
SECOND EDITION
MANAGEMENT ACCOUNTING
AN INTEGRATIVE APPROACH
C.J. McNAIR-CONNOLLY | KENNETH A. MERCHANT
ima
The Association of Accountants and Financial Professionals in Business
WILEY

Management Accounting

AN INTEGRATIVE APPROACH

SECOND EDITION

DEDICATED TO:

To Cyndi, who at her first job interview for accounting asked, "What answer do you want?" While there are better or worse answers, her spirit will always live on.

— C. J.

To my wife, Gail Worth Merchant.

— KENNETH

Management Accounting, Second Edition
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About the Authors

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Preface

Management Accounting: An Integrated Approach, authored by Dr. C.J. McNair-Connolly and Dr. Kenneth A. Merchant, reflects the lessons learned from a combined 75+ years of applied research into modern management accounting practice in a wide variety of organizations. As such, the approach taken differs significantly from that used in other management accounting textbooks today. Starting from a basic set of tools developed in Chapters 1-5, these tools are then applied across five decision domains: product, process, entity, customer/market, and value chain. Unifying the discussion is the core management process: Plan-Do-Check-Adjust. The learning objective behind this approach is best stated as: Use a range of realistic settings to build students' ability to effectively analyze problems and opportunities and communicate recommendations to management. The result? Students complete the course with an integrated, powerful set of analytical tools and approaches that they can apply throughout their academic and organizational careers. Topics and analyses each have a logical placement within the text—as part of the set of key management accounting tools or a situation where the tools can be applied.

In addition to building students' analytical skills, the text is also developed around three companies: Easy Air (airline; Chapters 1-5), Kinkaid Cabinets (manufacturing; Chapters 6-9), and

Prestige Auto (dealership/service; Chapters 10-14). A set of database problems, constructed as separate workbooks in Excel, reflect the performance issues these companies face. Combined with the integrative framework—which includes both financial and nonfinancial metrics, analyses, and potential behavioral impacts of measurement—these three company settings reinforce the message that companies use management accounting tools and techniques to address a multitude of problems and opportunities.

In this, the second edition, the basic structure of the text and its focus on building an integrated analytical tool set applicable to a broad range of settings and issues remain intact. The focus in the revision process has been on ensuring that errors and omissions have been addressed and that formulas and discussions have been analyzed to ensure their clarity and informativeness. Specifically, the following changes have been made:

- The data tables for the airline industry and Easy Air, the first focus organization, have been updated to incorporate 2017 results.
- An extensive, comprehensive line-by-line edit of the entire text was conducted.
- Verification that all numerical detail and the related discussions are consistent.
- Structural and content analyses of all tables in the text were completed, including problem material, to identify any errors, omissions, or related issues and make necessary changes.
- All database problem instructions were reviewed to ensure that designated worksheets and templates are correctly identified and instructions for problem completion are clear and logical.
- All problem material in the text was checked and modified, if necessary, to ensure correctness and consistency.
- Review, and correction/modification if necessary, of all formulas used in the text to enhance clarity was completed.
- Careful examination of all examples, discussions, and definitions to ensure clarity and consistency was undertaken.
- Correction of all identified typos, awkward grammar, and related issues was completed.
- Review of all figures used in the text, making corrections and adjustments where needed, was conducted.
- Full editorial review of all author and early adopted recommended changes was completed.
- "In the News" and "Looking Back" sections were updated where needed improvements were identified.
- Review and correction/clarification of solutions in Solutions Manual where needed has been completed.

In other words, the entire text has been carefully read, edited, analyzed, clarified, and, where necessary, corrected. While it is quite likely some issues may remain, significant effort has gone into identifying and eliminating errors and clarifying discussions, formulas, tables, figures, and analyses. All remaining issues are the responsibility of the authors.

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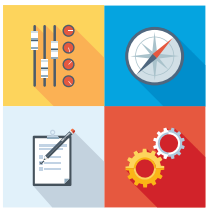
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CHAPTER ONE

Business Planning and Analysis: An Integrative Framework for Management Accounting

The culminating point of administration is to know well how much power, great or small, we ought to use in all circumstances.

MONTESQUIEU [1]

CHAPTER ROADMAP

1. The World of Management: An Overview
   - ➤ *What Is a Manager?*
   - ➤ *Types of Managerial Work*
2. The Management Process and the Role of Management Accounting
3. What Is Business Planning and Analysis?
   - ➤ *BPA as a Tool to Integrate Management Accounting Practices*
   - ➤ *A Financial vs. Managerial Perspective*
4. The BPA Integrated Framework and Management Accounting
   - ➤ *The BPA Database*
   - ➤ *The Decision Domains*
5. Management Accounting: Real World—Real Issues
   - ➤ *Analyzing Performance*
   - ➤ *Management Accounting in Action*
6. *IMA Statement of Ethical Professional Practice*
7. The Management Accounting Professional

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

1. Explain the basic nature of managerial work.
2. Discuss the management process and describe how management accounting supports these efforts.
3. Describe how a BPA lens affects management accounting practices and how these differ from financial accounting.
4. Identify the primary types of information in a management accounting database and analyze the concept of a decision domain and how it is applied to organizations.
5. Illustrate how measurements influence decision making and behavior in organizations.
6. Interpret the *IMA Statement of Ethical Professional Practice* that guides the use and presentation of information within organizations.
7. Describe the various career paths open to management accounting professionals.

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1 *The Forbes Scrapbook of Thoughts on the Business of Life,* Chicago: Triumph Books, 1992: p. 182.

SUCCESS IN BUSINESS BOILS DOWN TO MANAGERS MAKING GOOD DECISIONS. Behind every such decision lies a management accounting database supported by an information network that either formally (for example, with rules or policies) or informally (for instance, the culture of an organization) links the organization's people and progress across space and time. This network of information, and the data that flows through this network, defines and shapes the practice of management accounting, which is the focus of this textbook.

This book is built around three unique features:

1. An integrative framework that uses a business planning and analysis perspective to emphasize the relationship between management accounting and management decision making, control, and information.
2. Three Excel-based databases that illustrate how organizations use information to complete the management accounting processes of planning, decision making, and control.
3. Three industry settings (an airline, a kitchen cabinet manufacturer, and an automobile dealership) to help you understand management accounting in action.

The overriding objective is to improve your existing critical thinking skills by helping you learn to analyze and respond to the challenges faced every day by organizations and the managers who run them.

The World of Management: An Overview

This chapter introduces the **management process**—*what managers do to ensure that their organization achieves its objectives*. We will approach management accounting from a business planning and analysis (BPA) perspective, which, when applied to management accounting issues, includes all of the activities in which managers use information, whether for planning, decision making, or control.

OBJECTIVE 1
Explain the basic nature of managerial work.

Information lies at the center of the management process. Information is data that has been organized to meet a specific need during decision making and analysis. It is the lifeblood of any organization, essential to effective decision making and the actions of management. A key focus of this book is to illustrate and explain what types of information are used during the various stages of the management process. This chapter focuses on understanding the basic elements of the integrative management accounting framework and how it relates to the work done by business managers. Attention then turns to how management accounting informs BPA, the key differences between a management accounting vs. a financial accounting perspective, and what career options exist for the management accounting professional.

Let us begin by taking a look at the role of management in organizations and how management accounting serves the organizations' information and decision-making needs. As the "In Context" discussion of Easy Air suggests, these needs span the gamut of a business, from strategic decisions such as what

markets and customers to serve, to basic operational details (for example, what food to serve on a specific flight). The "In Context" discussions are used throughout the text to help illustrate the role of management accounting in a realistic business setting.

IN CONTEXT ➤ Easy Air: Confronting the Problem



Easy Air Chief Operating Officer (COO) Fran Conte stared out of the window of her office. Lying open on the desk behind her were the most recent figures from the finance department. Profits were down for the third quarter in a row, lost and damaged baggage claims were soaring, and Easy Air's on-time arrival and departure performance was abysmal. The trends were troubling, and it was Fran's job to change them. In the 20 years since she and Frank Russo founded Easy Air, they had faced constant challenges. But at the end of the day, they had always found a way to improve performance and make money at the same time—until now.

Easy Air, headquartered in the Midwest, flies only one type of plane, the Airbus 321. This means one kind of spare parts and one maintenance routine, which greatly simplifies Easy Air's operations. Each plane has the same seating configuration, making it quite simple to switch aircraft (or "tails") between routes and flights. Easy Air offers only one class of service—no-frills coach seating—and only one fare for each flight. No matter when or how the passengers for a specific flight book and pay for their travel, they pay the same price.

Emphasizing point-to-point service, Easy Air flies directly between secondary airports located near major cities and population centers. Initially a regional carrier serving the Chicago/Milwaukee/Indianapolis market, the company has grown steadily over the last 20 years to become the 10th largest air carrier in the United States, serving all major cities from Kansas City, Mo., to the eastern seaboard.

With this growth, operations have become increasingly complex. Corporate headquarters has been relocated five times, each time to a significantly larger space. Flight operations, once housed in a single room, now has its own dedicated wing. Advertising, initially run by Frank, now has more than 150 employees who coordinate ad campaigns, design promotions, and manage a wide-ranging set of corporate programs. While Frank still has the first chair he bought for himself when Easy Air was founded, the company bears little resemblance to the fledgling airline of its early years.

Unfortunately, some of the differences between the Easy Air of the past and today's company are not as positive. Easy Air built its reputation on hassle-free, on-time, dependable air travel. But with growth has come a rapid decline in performance, as the most recent financial and operational reports so clearly demonstrate. Fran's challenge is to determine what Easy Air can do to reverse these trends. How can profits be improved without increasing fares or reducing the level of service Easy Air provides to its customers? Should

some routes be cut, or should new ones be added? Would it be better to lower fares to fill empty seats, or raise them to increase the revenue earned per passenger mile flown?

Before she could answer these questions, Fran knew she needed more information in order to properly analyze the current situation, identify options for improvement, make choices, and track the impact of any changes made. For this, she would have to call upon her management accounting systems and analysts.

WHAT IS A MANAGER?

An organization is the sum of the skills and efforts of its people. Every individual is an essential part of the complex web of actions and relationships that define and shape the modern business organization. The coordinated effort of these actions and relationships results in products and services that customers are willing to buy.

In an effective business organization, individuals have different roles and responsibilities. Not everyone makes the product or calls on customers to secure sales of these products. Some individuals are directly involved in producing the firm's goods and services, while others support these efforts. Some perform the tasks they are assigned, while others—the managers—determine what should be done.

Managers *are those individuals in an organization who are responsible for the work performed by one or more other people.* Managers define the goals and objectives for those under their direction. They organize the work so that the team, or work group, can achieve these objectives. Managers also take on the responsibility for ensuring that the efforts of the work group yield the desired outcomes. This includes securing and mobilizing needed resources, evaluating progress towards defined goals, and making adjustments to both plans and individual or group actions when needed.

TYPES OF MANAGERIAL WORK

As Table 1.1 shows, there are many different types and levels of managers in organizations. Management accounting supports each level of management, providing the specific type of information needed to make strategic, tactical, and operational decisions; control operations at all levels; and make adjustments to how work is done.

The lowest level of management is the **operational manager,** *who structures, manages, and directly participates in the day-to-day activities that result in the production or support of the products and services offered by the firm*. Also known as a "supervisor," the operational manager is only one step removed from the actual daily work of the organization. Work at this level is organized along two primary dimensions: horizontal (process-based) or vertical (function-based). Management accounting supports analysis and decision making across both dimensions.

Functional managers *translate organizational objectives into practical goals, establish performance evaluation criteria, ensure that leading-edge practices are applied, and assign individuals to purposeful tasks and activities.* They focus on a specific type of work, such as finance, marketing, or manufacturing. For example, when you choose a major in college, you are making the choice of a "function" or type of work that you will do when you graduate. A functional manager oversees the "vertical" or top-to-bottom flow of work, information, relevant objectives, and decisions in an organization.

TABLE 1.1 MANAGEMENT LEVELS AND ACTIVITIES

Management Level	Types of Activities Performed
Top Management Team	Establish the vision for the organization.
	Develop strategy and key objectives.
	Secure required capital and other key resources.
	Define the organizational structure.
	Assign responsibility for decision making and results.
	Establish expectations and criteria for evaluation performance.
	Set the tone for management and the organizational culture.
Process Managers	Establish effective relationships with key customers and suppliers of process output.
	Define standards of performance for activities within the process.
	Coordinate individual and group efforts to optimize performance and minimize disruptions, variance, and errors.
	Effectively negotiate for and obtain needed process resources.
	Identify and implement best practices.
	Create and execute continuous improvement initiatives.
Functional Managers	Translate organizational objectives into functional goals and objectives.
	Identify key activities and performance requirements.
	Organize and assign operational managers to specific activities and functional goals and objectives.
	Establish performance evaluation criteria for the operational managers and their work groups.
	Negotiate and obtain required resources.
	Ensure that leading-edge practices are implemented.
Operational Managers	Translate functional and process objectives into key activity and task goals to guide their employees' efforts.
	Organize and assign individuals to specific activities.
	Assign specific goals and evaluate resulting progress.
	Negotiate and secure needed resources.
	Identify and resolve operational problems.
	Ensure coordination with other work groups.
	Support learning and continuous improvement within the work group.
	Report results and problems to affected managers.

Process managers, on the other hand, *define standards of performance, establish relationships with key customers and suppliers, and coordinate individual and group efforts to achieve objectives*. They oversee specific clusters or chains of activities—in other words, how the efforts of individuals, teams, and functional groups are linked together to produce products and services for the firm's customers. A process manager emphasizes the organization's "horizontal" or cross-functional efforts. Process and functional managers jointly oversee the work of operational managers.

The top management team *establishes the vision; sets the strategy; secures required capital and key resources needed to produce, deliver, and support the firm's products and services; builds the culture of the organization; defines the organization's structure; and assigns responsibility for achieving organizational objectives.* Like an army general, top management either directly or indirectly performs command and control activities that shape the efforts of every individual in the organization. Responsible for the performance of the entire organization, the top management's vision shapes the organization's potential and performance.

LOOKING BACK ➤ The Five Basic Tasks of a Manager



More than 60 years ago, Peter Drucker published his first major book on the work of managers in organizations. It is as pertinent today as it was then.

The manager has the task of creating an organization that is larger than the sum of its working parts, making it a productive entity that turns out more output than the sum of the resources used to produce this output. The task of organizing the entity to be productive requires the manager to make effective use of whatever benefits there are available in his resources—especially in the human resources—and neutralize whatever weaknesses are discovered.

There are five basic activities that comprise the work of the manager:

1. Managers **set objectives** for their employees and determine what needs to be done to reach these objectives. Through effective communication of these objectives to the workforce, managers optimize organizational actions.
2. Managers **organize** the activities of the organization. They analyze the activities, decisions, and relations needed to get work done and then select the people who will manage the work and ensure that it is done effectively and efficiently.
3. Managers **motivate and communicate** with their employees. Using effective team-building approaches, they ensure the smooth functioning of work units.
4. Managers **measure outcomes**. By analyzing outcomes using accurate and effective measurements, they ensure that the workforce understands what needs to be done and why each activity and outcome is important. A manager analyzes performance, appraises it, and interprets it.
5. Managers **develop people**. Based on the way that they deal with their workforce, managers either improve or destroy employee motivation, focusing their attention on either the right or wrong things. They bring out what is

best in each individual, or what is worst in them. All of this is done based on the manner in which the manager deals with the workforce.

All managers perform these activities when they manage—whether they are conscious of these facts or not. They may do them well, or they may do them quite poorly, but they always do them.

Peter Drucker, *The Practice of Management*, New York: Harper & Row Publishers, 1954: pp. 341-344.

The Management Process and the Role of Management Accounting

Managers work in all parts of the organization, overseeing everything from the processing of an invoice to the development of new products and services. Even so, the work that managers do has a common structure, as Peter Drucker suggests. This structure reflects key management work of setting objectives, organizing work flows, motivating and communicating, measuring, and developing their staff so they are better able to do their work. We call this structure the **management process,** *a continuous cycle of effort, action, achievement, target setting, and growth that underlies all managerial work*. It has four primary components: Plan, Do, Check, and Adjust; it is often referred to in organizations and management literature as PDCA. It uses resources to accomplish organizational goals and is illustrated in Figure 1.1. Managers are responsible for planning how the resources will be deployed. They also provide leadership, making sure that the work their subordinates do is well-organized and controlled. With a constant eye on the targeted objectives, effective managers coordinate, support, and direct the efforts of their work group to achieve desired results.

OBJECTIVE 2

Discuss the management process and describe how management accounting supports these efforts.

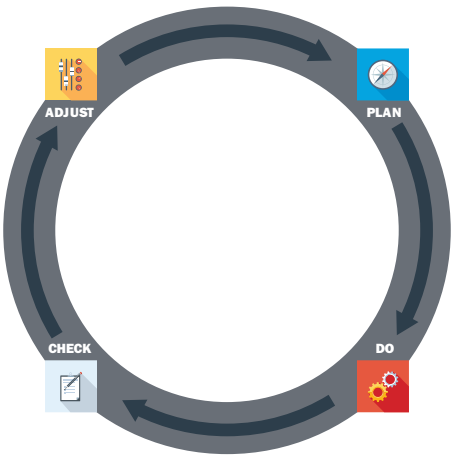


FIGURE 1.1 THE MANAGEMENT PROCESS

The first PDCA component—**"plan"**—*requires making a decision about something that has not yet happened*. When managers plan, they are projecting into the future, thinking through the many different paths and potential pitfalls that may lie ahead. Like an explorer in a new world, the manager is constantly scanning the environment, looking for clues and confirmation that the path being followed will lead to the desired goal—maximizing the value the organization creates for its stakeholders.[2]

Let us think about the various plans an organization might make. For instance, a cell phone producer such as Apple or Motorola has to determine what features it wants to offer in its various models. It has to plan on the size of the phone, its weight, the features it will provide, and the service providers with which it wants to partner. Should the cell phone have a built-in keyboard like a BlackBerry, or have one that digitally "pops up" like an iPhone? How big should the screen be? These are all decisions that are made during the planning phase of the management process.

Manufacturers must consider a variety of options when designing their products. In this case, the decision revolves around the options that cell phone manufacturers must take into account when designing new models or versions. Color, size, weight, options, battery life, and type of display screen are just a few of the issues that have to be considered.

Unfortunately, there is no one right way or one right approach for an organization—just a series of better-or-worse options. The manager uses various types of tools and techniques to identify and compare, and then chooses among these options. After the required choices are made, *actions are set in motion to achieve the desired results. The actions that are taken make up the* **"do"** *that is the primary purpose of an organization*. "Do" is the basis for satisfying customers and earning revenues. The decisions the cell phone developer makes during the planning stage define what needs to be done to bring the phone to the market.

As events unfold and actions are taken, it becomes important for managers to measure progress toward the organization's goals. A **measure** *is a quantification of the dimensions, size, or capacity of any object of interest based on comparing it to a standard or defined scale or measurement system*. Measures are used both to keep track of ongoing operations and to assess progress toward defined goals. **"Check"** *describes the comparison of actual results to the original plan.* Managers can use many different tools to complete this part of the process, including variance analysis, trend analysis, and profitability analysis. These are all part of the basic tool set that shapes the analysis completed by management accountants. You will learn more about these tools in Chapter 5. As you will see, they are an integral part of organizational and management learning and improvement. For the cell phone companies, the number of customers who choose their various models define the profitability of the cell phones offered to the public.

If the measured outcomes are in line with expectations, work continues. On the other hand, if outcomes are not acceptable or if any unexpected changes have occurred in the situation, managers may need to make adjustments. "Adjust" is the final activity in the PDCA cycle, or the management process. *The goal of the* **"check and adjust"** *sequence is to ensure that good outcomes can be repeated and bad ones eliminated, or at least minimized.* In some cases, it may even become necessary to change the defined goals and objectives

2 A *stakeholder* is anyone who has an interest in, or is affected by, the performance of an organization. A customer is a stakeholder. Other stakeholders include the owners, employees, and organization's business partners.

to address new challenges or opportunities. For our cell phone example, Apple might find problems like it did with the placement of the antenna on the iPhone 4. This problem led to adjustments in how the model was designed in order to improve the phone's network connectivity.

The management process, therefore, includes all of the activities and actions taken to keep the organization on track[3]—to check on outcomes and then make adjustments to improve performance against goals. Managing an organization is a dynamic process of planning and control, action, and adjustment. An effective management accounting system has to be equally dynamic. It has to be designed to fit the unique needs of the organization, reflect the goals and objectives being pursued, and change as conditions or organizational needs evolve over time. When we merge the structures, objectives, and tenets of the management process with the measurements, analytical approaches, and focus of the management accounting system, we are adopting an integrated approach that is the essence of all business planning and analysis.

What Is Business Planning and Analysis?

Business planning and analysis (BPA) is a discipline that can trace its roots back to the earliest days of the "managed" organization.[4] BPA is, in fact, the application and extension of the focus and practices that define management accounting. The resulting integrated approach emphasizes how resources are used to complete work in the organization, assess progress toward goals, analyze results and opportunities, and develop performance evaluation systems..

OBJECTIVE 3

Describe how a BPA lens affects management accounting practices and how these differ from financial accounting.

BPA AS A TOOL TO INTEGRATE MANAGEMENT ACCOUNTING PRACTICES

BPA and management accounting have the same roots in effective management practice, but BPA moves beyond traditional management accounting logic and analysis in several ways:

1. BPA emphasizes the entire management process, while traditional management accounting tends to focus more on cost and profitability analysis.
2. BPA creates an integrated analytical approach, underscoring the fact that management accounting analysis is based upon a logical set of tools, techniques, and concepts all focused on understanding and improving organizational performance and decision making.

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3 This definition was first developed and presented in the context of management control in Kenneth A. Merchant, *Control in Business Organizations*, Boston: Pitman Publishing, 1985. In this text, the control function is presented as an integral part of the management process, not as a separate management function.

4 In much of the early management writing in the 20th Century, the term "cost accounting" was used in place of, or interchangeably with, "management accounting." By the mid-1950s, these two terms had taken on quite different meanings, with cost accounting defined as an extension of financial accounting that emphasized inventory valuation issues. At this point, management accounting became the dominant term used to describe the use of financial information in planning, decision making, and control.

3. Management accounting based on the BPA framework utilizes an integrated database in its analysis. Organizations today rely heavily on databases, often called data warehouses, to support analysis of potential projects or outputs, decision making, and comparison of actual results with the planned outcomes.

A FINANCIAL VS. MANAGERIAL PERSPECTIVE

While BPA is a logical extension of traditional management accounting that reflects and meets the needs of today's management team, this integrated approach has a less explicit tie to the field of financial accounting. In many ways, management accounting precedes financial accounting in the life of an organization. Financial accounting takes a historical perspective, effectively "tallying up" the results of prior periods with an eye toward entity performance. Management accounting develops a set of potential activities, projects, and outputs, supports the decision-making process, aids in the negotiations that result in the deployment of firm capital and resources to specific uses, and provides the information that is used to evaluate and reward performance.

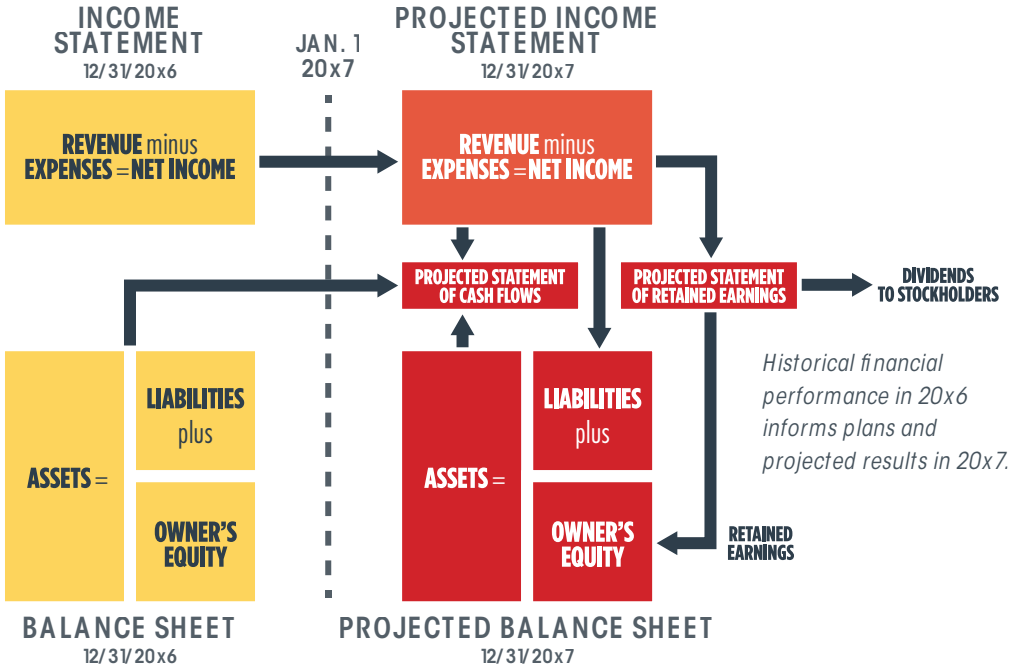


FIGURE 1.2 TYPICAL FINANCIAL ACCOUNTING STATEMENTS

The output of financial accounting is a set of financial statements that includes a balance sheet, income statement, and statement of cash flows as illustrated in Figure 1.2. It is designed to meet the information needs of a wide range of external users, such as investors and taxing authorities. In order to ensure that these outside parties can rely on the data in the published financial statements, and compare these results

to those of other firms, financial accounting has to rely on a large number of rules and regulations. We call these rules and regulations GAAP, or Generally Accepted Accounting Principles.

As we consider the problems and challenges managers face, we become less focused on rules and more concerned with developing decision-relevant information. By definition, information developed for management's use in planning has to be ex ante, or pre-decision, in nature. This information includes creating estimates, building scenarios, and predicting results rather than compiling and summarizing prior events.

In management accounting, ex post, or historical, results are used in decision analysis and choice to allow the comparison of actual results to what was planned, but the goal of these comparisons is to create new plans and make adjustments to current processes and procedures, not solely to judge past results. Past results are just one part of the complete set of information used during the management process to explore opportunities and solve problems at all levels of the organization.

Financial and management accounting should be mirror images of each other in a well-run organization. Where management accounting and analysis emphasize the future, financial accounting shines light on the outcomes of past actions. Where financial accounting looks outward to external users, management accounting applications focus on meeting internal information needs. Each organization has unique forms and uses for management accounting information, but financial accounting presents a comparable set of data and reports for external use by adhering to a defined body of rules and regulations. The better the management accounting analytics and resulting information systems are, the more accurately management can predict and shape future results. Management accounting, as informed by BPA, hands off key information to financial accounting using budgets (formal business plans) and performance targets. They are complementary, not competing, information systems.

The BPA Integrated Framework and Management Accounting

OBJECTIVE 4

Identify the primary types of information in a management accounting database and analyze the concept of a decision domain and how it is applied to organizations.

As you are beginning to see, management accounting using a BPA framework encompasses the vast range of issues and objectives, questions, and answers that are part of the everyday life of a manager. It is not a "subject" one learns, but rather a set of tools and techniques that are part of every decision, every action, and every evaluation made within an organization.

In other words, the integration of management accounting and BPA provides information to help managers identify and understand the options available to their organization (plan), choose a future course of action (do), and then ensure that the actions taken achieve the desired ends (check and adjust). The complete integrated framework is illustrated in Figure 1.3.

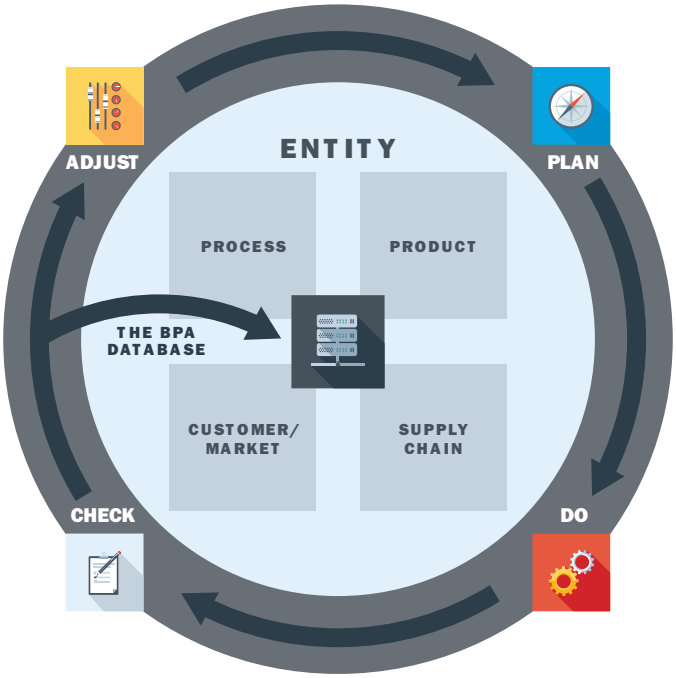


FIGURE 1.3 THE INTEGRATED FRAMEWORK

The integration of management accounting and BPA provides managers with the tools needed to make decisions, then act on and evaluate them. There are three primary parts that comprise the BPA integrated framework:

1. The *databases* that contain information about the financial and nonfinancial resources and results of the management process.
2. The *management process* that identifies the Plan-Do-Check-Adjust sequence that helps the organization achieve its goals.
3. The five *decision domains* around which the discussion about the application of the integrated framework within organizations is organized.

The integrated framework is more than a learning or organizational tool. It encapsulates the essence of the work done by managers in organizations—the dynamic give-and-take, action and reaction, and plan and adjust that make the world of business so exciting. We have already discussed the management process in some depth, so we now turn our attention to the remaining two parts of the integrative framework: the management accounting database and the decision domains.

THE BPA DATABASE

Information is the lifeblood of any organization. It is the basis for planning, or providing a baseline of knowledge upon which to build future plans. Information provides insights into current trends in customer requirements, competitive structures, and the general economic conditions facing the organization. Information also serves as the basis for analyzing and evaluating results. Throughout the management process, information is both used and created.

Information *is data that is imbued with a purpose.* In management accounting, we focus on data that captures key characteristics of the organization and its performance. This data comes from a number of sources, such as the general ledger of the organization, where data from financial transactions is recorded. Data is also collected about the production of the firm's goods and services. Figure 1.4 shows the six primary sources of data that make up the BPA integrated database: economic trend data, financial accounting, management accounting, operations data, marketing data, and supply chain information.

The management process is defined and constrained by the data available within an organization. This data is built up over time using the combined inputs of the organization's financial results (for example, revenues, costs, and profits) and nonfinancial performance metrics that capture operational and strategic efforts and results (such as market share, quality, and customer satisfaction). Data is transformed into information during the management process, and it is then used to analyze issues across the five decision domains.

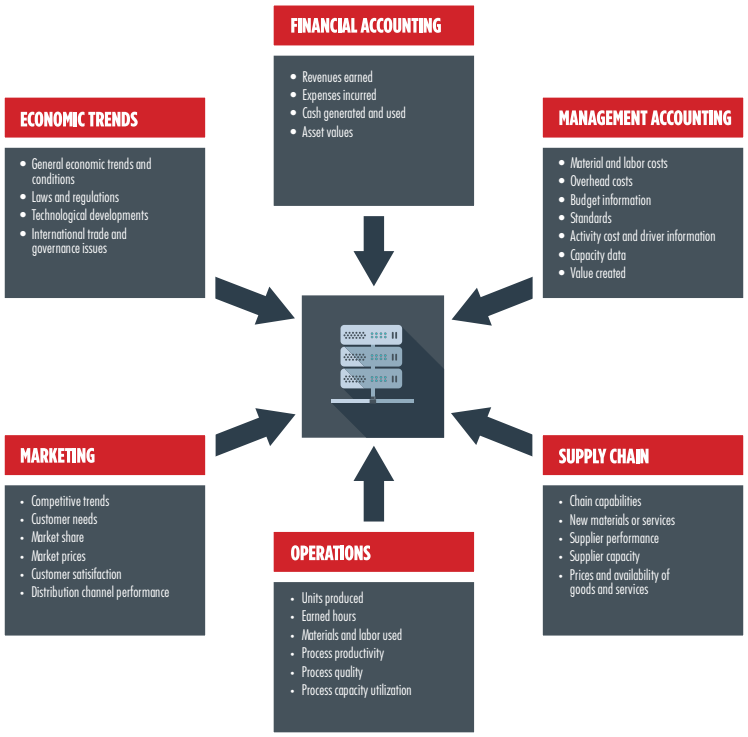


FIGURE 1.4 THE SIX PRIMARY SOURCES OF DATA THAT COMPRISE THE BPA DATABASE

THE DECISION DOMAINS

While the management process is relatively stable, it is applied in a vast number of unique situations. At any given time, attention can be focused on specific business processes, products, customers or markets, the entire organization, or external relationships (for instance, the organization's supply chain). These different situations, or decision domains, are clusters of decisions that are made by the same type and level of manager or address a similar set of opportunities and issues. They present unique opportunities and challenges to the company and the people who work in it.

As shown in Figure 1.5, organizations have five primary decision domains:

1. **The process domain**: ***The focus is on how work is done.*** A **process** *is the linked set of actions and outcomes that are used to meet customer expectations on an ongoing basis*. When you choose your classes at school, you are using your school's registration process.
2. **The product domain:** ***The focus is on all of the decisions and activities that directly or indirectly support the products or services offered by an organization to its customers.*** In the product domain, *what* is accomplished with an organization's resources is emphasized. A question about how much it costs to make one pair of blue jeans is answered in the product domain.
3. **The customer/market domain:** ***The focus is on the decisions and activities that affect a specific part, or segment, of the firm's customers or markets***. This includes all of the analysis and decisions that tie to a specific customer or market segment. If a company is trying to decide if it should begin doing business in China, for instance, it is concerned with an issue that falls within the customer/market domain.
4. **The supply chain domain:** ***The focus is on the decisions that affect the firm's relationships with its suppliers and trading partners.*** The company that makes the denim fabric used in making a pair of blue jeans is part of the industry's supply chain. When we look outside of the boundaries of the organization, we are looking at issues that fall in the supply chain domain.
5. **The entity domain**: ***The focus is on planning, achieving, and evaluating results for the entire organization.*** The other four domains fall within the entity domain. When we calculate the annual budget for a company, we are applying management accounting within the entity domain.

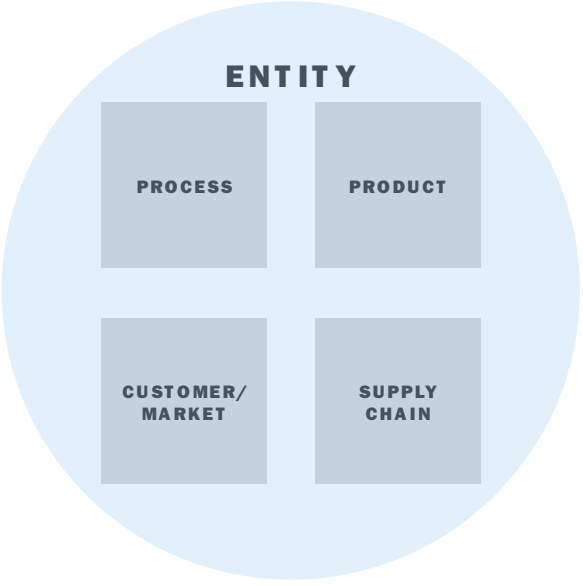


FIGURE 1.5 THE DECISION DOMAINS

The decision domains are used to organize the tools, techniques, and topics that make up modern management accounting practice. In each domain, the same concepts, logic, and analytical tools are used, but are just applied to a different set of problems. In other words, while there are many different issues that arise in the course of doing business and many different questions that managers must answer on any given day in an organization, the underlying flow of the management process remains relatively stable. It begins with identifying opportunities and challenges, and gathering information about the issue. Analysis and decision making follow, setting in motion the actions that managers believe will help them accomplish the organization's goals.

One of the hardest things for organizations to implement is the sharing of decision making throughout the organization. This is especially true in entrepreneurial firms. Often the entrepreneur does not want to let go of the reins. It is a wise entrepreneur who realizes he or she cannot be an expert at everything. One such entrepreneur was Dane Miller, founder of Biomet, one of the world's largest manufacturers of medical equipment. Facing problems managing the growth of the firm, Dane agreed to a merger with Zimmer, another company in the orthopedic market. Trained as a biomechanical engineer, he was very gifted when it came to inventing complicated new medical equipment, but he knew he did not know it all.

When it came time to buy half a million dollars' worth of computer equipment, he turned to those individuals in the organization who would know the right thing to do—he moved the decision into the right decision domain: the process domain. In all matters, Dane forced decisions down to the level where they could be best made. While that is not always easy in a culture that defers to senior management, Dane credited this delegation of decisions to the individuals skilled in the various domains as the reason for his company's growth from a start-up to its subsequent merger to form Zimmer Biomet in 2015, a firm that now has estimated net assets in excess of $27.2 million. The merger was formally approved on February 16, 2015, six days after Dane passed away. The culture of delegation and trust that Dane built lives on in the company.

Management Accounting: Real World—Real Issues

In order to help you understand the concept of decision domains and decision making, it is useful to first get a better understanding of the environment in which a company operates. Since the company being focused on in this chapter is Easy Air, let us take a look at the challenges it faces.

The airline industry is one of the most highly regulated and highly taxed industries in the United States. In 1914, the first commercial airline operation was started to transport passengers from Tampa to St. Petersburg, Fla., using a Benoist seaplane.[5] While this first flight was not subject to federal regulations,

5 Teo Ozdener, "Quality Management Systems and the Aviation Regulatory Environment," *Handbook of Airline Operations*, G.F. Butler and M.R. Keller, eds., New York: Aviation Week/McGraw-Hill, 2000: pp. 19-20.

within weeks, the U.S. Army Signal Corps established the Aircraft Production Board to control quality and schedules in the aviation industry. As Table 1.2 suggests, this was only the tip of the iceberg in terms of aviation regulations.

TABLE 1.2 REGULATIONS AND THE AIRLINE INDUSTRY

Date	Agency or Act	Focus
1914	Aircraft Production Board	Controls quality and scheduling within the aviation industry.
1915	National Advisory Committee for Aeronautics	Provides recommendations and oversight for aeronautic activities; became the National Aeronautics and Space Administration (NASA) in 1958.
1926	Air Commerce Act	Focuses on licensing, air traffic control, accident investigation, and the testing of aircraft and engines; it is the foundation for all aviation regulations.
1936	Air Transport Association of America formed	Represents the airline industry; it is still the only aviation trade association for the principal U.S. airlines.
1938	Civil Aeronautics Act	Creates Civil Aeronautics Authority (CAA), which is responsible for all civil aviation.
1940	Civil Aeronautics Board	Establishes the CAB, an offshoot of the CAA, to oversee airline industry routes, rates, and antitrust and business practices.
1958	Federal Aviation Act	Creates the Federal Aviation Agency (FAA) and mandates, through statutes, the improvement of air traffic control and other aspects of air safety; today, the FAA controls all navigable U.S. airspace.
1966	The Department of Transportation created	Creates the National Transportation Safety Board (NTSB) to investigate accidents; FAA also moved into this department; renamed the Federal Aviation Administration in 1967.
1974	Independent Safety Board Act	Makes NTSB an independent agency charged with investigating all transportation accidents.
1997	Aerospace Basic Quality System Standard	Sets an industry quality standard for aircraft manufacture and maintenance; developed by the FAA, Department of Defense, and NASA.
2001	Transportation Security Act	Makes broad-sweeping changes to the security systems in U.S. airports on the heels of the 9/11 terrorist attacks; the administrative bureau created by this act continues to issue regulations that affect every traveler every day.
2009-2012	Enhancing Airline Passenger Protections Acts	Focuses on preventing excessive tarmac delays, increasing information availability on flight reliability, and fare structures; as of 2012, these two major acts (EAPPs), created under this umbrella legislation, are projected to impose major compliance costs on airlines.
Ongoing	All of these organizations, along with Congress and state bodies, continue to create new regulations and requirements for the airline industry. The FAA periodically issues Federal Aviation Requirements (FARs) to control the design, manufacturing, and certification of airline engines, as well as certify airlines, pilots, mechanics, and related functions. While the FARs only mandate inspections, the FAA Advisory Circulars emphasize internal audits and the use of specific corrective or preventive actions.	

Federal Aviation Requirements impose operational requirements on airlines, including several mandatory management positions: director of operations, director of maintenance, chief inspector, and chief pilot. Most airlines also have specific positions for in-flight and dispatch operations, all of which report to the vice president of operations, as detailed in Figure 1.6.

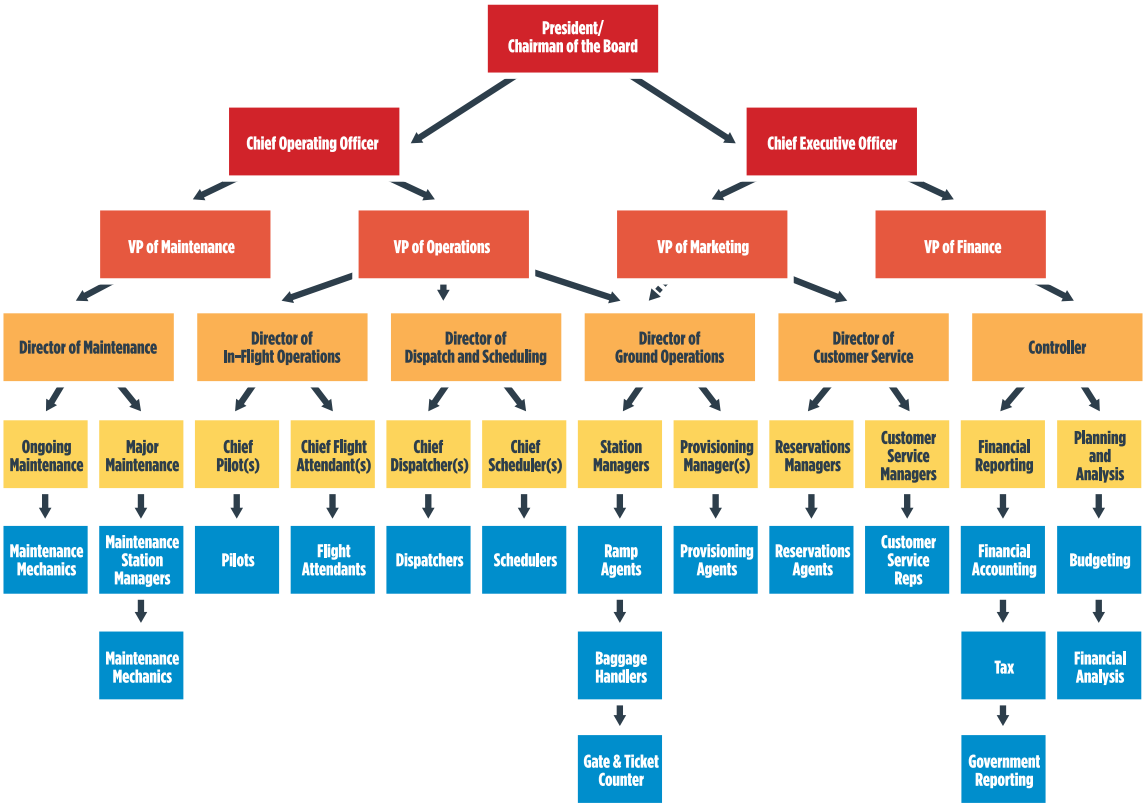


FIGURE 1.6 BASIC AIRLINE ORGANIZATIONAL STRUCTURE

ANALYZING PERFORMANCE

It is in this complex environment that Fran and her management team at Easy Air have to successfully and profitably compete. Although Easy Air posted profits during most of its years of operations, it has become very difficult to make money in the era after the aircraft-based bombings of the World Trade Center and the Pentagon on September 11, 2001, with its environment of increased taxes, heightened fare-based competition, and major additions to the body of FAA regulations governing airline operations. All of these challenges have been enhanced by concerns with terrorism and its impact on the flying public. In addition, Easy Air must deal with a traveler who accepts fewer frills but expects more convenience and reliability than passengers did in the 1990s. Air travel is no longer a luxury, enjoyed by few, but a

OBJECTIVE 5

Illustrate how measurements influence decision making and behavior in organizations.

central means of travel the majority of Americans use. Today, airplanes are to modern travel what buses and trains were to travelers in earlier eras.[6]

The airline industry uses many traditional measures of performance, such as operating revenue, operating profit, and net income. There are also many measures of performance that are unique to the industry, including revenue passenger miles, available seat miles (an industry capacity measure), and passenger load factor. Table 1.3 summarizes recent results for the industry in general, for large national carriers such as Easy Air, and for Easy Air itself.

TABLE 1.3 SUMMARY OF OPERATING RESULTS[7]

Measures ($s stated in millions)	Airline Industry		National Carriers		Easy Air	
	20x7	20x6	20x7	20x6	20x5	20x4
Operating revenues	$ 222,127.9	$ 210,287.5	$ 160,524.8	$ 152,097.5	$ 9,522.0	$ 9,112.7
Operating expenses	$ 205,146.2	$ 143,300.0	$ 143,313.7	$ 106,400.0	$ 8,536.5	$ 7,430.9
Operating income (loss)	$ 16,981.7	$ 66,987.5	$ 17,211.1	$ 45,697.5	$ 985.5	$ 1,781.8
Available seat miles	1,740,439.0	1,664,780.8	809,088.9	780,823.2	62,993.5	53,986.0
Revenue passenger miles	1,435,274.5	1,372,278.9	684,221.4	659,977.5	53,796.4	48,215.4
Passenger load factor	82.5%	82.4%	84.6%	84.6%	85.4%	85.1%

Revenues and revenue passenger miles both trended down for the two-year period, with a similar impact on the average fare-per-seat mile flown for both the industry and for Easy Air. Specifically, the industry as a whole earned $0.1548 per seat mile flown in 20x7 (that is, stated in millions, $222,127.90 divided by 1,435,274.50 revenue passenger miles), up from $0.1532 per revenue seat mile in 20x6, a drop of 1%.

Many of the questions that arise from these numbers involve the ***product domain***—the cost and profit of flying passengers. Specifically, what are the costs to serve one passenger on one flight? How many passengers are needed to **break even**, *the point in operations where the total costs to meet customer needs exactly match the revenue earned from these activities*, which in this case would mean to meet the unavoidable costs of one flight? One route? Are some routes more profitable than others? Why or why not?

To begin to understand these issues, Fran asked Sanjiv Dugal, one of her senior financial analysts, to develop a cost estimate for operating a flight and serving a specific customer, along with summary statistics for Easy Air for the period 20x4 to 20x6. Table 1.4 presents the results of Sanjiv's initial work.

6 Throughout the first five chapters, heavy reliance is placed on the report "Consumer Regulation and Taxation of the U.S. Airline Industry: Estimating the Burden for Airlines and the Local Impact," by Darryl Jenkins, Joshua Marks, and Michael Miller, Bethesda, Md.: The American Aviation Institute, 2011.

7 The source for these statistics is the U.S. Transportation Department Bureau of Statistics, specifically www.transtats.bts.gov, obtained on June 6, 2018.

TABLE 1.4 SUMMARY OF EASY AIR'S PERFORMANCE 20x4-20x6

Perfomance Indicator	20x6	20x5	20x4
Total flights flown	3,575,240	3,489,434	3,297,515
Total passengers flown	373,369,464	363,557,175	342,354,639
Total revenue seat miles flown (in thousands)	54,405,612	53,796,413	48,215,413
Available seat miles (in thousands)	63,557,958	62,993,458	56,657,360
Average miles per passenger flight	265	260	233
Number of stations	120	112	106
Total operating revenue (in thousands)	$ 9,303,359.7	$ 9,521,965.1	$ 9,112,713.1
Total operating expenses (in thousands)	$ 8,899,038.1	$ 8,536,503.9	$ 7,430,858.9
Operating profit (in thousands)	$ 404,321.6	$ 985,461.2	$ 1,681,854.1
Average revenue per revenue seat mile flown	$ 0.171	$ 0.177	$ 0.189
Average expense per revenue seat mile flown	$ 0.164	$ 0.159	$ 0.154
Average profit per revenue seat mile flown	$ 0.007	$ 0.018	$ 0.035
Average load factor (% seats filled per flight)	85.6%	85.4%	85.1%
Average on-time performance rating	88.5%	92.5%	95.3%
Number of baggage claims	250,200	179,100	155,800
Number of customer complaints	380,100	295,300	245,500
Number of ground/gate delays	3,800	2,100	1,800
Number of canceled flights	1,425	950	600
Number of purchase orders	800,000	765,000	725,000
Number of deplane/enplane events	7,150,480	6,978,868	6,595,031
Number of bags handled	298,695,571	290,845,740	273,883,711
Number of tickets issued	410,706,410	399,912,892	376,590,103
Number of reservations	466,711,830	454,466,468	427,943,299
Number of ads placed	1,675,000	1,273,000	1,527,600

For Easy Air, the picture was even worse than it was for the industry as a whole and for other national carriers, with average fare per revenue seat mile dropping from $0.189 in 20x4 to $0.177 in 20x5, or a drop of 6.3%. Unless things changed, the average fare for 20x7 would drop to $0.171, or another 3.4%.

Easy Air had run a series of promotions in 20x6 to boost its load factor, offering "buy one, get one free" deals for any passenger booking two or more flights at one time. The multiple flights applied to one person traveling multiple times between two cities, or for two or more people traveling on the same plane. Looking at these results, it is easy to understand why Fran is so concerned about Easy Air's performance. Revenues are down while passenger miles flown have increased—the gains have come at the cost of profits. Full planes that come close to losing money are not a good idea if Easy Air wants to remain in business.

Knowing these results and measurements is clearly important, but what Fran needs to know is how Easy Air can reverse these negative trends. The information we have so far shows us the results of the work done by the company. To change these results, however, Fran and her team have to turn their attention inward to gain a better understanding of Easy Air's processes, costs, and capabilities. Performance improvements, such as those needed at Easy Air, require analysis and decision making across all five of the decision domains.

Revenues and the number of passengers flown climbed over the past three years, but profits actually dropped. Looking at the cost picture, there was a small increase in the average expenses per passenger flight, but given the related increase in average miles flown, it appears that these costs actually held fairly steady. Using the information in Table 1.4, we can begin to develop an idea of the profit Easy Air made per passenger. Specifically:

Estimated revenue per passenger mile flown—20x7	$ 0.171
Less: average cost per passenger mile flown	– 0.164
Average profit per passenger mile flown in 20x7	$ 0.007
Times: average nautical miles per flight	× 265
Estimated profit per passenger per flight in 20x7	$ 1.855

It appears that one of the problems facing the airline industry is that average revenue and operating profit per mile flown are quite low. The industry results for 20x7 were $0.153 of revenue per passenger mile flown (as calculated from Table 1.3). It would appear that even though this metric is declining at Easy Air, the firm is still well-positioned in the industry. That said, far too little is being earned per revenue passenger mile. If the company raises prices, however, it will likely reduce the number of passengers who opt to fly Easy Air because of the high elasticity in the industry with respect to fares. In other words, Easy Air would face a rapid drop in demand for its air travel if the price of air travel increases. The good news is that Easy Air did post an operating profit over this period due to its lower administrative costs. However, it would not take much of a drop in average fares or number of passengers flown to put Easy Air in the unhappy position of posting a loss.