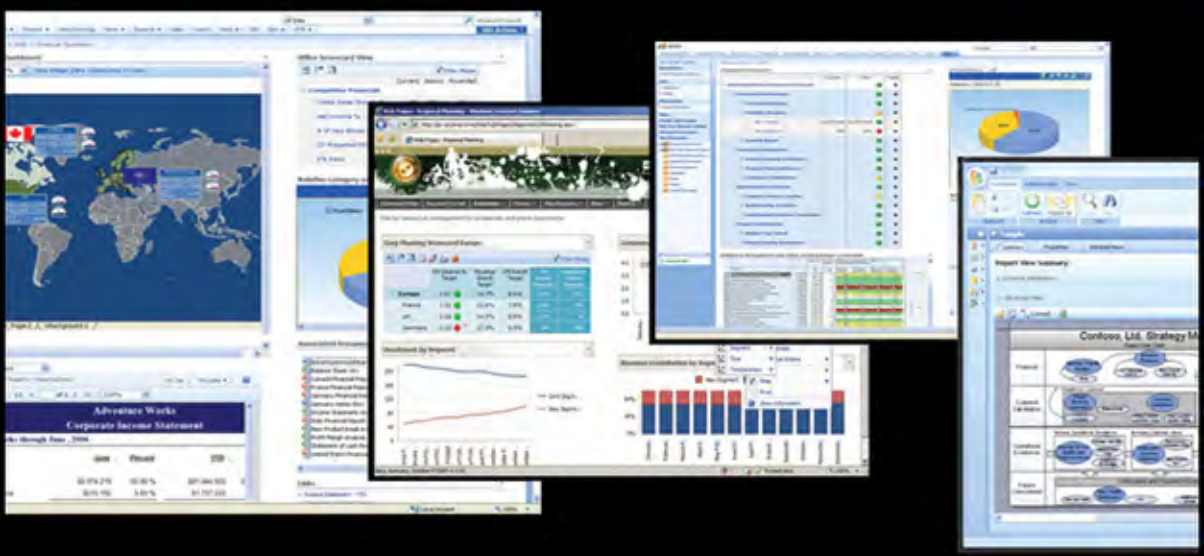
Business Dashboards

A Visual Catalog for Design and Deployment



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Preface

We now live in an information society, and more than ever managers are inundated with data. For managers to make the best possible decisions in the shortest amount of time, it is essential to turn data into structured information and then present this information to them in a format that is easy to read and that supports analysis. In recent years, software vendors have embraced this need, and now numerous solutions, commonly referred to as dashboards, have emerged on the market.

An effective deployment of dashboards within an organization can dramatically reduce the need for financial and operational reports. It will also support better decision making and ultimately help improve performance. Mid-sized and large companies typically have hundreds of different reports coming out of their accounting systems and their operational databases, and creating and maintaining such reports comes at a significant cost. In addition, because the consumers of the reports typically do not have the skills or the access right to the reporting tools used to create or modify report templates, they often end up exporting them to Microsoft Excel spreadsheets to make adjustments and to add graphics and formatting, among other things. This further adds to the cost and the pain involved in keeping reports up to date and validated.

Because most dashboard tools are highly graphical, dynamic, and easy to use, with simple training users across an organization can be empowered to monitor and analyze the information relevant to their areas of responsibility and to make informed decisions. Few dashboards survive in the long run unless they are based on the proper back-end infrastructure, such as a data warehouse and Online Analytical Cubes (OLAP) to keep the data up-to-date and correct. Because data architecture is so important for the long-term success of dashboards, it is covered in detail in this book.

Companies, educational institutions, and government organizations alike are starting to discover the power of dashboards to drive better performance, and this book discusses all the various activities and technologies you should know about before, during, and after a dashboard implementation. In particular, a deep focus is placed on real-life dashboard examples so that you quickly can find relevant ideas for your own project and help your own organization benefit from this powerful technology.

Book Summary

This book consists of four parts and appendices:

- Part 1: Introduction to Dashboards
- Part 2: Creating the Right Business Intelligence Architecture for Dashboards
- Part 3: Dashboard Design
- Part 4: Managing a Dashboard Project
- Appendices

Part 1, Introduction to Dashboards, introduces you to the world of dashboards. The discussion starts out by defining what most people expect a business dashboard to be and then covers the quickly rising popularity of this technology. There are multiple categories of dashboards, and each one is covered in brief. Also covered are the key activities you should be prepared to handle in order to get your organization ready for dashboard deployment. Finally, the last chapter in Part One takes you through the process of creating your key performance indicators (KPIs).

Part 2, Creating the Right Business Intelligence Architecture for Dashboards, takes a deep dive into the architecture needed to support long-lasting, high-impact dashboards. It explains why a good architecture is almost always essential to support business intelligence tools. This passage contains chapters covering both real-time and data warehouse–based dashboards. Part 2 then evolves into a description of the various technical deployment options. Finally, Key Performance Indicators (KPIs) and their relationship to data warehousing, performance, and dashboard deployments are discussed.

Part 3, Dashboard Design, provides a step-by-step process for dashboard design and contains a number of layout tips. Readers will also find a large number of real-life dashboards that offers ideas and concepts to support their own projects. Each dashboard has been categorized to make it easy to find; there is also a standard set of descriptors for each item to enable ranking and sorting to pick the ones that will be used as blueprints in a real-life implementation. Various examples of strategic, tactical, and operational dashboards are covered.

Part 4, Managing a Dashboard Project, goes into detail as to how an implementation project can be organized. Chapters discuss user motivation, project planning, and kick-off meetings and provide tips to keep a project on track. Examples of various project management tools are also provided.

At the end of the book, you will find five appendices. These cover software selection tips, installation, hardware recommendations, and security. The final appendix is perhaps the most important one, because it provides more than 1,000 examples of metrics and key performance indicators. These are organized by industry and major functional roles.

Business Dashboards

PART 1
INTRODUCTION TO DASHBOARDS

The inspiration for this book stemmed from the surge in demand from companies and government organizations for dashboards that will empower their employees to optimize performance management. Our goal is to provide practical and high value-added content based on three underlying principles:

1. *The power of process.* It is much easier for a project team to go through an implementation when there is a structured process in place. Everywhere possible in this book, we provide step-by-step tools that can be used in a real-world implementation.
2. *The power of examples.* This book provides a large number of dashboard examples in order to give the project team and other managers as many ideas as possible for their own dashboard projects.
3. *The critical essence of good data architecture.* The authors propose that organizations need to deploy a solid and carefully planned data architecture to support sustainable and successful dashboards.

During customer engagements, we have experienced time and again that what can start out as a small project to implement a dashboard for one department within a company often causes a snowball effect and "I want a dashboard too" attitudes when other departments see the completed dashboard in action. Of course that means that along the way we proved to the information technology (IT) group that we could extract data from various source databases, and we proved to the end users that we could transform that data into useful metrics and present it in a user-friendly and attractive

dashboard. Because both the data architecture and the dashboard's content and functionality are critical success factors to any implementation project, we cover each in detail in this book.

How should you read this book? If you are relatively new to the concept of dashboards and you do not have data extracted from source systems and ready to be used, we suggest you read this book from cover to cover. We have organized it so that it first informs you, then it provides real-world examples to give you ideas, and finally it guides you through the implementation project. If you already have a complete idea of the architecture, the desired dashboard(s) or how to run your project, then we suggest you go directly to the applicable parts of the book.

Exhibit P1.1 highlights the recommended workflow of a dashboard project along with related tools and advice found in this book.

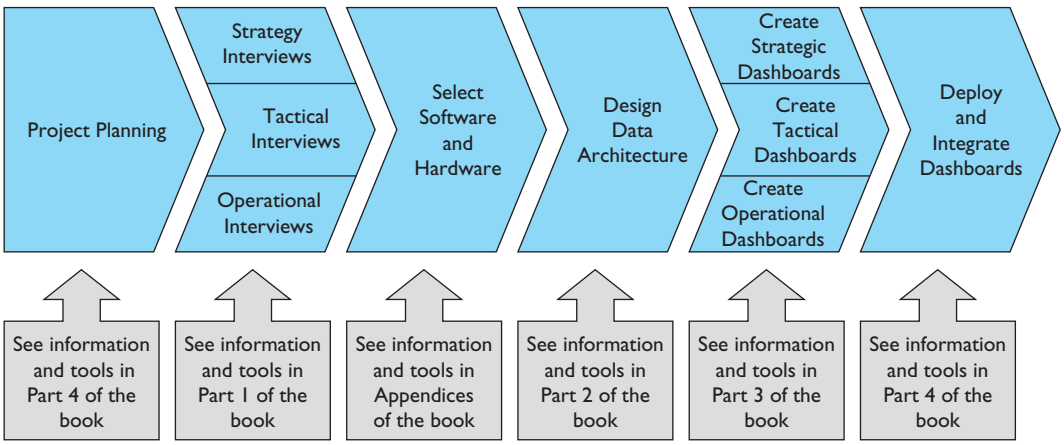

EXHIBIT P1.1 Dashboard Implementation Process

chapter 1

Dashboard Definition

If you drive a car or fly an aircraft, vital information about speed, oil pressure, temperature, and so on is available to you through the dashboard in front of you. Gauges, red and green lights, and odometers are strategically positioned so that with a quick glance, without losing focus on where you are going, you know if everything is okay (or not) and can make decisions accordingly.

Just as drivers and pilots rely on their dashboards to do their jobs, managers today are increasingly turning to business dashboards to help them run their organizations. The ideas and benefits are very much the same as the example with the driver: Give managers a dashboard that on one well-designed screen shows the key information they need to monitor the items they are responsible for, and then they can quickly discover problems and take action to help improve the performance of their organizations.

Although this book is focused on the topic of business dashboards, it is good to have an understanding of the broader area of business intelligence (BI) software because they are closely related. BI software first arrived on the market in the late 1980s labeled as Executive Information Systems. They promised senior-level managers colorful, graphical screens with big buttons to make it easy for a nontechnical executive to see what was going on within the company. The major problem at that time was that data was not readily available because of proprietary databases (or simply no database at all) and lack of good extraction, transformation, and loading (ETL) tools to get data from the source and into the dashboard in an automated and meaningful way. It was not until the early 21st century that databases, ETL tools, and dashboard software had matured to a level that made sustainable, organization-wide dashboards a realistic possibility.

The term business intelligence was coined in 1989 by Howard Dresner, a research analyst at the Gartner Group. He popularized "business intelligence" as a broad term to describe a set of concepts and methods to improve business decision making by using fact-based support systems. Performance management is built on a foundation of BI but marries it to the planning and control cycle of the enterprise—with enterprise planning, consolidation, and modeling capabilities.

Since around 2005, BI software has been one of the fastest growing business software technologies in the world. As more and more users, vendors, and industry analysts have focused in on BI, a number of interchangeable or overlapping terms have been introduced. A more narrow area of BI is business performance management; the following definition emerged in 2003:

> Business performance management is a framework for organizing, automating and analyzing business methodologies, metrics, processes and systems that drive business performance.[1]

In other words, business performance management (BPM or Corporate performance management, Enterprise performance management, or Operational performance management) is a set of processes that helps organizations optimize their business performance. In this book we will mostly use the term Business Intelligence (BI) and we will categorize dashboarding as a part of BI. Most people agree that the area of BI includes the following processes and related technologies:

- Budgeting
- Forecasting
- Reporting
- Strategic planning
- Scorecarding
- Analysis
- Dashboarding
- Data mining
- Data warehousing

In summary, BI helps businesses make efficient use of their financial, human, material, and other resources. Good executives have always sought to drive strategy down and across their organizations, but without proper decision support systems they have struggled to transform strategies into actionable metrics. In addition, they have grappled with meaningful analysis to expose the cause-and-effect relationships that, if understood, could give valuable insight for their operational decision makers.

BI software and related methods allow a systematic, integrated approach that links enterprise strategy to core processes and activities. "Running by the numbers" now means something in the form of planning, budgeting, reporting, dashboarding, and analysis and can give the measurements that

empower management decisions. When properly implemented, these systems and processes also motivate information workers to support organizational objectives by giving them actionable tools, objectives, and information.

Data warehouses and Online Analytical Processing (OLAP) (see Part 2 for more detail) are two of the fundamental technologies that have supported the adaptation and long-term success of modern dashboards. Whereas the data warehouse gathers, organizes, and stores information from various internal and external data sources, OLAP adds business logic to data by calculating and aggregating it. Together, these two technologies allow a dashboard to

- Display data that originally came from many sources
- Display metrics that are the result of simple or complex calculations
- Quickly provide new information on the screen, with minimal processing time
- Offer drill down from summary data to detailed transactions

For managers, dashboarding is now perhaps the most popular area of their BI strategy, and after about 20 years of evolution in BI software and related technologies, this business tool is coming of age.

Finally, just as there has been an evolution in the equipment available in a car's dashboard, there has been an evolution driving business dashboard technology. Whereas the first dashboards predominantly were a set of "cool" charts and indicators placed on a single screen or piece of paper, today's dashboards are increasingly more versatile (see Exhibit 1.1).

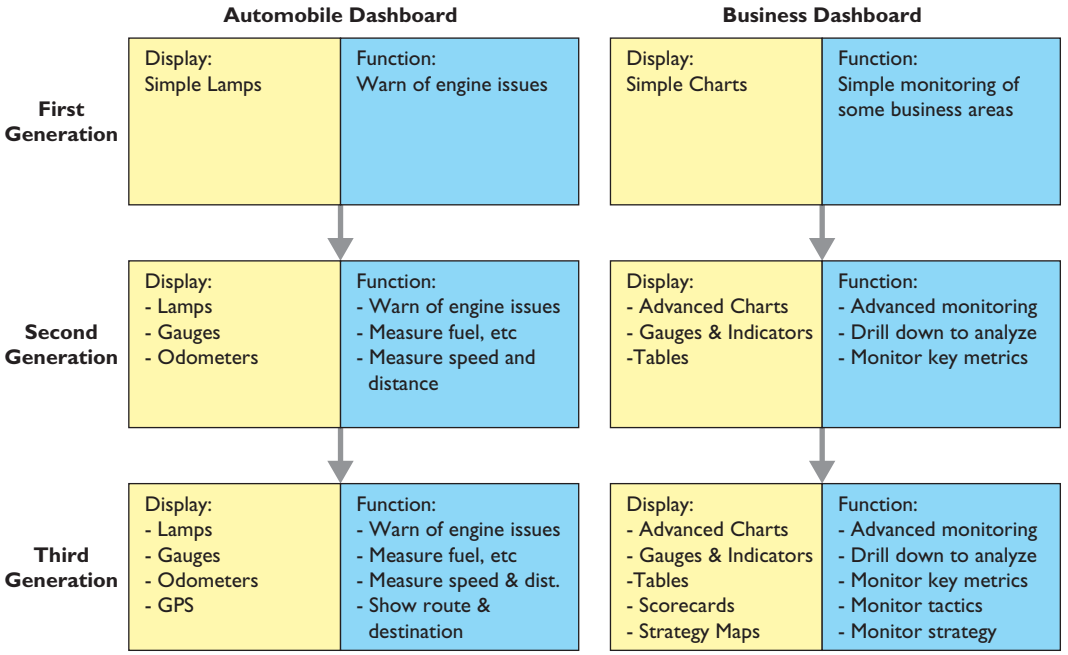

EXHIBIT 1.1 Evolution of Automobile Dashboards versus Business Dashboards

Automobile dashboards are now starting to include GPS (geographic positioning system) screens. Drivers not only know how fast they are going and how much gas is left; they can also plot the destination, select a route, and monitor the course on the GPS screen. Just like an organization's strategy and tactics, the GPS allows drivers to have a structured plan for where they are going and how they are getting there. Along the same lines, many of today's business dashboards can include strategy maps and scorecards, thereby integrating the monitoring of strategy and tactics along with the other analysis provided by the dashboard, so that at any point in time an information worker can stay on course.

This book is focused on how to successfully deploy dashboard technology with valuable metrics and graphical components to help your organization's employees manage and improve performance.

Note

1. David Blansfield, *Business Performance Management Magazine*, June, 2003.