Dashboards, Analysis Mind Share, and KPIs

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International Spectrum - Sep/Oct 2005

They need a dashboard and they need it today. Before looking at any underlying technology or specific solutions, a basic understanding of the types of dashboard and what sorts of things they measure will provide a foundation for any dashboard project.

We see them everywhere; dashboards are another product of the astonishing capabilities of contemporary hardware and software - correct? The dashboard is a powerful metaphor for monitoring business process trends, but like many applications apparently enabled by web technology, it has a long history, almost as long as the automobile dashboard. In France, the tableau de bord is standard on every Citroën and is also the name of a management reporting tool in general use since the mid 1950s.

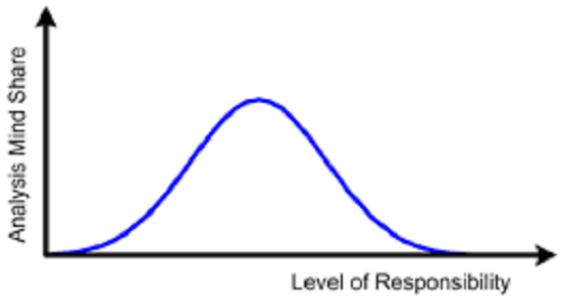
Tableaux de bord started as manually created graphical (but inert) representations of the state of the enterprise. Web-driven dashboards are dynamic and hyperlinked to sophisticated analytical tools enabling rapid root cause analysis of exceptions.

Dashboards have three well defined categories with different goals and audiences. Before describing these categories, I will introduce the concept of analysis mind share which helps to explain both the appeal of dashboards and puts the various types of dashboards in context. We will also look at guidelines for selecting key performance indicators to populate dashboards.

Analysis Mind Share

In a large organization, there is a continuum of responsibility from the line worker responsible for putting widgets in boxes to the CEO. At both ends of this organizational hierarchy, the primary functions do not leave a significant amount of time - mind share - for data analysis (figure 1). At the bottom of the organization, the focus is on specific production tasks; at the top, the focus is on strategy. Neither of these individuals can afford the time to sift through the enormous amounts of data produced by today's enterprises.

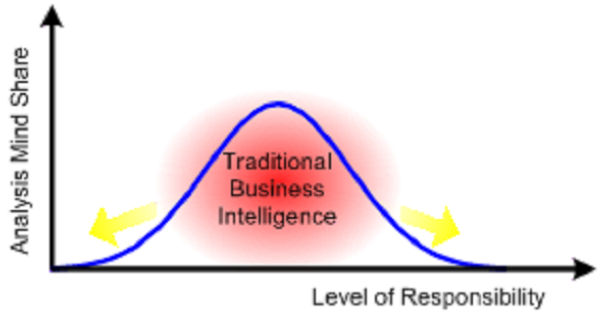
Figure 1:



Paradoxically, the best interface for these polar opposite groups is similar - a simple stoplight is typical. If the light is amber or red, it is time to involve the rest of the continuum - those knowledge workers in the middle who have the scope, tools, and time

to make detailed analysis not only possible, but frequently a major part of their job. In the middle levels of the organization, knowledge workers rely on data analysis to both manage down and report up the organization.

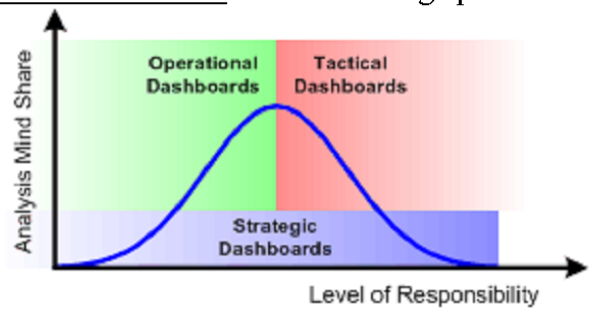
Figure 2:



In the past the dissemination of results was often performed manually by those with higher analysis mind share (figure 2). The results were delivered in written or verbal reports, or for lucky French managers, in a convenient tableau de bord - dashboard - layout. Business intelligence tools can automate this process, but this power to easily distill and distribute summarized information needs to be carefully approached; we need to understand the different dashboard roles. Dashboards fall into three well-established categories (figure 3):

- strategic dashboards for organizational alignment
- tactical dashboards for measuring progress in projects or initiatives
- operational dashboards for monitoring specific business activities

Figure 3:



Strategic Dashboards

Strategic Dashboards measure progress towards strategic objectives; they help align the organization to strategy in ways that static mission statements cannot. An executive level dashboard might reflect enterprise-wide strategic goals and corresponding key performance indicators or KPIs. A good security model will support enterprise-wide strategic dashboards that "cascade" down to the department level with gradually more restrictive views of data, while retaining alignment to corporate objectives. Working down from global to departmental helps avoid creating dashboards that pit department against department. Strategic dashboards are typically highly summarized, highly graphical, less frequently updated, and include global, external, trend, and growth measures

Balanced Scorecard Initiative
Strategic dashboards are frequently based on the Balanced Scorecard methodology of David Norton and Robert Kaplan, a widely adopted method for determining and achieving organizational goals. Organizations using this approach are significantly more successful in achieving their goals.

Kaplan and Norton on their main rationale:

"Financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation."

The Balanced Scorecard process gets its name from a balance of financial and non-financial measures, a balance of short-term and long-term indicators, and a balance of leading and lagging indicators.

A Balanced Scorecard usually contains four perspectives:

- capacity for growth
- product development and operations
- customer satisfaction
- financial results

Tactical Dashboards
Tactical dashboards measure trends and progress towards strategic initiatives or special projects, frequently against established goals. They may involve just one of the four Balanced Scorecard perspectives. Starting to move away from the stoplight model, tactical dashboards frequently include summary data as well as visual indicators and make full use of hyperlinked OLAP tools allowing drill-down and root cause analysis. The focused nature of tactical dashboards allows more detailed information to be displayed - the context is clear from the outset. Incidentally, many dashboards created without a formal approach are actually tactical dashboards with the aim of maximizing profit or increasing sales.

Operational Dashboards
Operational dashboards are used to monitor business or manufacturing processes in near-real-time with the aim of intervening quickly to resolve issues or take advantage of opportunities. Operational dashboards are usually departmental in scope and absolute values and thresholds based on averages and norms are frequently as important as trends. Like tactical dashboards, the focused nature of operational dashboards allows more

detailed information to be displayed. It would be unusual for a top level manager to use an operational dashboard; a traffic light summarizing operational capacity trends would be more appropriate.

Key Performance Indicators (KPIs)
Effective dashboards are composed of key performance indicators. An organization may have many viable trend or performance indicators; with limited dashboard real estate, we must identify the key performance indicators (KPIs). Starting with organizational goals, we evaluate the measures of behavior and events available to ensure they are both key and performance-related.

KPI candidates must be key measures, crucial to business strategy and they must link to performance. There should be a cause-and-effect relationship between actions and indicator. They should clearly distinguish between effective and ineffective performance. Employees must clearly understand and have control over achievement of the KPI. Order fill rate and cycle time are typical KPIs - they neatly summarize a number of measurements, are easy to understand and target, and have a positive impact on customer satisfaction.

A Dashboard Solution
There are a number of dashboard solutions on the market; drawing up requirements based on analysis mind share, dashboard type, and KPIs will help narrow the list. The tolerance for analysis will drive the graphical and numeric content of a dashboard. A clear picture of the types of dashboard your organization requires will help define where your solution lies between displaying cached results for a strategic dashboard and interactive updates for some operational dashboards. The nature of your key performance indicators will help you understand how much pre-aggregation is required before summary data can be displayed. This should launch you on the way with what, by definition, is a high-visibility project.