "How can we more effectively move leads through our pipeline?" A marketing dashboard may strive to answer: "How can we optimize our marketing investments?" Finding this core will give you the logic and argument for discarding extraneous information.

- ▸ **Ask a better question.** Dashboard requirements can quickly turn into a laundry list of unrelated metrics, dimensions, and half-baked analyses. The root of this problem stems from only asking "what would you like to know?" Here's the one follow-up question you need to narrow down the list: "What would you do if you knew this information?" This question separates the novel and whimsical desires from the important and actionable information.

- ▸ **Push to the appendix**. Sometimes it is impossible to ignore the requests for certain information to be included in the dashboard. In these cases, one option is to create an appendix report that includes the "interesting" information but keeps the focus on the most critical data. In other words, keep truly critical information on the front page and suppress ancillary information.

- ▸ **Reporting vs. exploration.** For all the things that a dashboard can be, it cannot be a generic analysis tool. It cannot be designed to slice and dice data to explore and answer a new question every time. This is a dynamic we refer to as the difference between herding cows and herding cats. When people ask for information focusing on uncharted territory, this is the domain of analysis, not your dashboard.

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Reporting measures and monitors things that are well-understood and predictable

Exploration helps develop an understanding of new processes, erratic and shifting behaviors

We cannot emphasize it enough—the success of your dashboard will come down to your ability to distinguish between useful, productive information and interesting but extraneous information.
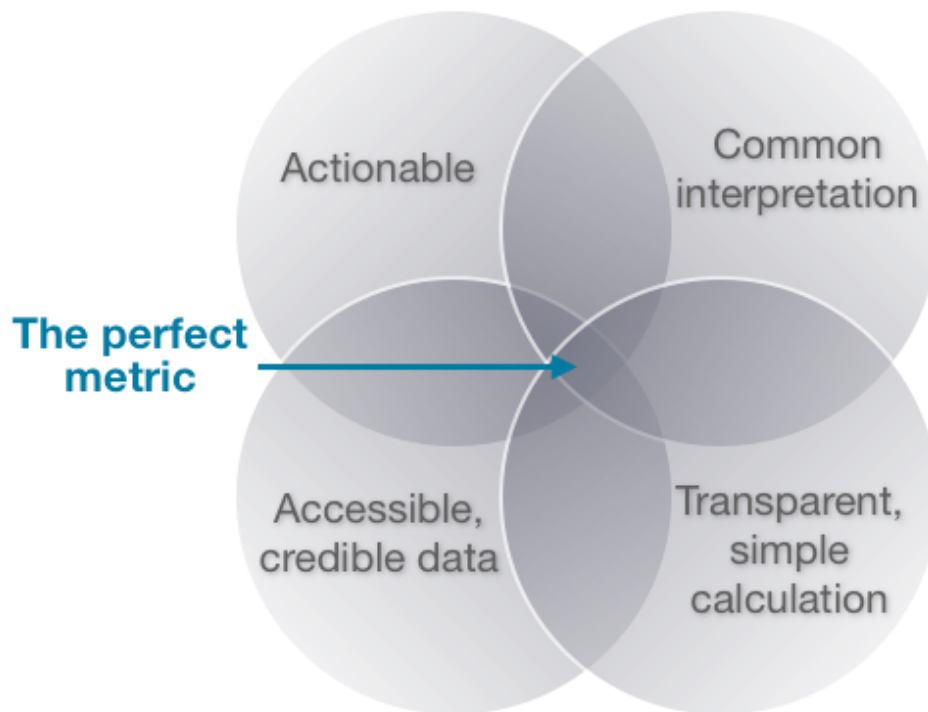
"Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away."

Antoine de Saint-Exuper

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Choosing the perfect metric

Your organization may know the exact metrics that aligned behaviors, drive strategy, and track success. For the rest of us, defining the right metrics for your dashboard is a tricky, ever-evolving task. Below is a simple framework to help hone in on the right performance metrics.

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	Description	Common mistakes
Actionable	It is clear the source of the problem or necessary actions when the metric goes up, down, flat or off-target	It is too broad for specific groups to impact (e.g. customer satisfaction). Focus on absolute measures rather than changes (e.g. total sales vs. change in sales)
Common interpretation	People in the organization recognize what the metric means	It uses data definitions that aren't well understood (e.g. leads vs. prospects).
Transparent, simple calculation	How the metric is generated is shared and easy to understand	Attempting to create a compound metric that combines a bunch of factors
Accessible, credible data	The data can be acquired with modest effort from a source that people trust.	Pursuing the perfect metric that is hard to gather rather than using a close proxy.

A note on goals: Metrics without goals can be a waste. Unfortunately, getting people to agree to specific targets can be painful. After all, goals start us down a slippery slope toward clear accountability. Don't give up. We've found that the first step is to simply get people to buy-in to the success metrics by creating clarity on definitions, showing trends, and incorporate them into the organization's vernacular. Eventually, people start to question why there isn't a goal set. Pretend to act surprised by the cleverness of this suggestion.

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Creating a Solid Foundation

Part 1 of our guide should help you map where you are going before you start throwing charts on a page. In this paper we've addressed these topics:

- How is the dashboard going to add value to my organization?

- What type of dashboard am I creating?

- Who is the audience of the dashboard and what are their needs?

- What is the central thought-line of my dashboard story?

- What are the key metrics that will focus users on actionable information?

If you can answer with confidence the questions we've discussed here, you will have a solid foundation before you get into the details of your dashboard design.

In Part 2, we will discuss the form and structure of your dashboard. We will help you create a frame for your dashboard that makes it easy for users to understand what they are looking at and navigate and interact with information.

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