TDWI Information Dashboard Design

Dashboard Development and Performance Management

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TDWI strives to provide course books that are content-rich and that serve as useful reference documents after a class has ended.

This preview shows selected pages that are representative of the entire course book; pages are not consecutive. The page numbers shown at the bottom of each page indicate their actual position in the course book. All table-of-contents pages are included to illustrate all of the topics covered by the course.

COURSE OBJECTIVES

You will learn:

- *How to identify, define, and select measures, metrics, and performance indicators for business impact*

- *Frameworks for dashboard development*

- *The processes, deliverables, and techniques of dashboard engineering*

- *The processes, deliverables, and techniques of self-service dashboard development*

- *How to combine dashboards and scorecards for performance management*

- *How Balanced Scorecard and strategy mapping techniques are used to identify and define business-aligned KPIs*

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Module 1

Dashboards: What and Why

Defining Dashboards

Continuum

| Personal Dashboard | Workgroup Dashboard | Departmental Dashboard | Line-of-Business Dashboard | Enterprise Dashboard |

Self-Service Dashboards

Engineered Dashboards

Defining Dashboards

Continuum

PURPOSE

A dashboard puts all the vital information of an operation—whether driving a car or driving a business—on a single screen that can be viewed at a glance. Dashboards are an essential method for delivering information and intelligence. They provide effective measures and metrics that employees can use to improve performance.

Top executives use dashboards to monitor their companies at a high level. Individual call center representatives use dashboards or scorecards to track whether they are hitting their goals. People across an enterprise need to monitor statistics that pertain to their tasks.

A CHANGING FIELD

Not long ago, most businesspeople defined a dashboard as a visual report built by an IT developer that combined charts and graphs.

Since that time, advances in technology and practice have transformed the way dashboards are developed and used in business. Visualization software has increased the sophistication of dashboard displays, expanding the possibilities beyond simple graphs to include advanced visualizations such as heat maps and bullet graphs.

At the same time, self-service tools have brought dashboard development capability directly to business users, who are now able to produce solutions without the involvement of BI or IT staff.

Today's information-driven enterprises feature a wide variety of dashboards, spread across a diversity of business functions. Some of these dashboards are engineered by BI and IT teams, while others have been assembled by business users.

ROOM IN THE MIDDLE

Some needs and use cases will lend themselves more easily to self-service dashboards, and some will seem like an obvious fit for engineered dashboards. Keep in mind that some situations might call for something in-between.

Dashboards in Context
Business Context
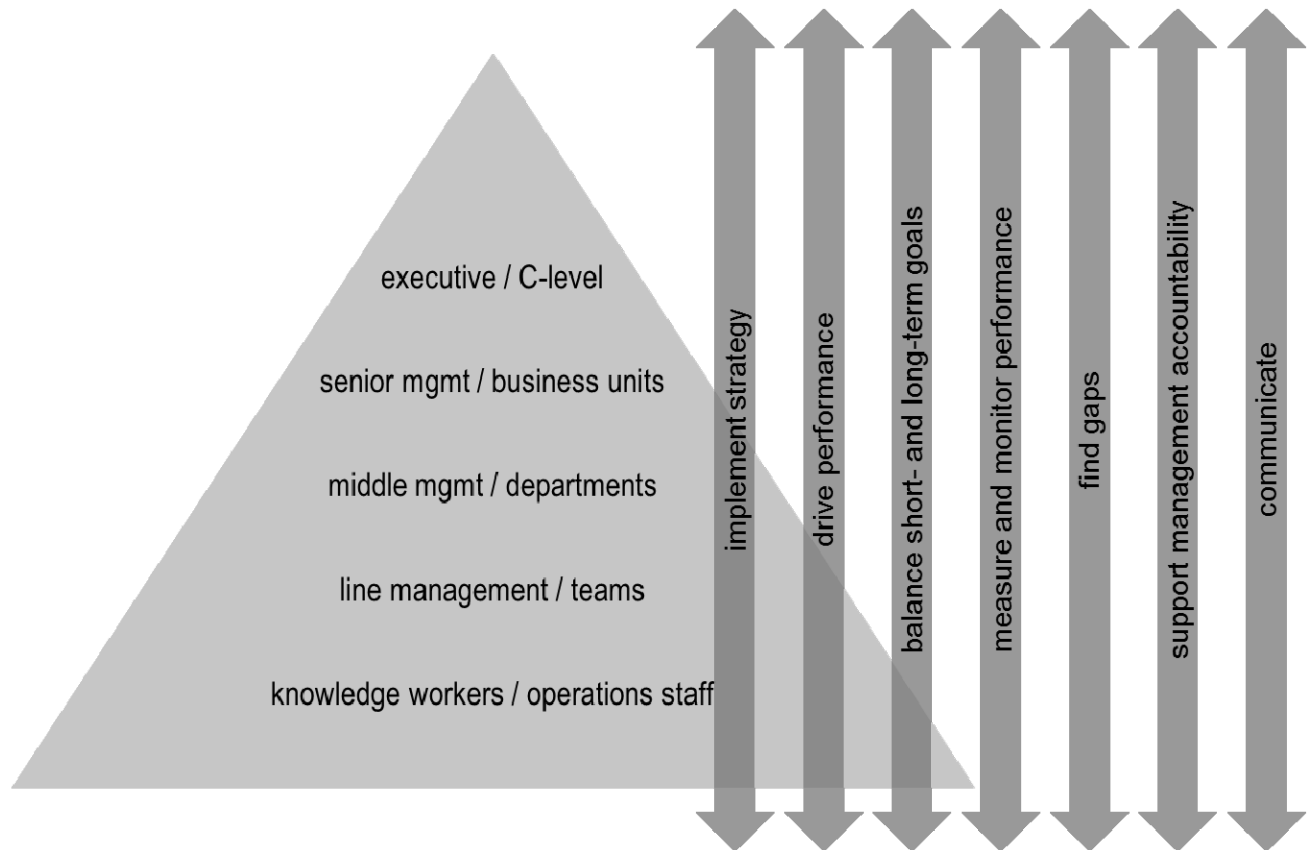
Dashboards in Context

Business Context

MANAGING WITH DASHBOARDS

Dashboards are a management tool, not a technology. They can be useful for functions across every level of the enterprise, and they are an expected part of modern business management. Properly designed dashboards have many uses, including monitoring key indicators, tracking performance against goals, monitoring quality assurance, and enabling cross-department communication and strategy, among many others.

PERFORMANCE MANAGEMENT

Dashboards and scorecards are integral parts of a performance management program. Performance management enables business users to guide decisions and actions using data-driven metrics.

For example, consider a sales team that has monthly and quarterly targets to hit. A scorecard or dashboard that allows them to understand their current progress at a glance can help both the team members and their manager ensure that they are on track for success. Performance management will be discussed in detail later in this course.

DECISION SUPPORT

Dashboards are operational tools for people in the business. Personnel at every level need the right information to help them make decisions that drive toward the achievement of business goals and objectives. A dashboard allows the user to monitor processes, receive alerts, or spot potential optimizations.
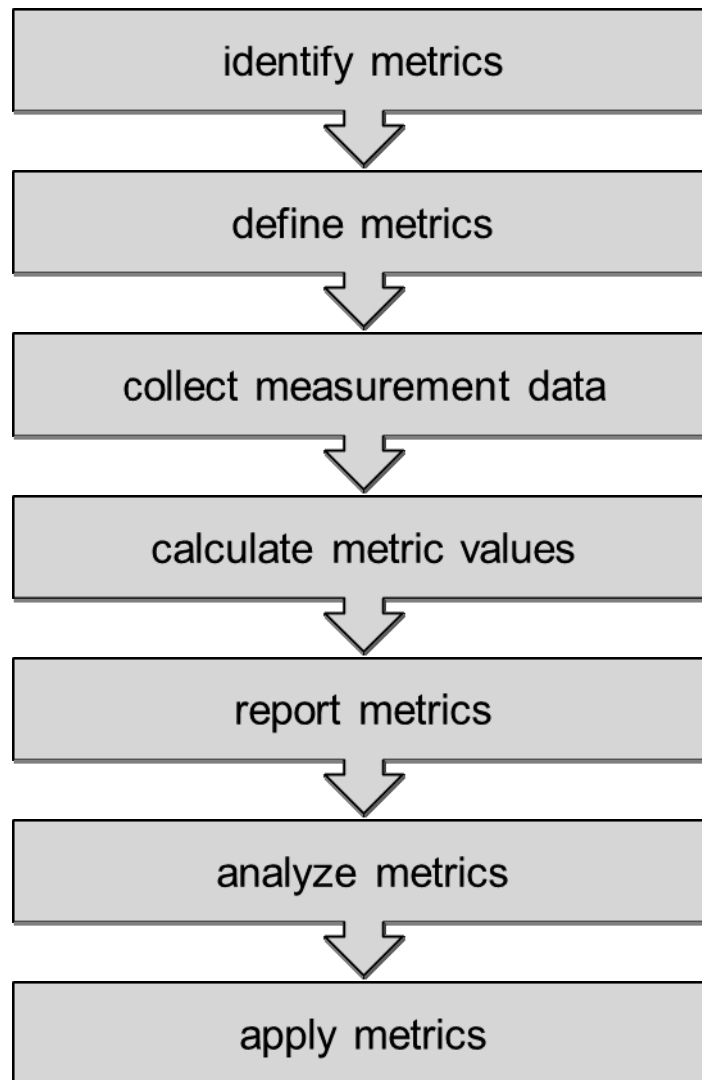
Module 2

Dashboard Foundations

Implementing Metrics
Process Overview

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┌─────────────────────────────────┐
│        identify metrics         │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│         define metrics          │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│     collect measurement data    │
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                 ↓
┌─────────────────────────────────┐
│      calculate metric values    │
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┌─────────────────────────────────┐
│          report metrics         │
└─────────────────────────────────┘
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┌─────────────────────────────────┐
│         analyze metrics         │
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┌─────────────────────────────────┐
│          apply metrics          │
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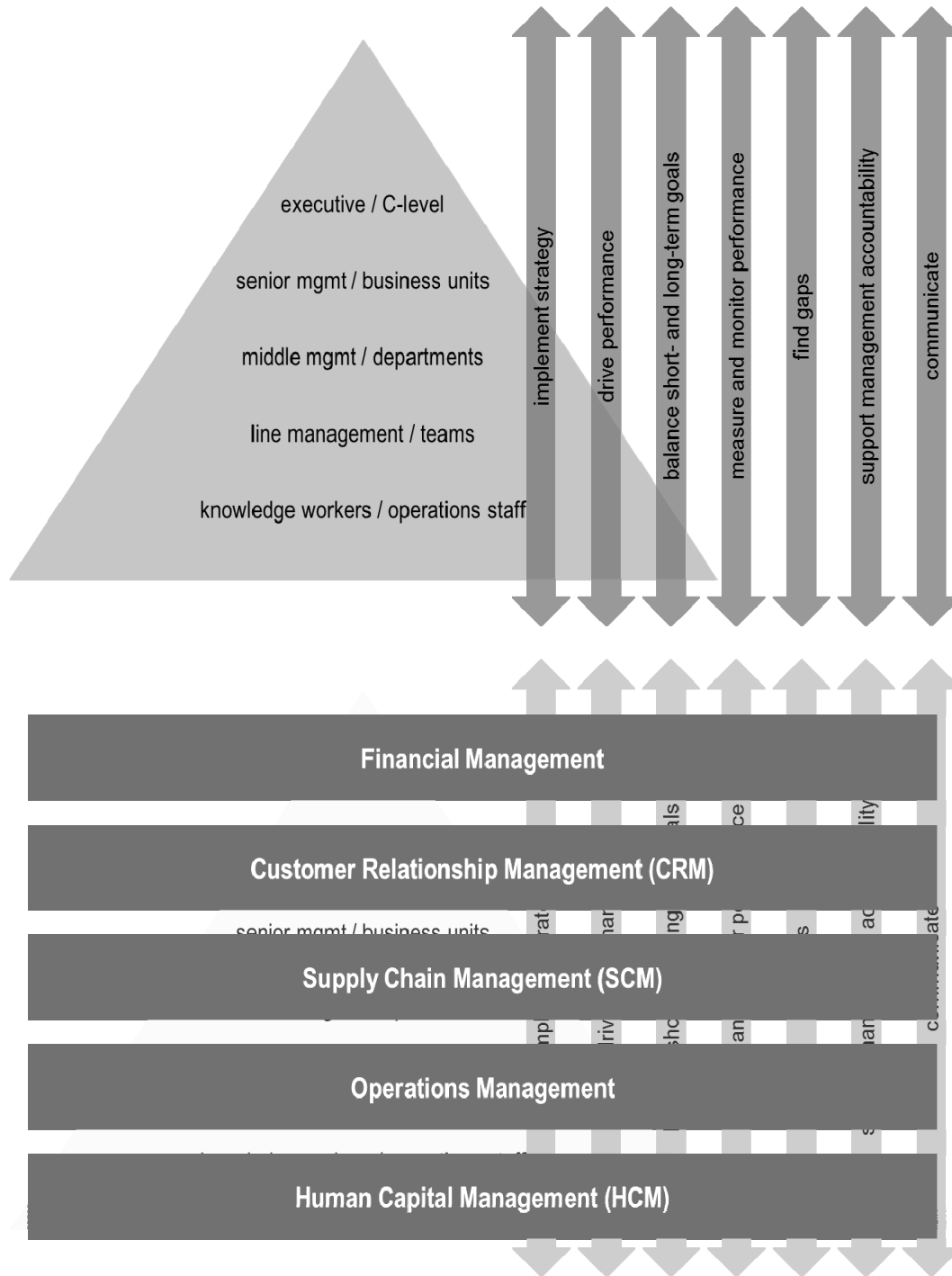
Implementing Metrics

Process Overview

WORKING FROM IDENTIFICATION TO APPLICATION

Metrics implementation involves a sequence of activities that begins with identification and concludes with application of metrics, as outlined below.

- Metrics identification
  - What to measure
  - Purpose: predictive, diagnostic, descriptive, discovery
  - Application: audience and intent

- Metrics definition
  - Name and description
  - Measurement scale and units

- Measurement
  - Data sources and data collection methods
  - Data requirements: metric components, reference data, identifiers, timing
  - Comparative data (compare to goal, total, prior period, etc.)

- Metrics calculation
  - Base measures to derived measures
  - Derived measures to metrics
  - Aggregation

- Metrics reporting
  - OLAP
  - Scorecards
  - Dashboards

- Metrics application
  - Analysis: descriptive, diagnostic, discovery, predictive, prescriptive
  - Impact: Decision and action

2-7

Metrics Applications

Business Impact

The pyramid labels (top to bottom):
- executive / C-level
- senior mgmt / business units
- middle mgmt / departments
- line management / teams
- knowledge workers / operations staff

The vertical arrow labels:
- implement strategy
- drive performance
- balance short- and long-term goals
- measure and monitor performance
- find gaps
- support management accountability
- communicate

The horizontal bars:
- Financial Management
- Customer Relationship Management (CRM)
- Supply Chain Management (SCM)
- Operations Management
- Human Capital Management (HCM)

Metrics Applications

Business Impact

METRICS FOR BUSINESS MANAGEMENT

Metrics are a critical part of management; if you can't measure something, how will you improve it? With well-defined metrics that are up-to-date, organizations can align decisions and actions with objectives and goals.

Many widespread business management practices depend on metrics. Examples include:

- Financial Management
    - Planning and budgeting, revenue accounting, cost accounting, general ledger, fixed assets, payroll, accounts payable, treasury operations, internal controls, financial compliance, tax accounting, etc.
- Customer Relationship Management (CRM)
    - Service and support, marketing, sales force automation, call center, customer data integration, loyalty management, customer advocacy, customer value, 360-degree view of customers, etc.
- Supply Chain Management (SCM)
    - Customer servicing, demand management, order fulfillment, manufacturing flow management, supplier relationship management, product development, product commercialization, returns management, etc.
- Operations Management
    - Materials and resources, production schedules, purchasing and procurement, production, transportation and logistics, product delivery, service delivery, receiving and warehousing, inventory, etc.
- Human Capital Management (HCM)
    - Workforce planning, workforce policies, recruiting and retention, separation and termination, employee and career development, compensation and benefits, competency development, learning management, employee performance, retirement, etc.
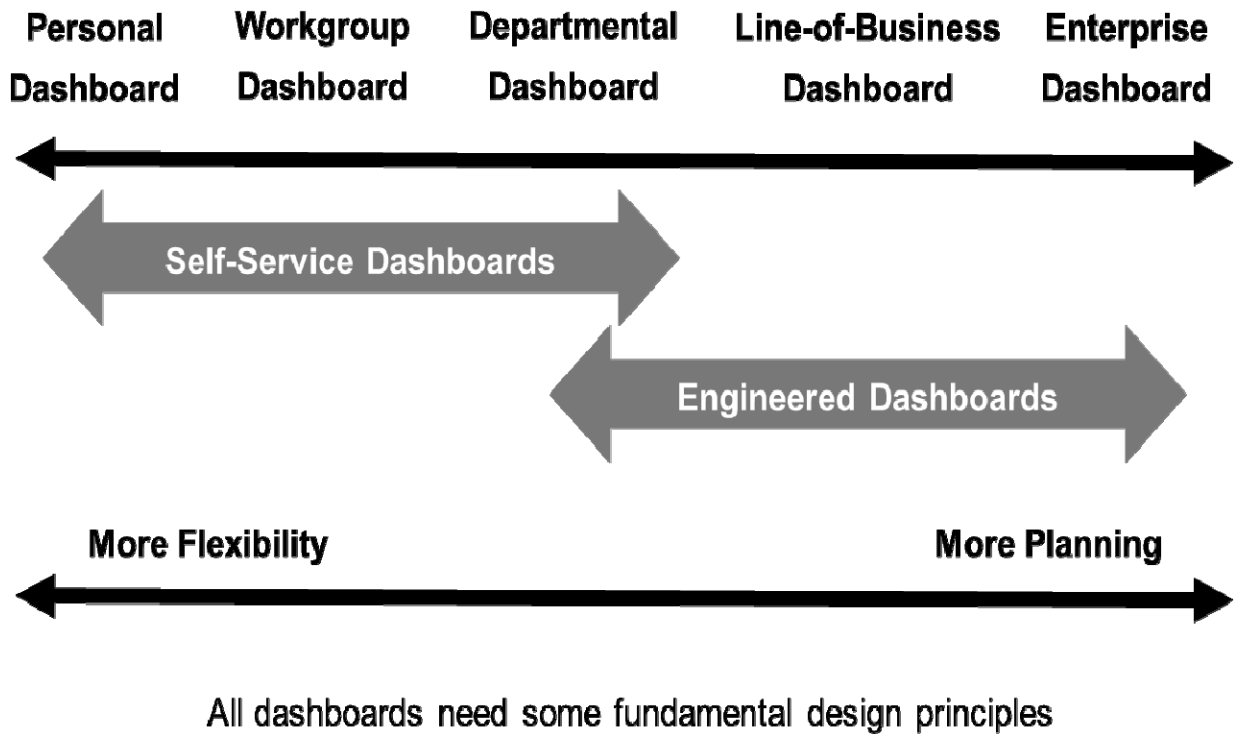
Module 3

Dashboard Design Techniques

Multiple Paths

Self-Service Versus Engineered

Personal	Workgroup	Departmental	Line-of-Business	Enterprise
Dashboard	Dashboard	Dashboard	Dashboard	Dashboard

Self-Service Dashboards

Engineered Dashboards

More Flexibility   More Planning

All dashboards need some fundamental design principles

Multiple Paths

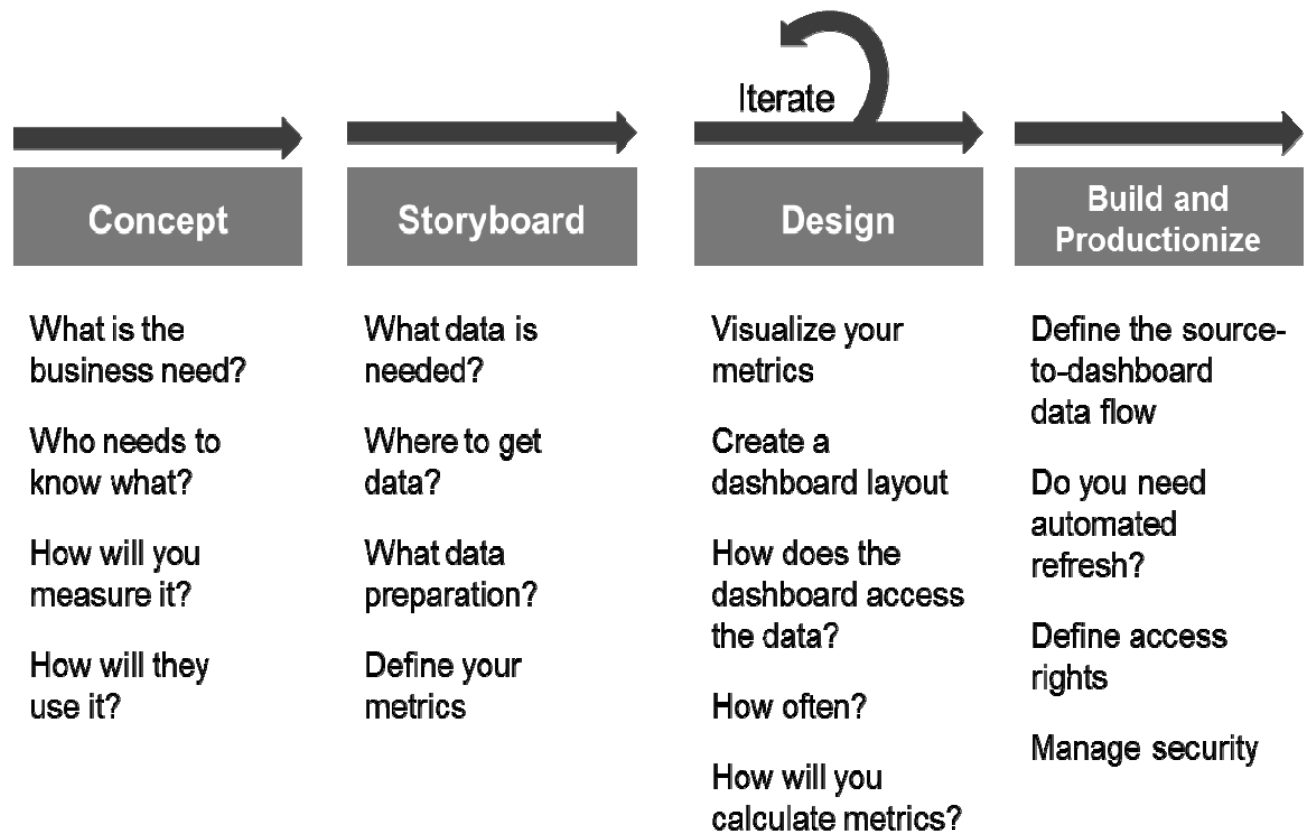## Self-Service Versus Engineered

HOW WILL YOU USE IT?

Recall that we discussed the major differences between dashboards engineered by IT and dashboards created by line-of-business users. The type of dashboard you need depends on many factors, including the purpose, time frame, intended use, and intended users.

FUNDAMENTALS

Developing a dashboard of any type requires understanding some fundamental design principles. In this module, we'll first focus on engineered dashboards. Next we will discuss design principles—most of which may apply to any type of development process. Finally, we will look at a process for developing self-service dashboards.

Self-Service Dashboard Development

Process Framework

Concept	Storyboard	Design	Build and Productionize
What is the business need?	What data is needed?	Visualize your metrics	Define the source-to-dashboard data flow
Who needs to know what?	Where to get data?	Create a dashboard layout	Do you need automated refresh?
How will you measure it?	What data preparation?	How does the dashboard access the data?	Define access rights
How will they use it?	Define your metrics	How often?	Manage security
		How will you calculate metrics?	

Iterate

Self-Service Dashboard Development
Process Framework

JUST ENOUGH STRUCTURE

Developers of self-service dashboards have different needs than the developers of engineered dashboards, but they still will end up with a better product if they follow a process, such as the simple four-part process presented here. Consider this process flexible in length and depth, depending on the scope of the effort: it may be stripped down to a brief brainstorming session, or it may involve an entire department.

CONCEPT

Don't start dashboard conceptualization by looking at the data that you have. Start with what you need to know, or what your business need is. Will you use the dashboard? Will others? What is its purpose? Will the dashboard show what happened in the past or project what is coming next? What capabilities will the dashboard provide?

STORYBOARD

Once you have a clear idea of your business need, start concrete planning. Determine what data you require to answer your business question. Define the metrics you will display. How will the data be filtered? Where will you find it? How much preparation or cleansing will it need? Can you do that data prep or do you need support?

DESIGN

Now you're ready to design the layout. Decide what visualizations, charts, tables, etc. will be used to display the metrics and KPIs. How will the metrics be calculated and/or aggregated? How does the dashboard access the data? What additional filters or discovery options will the dashboard allow?

The design step may involve several iterations and/or trial and error with the dashboard development tool.

BUILD AND PRODUCTIONIZE

Build the final dashboard with your self-service tool of choice. Make sure that the connection to the source data doesn't violate any security or privacy concerns. If the dashboard will be used more than once, consider how often the data needs to be refreshed. Who needs access to the dashboard? Do you need to limit access for any reason?
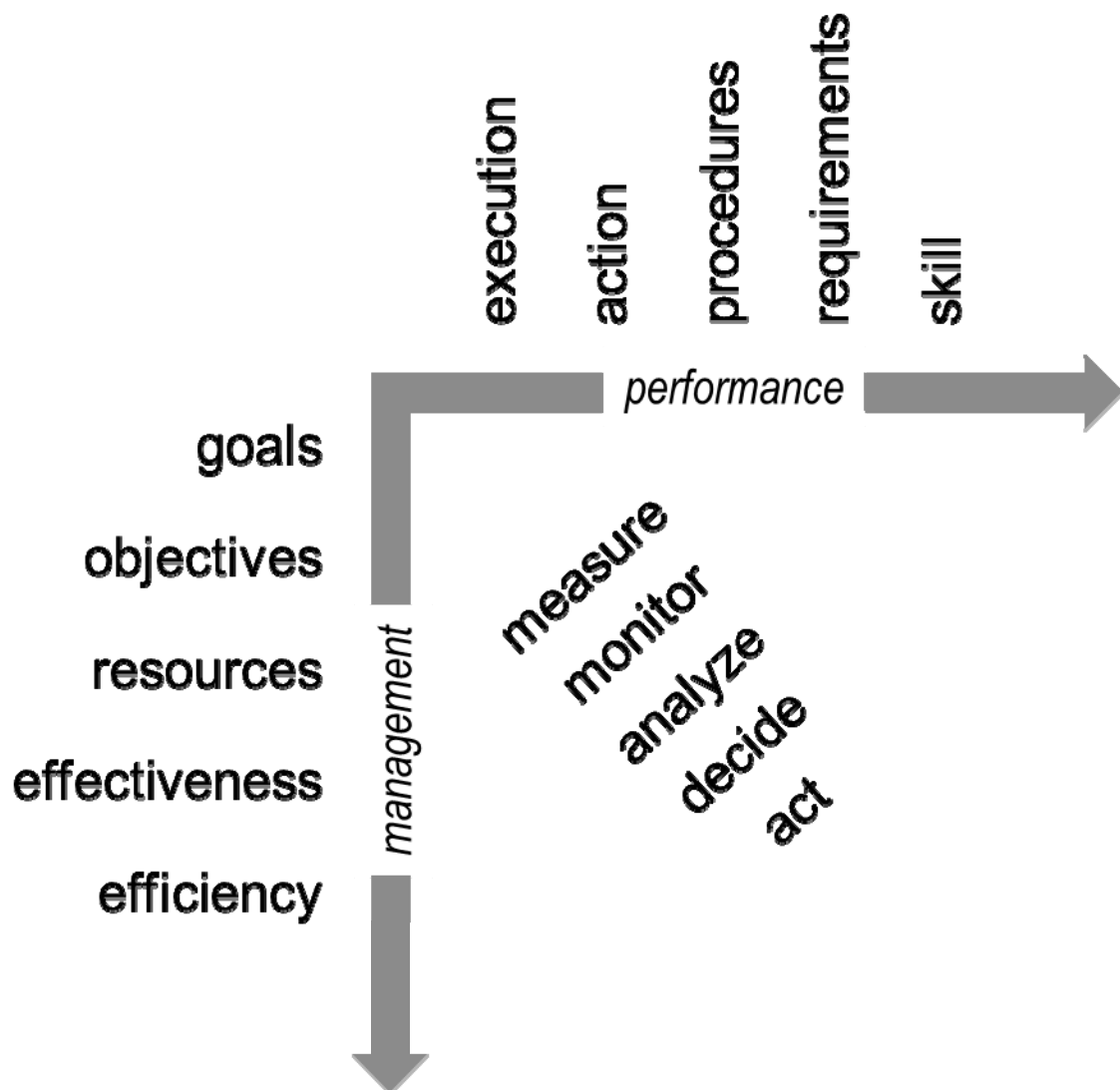
Module 4

Performance Management

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Defining Performance Management
Performance + Management

execution
action
procedures
requirements
skill

performance

goals

objectives

management

resources

measure
monitor
analyze
decide
act

effectiveness

efficiency

Defining Performance Management
Performance + Management

MANAGING PERFORMANCE

Performance is the doing of something. Some key concepts related to performance include execution, action, procedures, requirements, and skills. Management is to direct a group, generally in pursuit of an end—key concepts include goals, objectives, resources, efficiency, and effectiveness.

At the intersection of these concepts we need processes to:

- Measure and monitor performance
- Analyze performance measures
- Decide what to do and take action

PERFORMANCE MANAGEMENT DEFINED

Gary Cokins defines performance management concisely as "the translation of plans into results—execution. It is the process of managing an organization's strategy"[1]

Wayne Eckerson says performance management "consists of a series of processes and applications designed to optimize the execution of business strategy… a framework that takes the long-standing task of *measuring performance* to the next level, that of *managing performance*."[2]

Frank Buytendijk states, "Performance management tries to capture an organization's business model. As it becomes clear how various business domains affect the business results, performance management provides insight into who drives results and how results are driven."[3]

Although each of these definitions offers a slightly different perspective, they all support some common themes about performance management:

- Performance management focuses on execution of strategy.
- Measurement is only a part of performance management.
- Analysis, especially cause-and-effect analysis, is a key part of performance management.
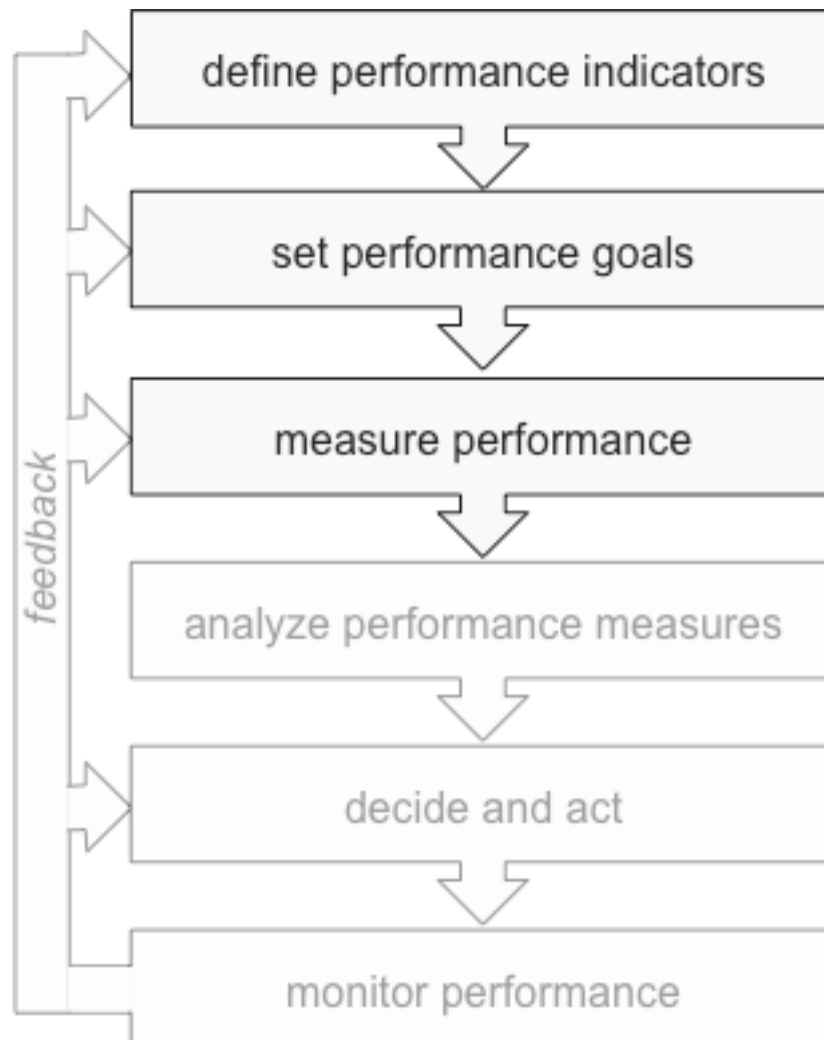- The right actions and results are the goals of performance management.

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[1] *Performance Management,* pp. 9, Cokins
[2] *Performance Dashboards,* pp. 11, Eckerson
[3] *Performance Leadership,* pp. 17, Buytendijk

Performance Management Processes
Goal Setting and Measurement

Performance Management Processes
Goal Setting and Measurement

PERFORMANCE INDICATORS

Performance management requires performance measurement, but measures alone don't do the job. Performance measurement to support performance management happens at three levels. We discussed earlier that *measures* are quantitative data that assign numeric values to business inputs, activities, or outcomes. *Metrics* are measures with dimensions—time, customer, product, location, etc.—that support aggregation and analysis. *Performance indicators* are metrics with time-based performance targets that align with business strategy.

The "time-based performance targets" of performance indicators are the specific performance goals of business managers and/or business units.

IDENTIFYING INDICATORS

Performance management begins by selecting and defining the right performance indicators. A balanced performance management program includes both effectiveness and efficiency indicators. Well-defined indicators determine the metrics and measures that are needed.

SETTING GOALS

Goal setting is the next step in the process. Each performance indicator needs to have corresponding goals that express both the level of performance to be achieved and the time frame of the goal. Goals may be different for each manager to whom the indicator applies. Goals take a variety of forms depending on the nature of the indicator:

- *Achievement* expresses goals to produce more. Exceeding the target is considered better than meeting it. Examples include revenue and customer satisfaction.
- *Reduction* expresses goals to produce less. A level below the target is better than meeting the target, for example customer attrition.
- *Zero* expresses a goal to entirely eliminate a business outcome or condition. Examples include workplace accidents and product defects.
- *Absolute* goals express an exact number to be achieved, for example delivery time in manufacturing.
- *Fixed range* goals are similar to absolute goals, with the target expressed as minimum and maximum values. Mean time between repairs is an example of a fixed range goal.

MEASURING PERFORMANCE

Measurement collects the data needed to calculate actual performance values for each indicator. Measurement includes quantitative data, reference data to associate measures with dimensions, and identity data needed to trace performance indicators to their sources.