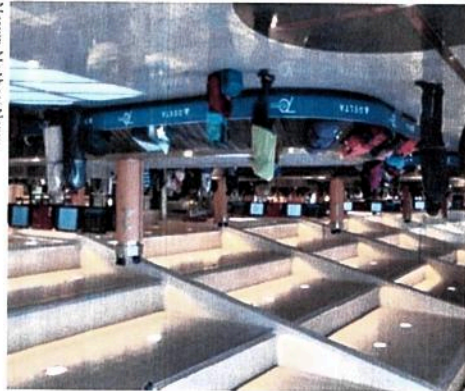


GETTING YOUR BAGS IS HALF THE FUN



Nathan M. Silver/Alamy

Other factors that might have helped reduce the number of lost bags are the more stringent airport security procedures being enforced by the federal government. Bags are more often scanned instead of being opened, streamlining the handling process and reducing errors. An increase in on-time arrivals has also helped, especially by reducing missed connections on multiple-leg flights. Bags checked through on connecting flights are usually the most likely to be misplaced, airlines report.

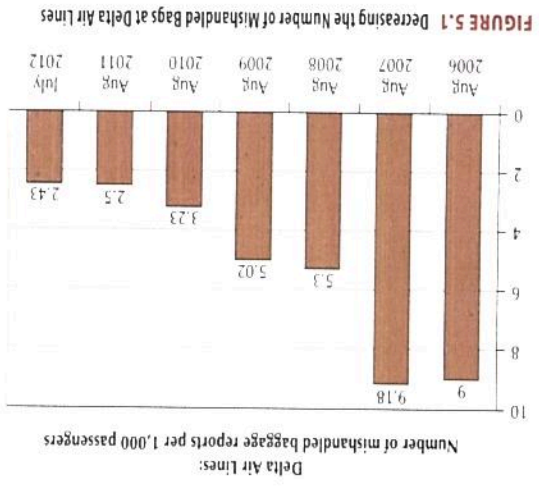
Airline executives also credit advances in technology that have helped replace labor-intensive processes with more efficient paperless ones. Bar-code scanners, long standard in the shipping industry, now help airlines track bags at several points in their journey and even let baggage workers know when they're loading something on the wrong plane.

Delta Air Lines had been near the bottom of the industry in terms of baggage-handling performance. In response, Delta made a \$100 million investment in the baggage handling systems at its Atlanta facility. Conveyor belts and optical scanners, monitored from a central control room equipped with video screens, have shortened the time it takes bags to travel between five different terminals; what used to take 15 to 30 minutes now takes only 10 minutes or less. A simple change to wider belts helped cut the number of conveyor jams in half, and four control-room employees are always on hand, prepared to tackle any trouble spots on the 14-mile system.

Figure 5.1 shows the impact of these changes on Delta's performance: the number of mishandled bags per 1,000 passengers fell from 9 in August 2006 to just under 2.5 in July 2012. While Delta's performance is better than the industry average of 3.52 bags, it still trails Virgin Airlines, which had the best performance in July 2012 at just 0.97 mishandled bags per 1,000 passengers. It's important to note that it is not just the customer who takes a hit if a bag

The U.S. airline industry has experienced many changes in the past 10 years. Most carriers have reduced capacity in an effort to control costs, which means they're flying fewer and more crowded planes. And with many airlines tacking on extra fees to boost revenue, including charging for checked luggage, more passengers are trying to cram more of their belongings into overhead bins than ever before. In fact, some industry analysts believe nearly 60 million more bags are carried on board every year than the year before.

But plenty of bags are still being checked. How many are reaching their destinations? The U.S. Department of Transportation reported that in the first nine months of 2010, more than 1.5 million bags were lost or misplaced on domestic flights. That sounds like a lot of luggage, but it's actually almost 1 million fewer bags than were lost in the same period in 2008—just about the time most airlines adopted checked-baggage fees and inspired many passengers to start carrying their bags on board instead.



is lost—according to the International Air Transport Association, the average lost bag generates an additional \$100 in handling costs for the airline.

Delta's system has grown so sophisticated that passengers can now check on their own bags at every stage of their travels using a smart phone or other mobile device.

tomers track their packages.

that UPS and Amazon, for instance, use bar codes to let customers

including going online during a flight to make sure a bag is on the right plane. The system uses the bar codes given to each piece of luggage for tracking, in much the same way as on the right plane. The system uses the bar codes given

Sources: Based on Joe Sharkey, "Since Sept. 11, Years of Change for Airlines," *New York Times*, September 6, 2011, p. B6; [www.nytimes.com](http://www.nytimes.com); "Keep Tabs on Your Bags on Delta's Website," August 28, 2011, *The Record*, [www.thercord.com](http://www.thercord.com); Brett Snyder, "No Bag? Then Airlines Should Refund Fee," *CNN*, August 15, 2011, [http://articles.cnn.com/2011-08-15/travel/retund.bag.fees\\_1\\_bag.fees-first-bag-second-bag?s=pm:Travel](http://articles.cnn.com/2011-08-15/travel/retund.bag.fees_1_bag.fees-first-bag-second-bag?s=pm:Travel); Scott McCarter, "Better Odds of Getting Your Bags," *Wall Street Journal*, December 2, 2010, <http://online.wsj.com>; U.S. Department of Transportation, *Air Travel Consumer Reports for 2012*, <http://airconsumer.dot.gov/reports/atcr12.htm>

## INTRODUCTION

Quality has been a mainstay of the operations and supply chain areas for nearly a century. Quality is a broad and complex topic, covering everything from companywide practices to the application of specific statistical tools. The purpose of this chapter is to give you an overview of the different perspectives of quality in today's business environment, as well as some of the tools and techniques companies use to improve and monitor quality levels.

Because the topic of quality is so broad, we have deliberately organized this chapter to flow from high-level descriptions of quality issues to more detailed tools and techniques for controlling quality. As you go through this chapter, pay attention to the flow from high-level perspectives to specific tools and techniques. Wherever you end up in an organization, you will be required to discuss and understand quality issues at all these levels. You may also notice that there are strong similarities between quality management and business process management, which was the focus of Chapter 4. This is no accident: Many of the perspectives, tools, and techniques used to manage business processes first appeared in the quality management area.

## QUALITY DEFINED

When we talk about quality, it's important to realize that there are really two distinct, yet mutually dependent, perspectives on quality: the *value perspective* and the *conformance perspective*. The American Society for Quality recognizes this dichotomy in its two-part definition of quality:

1. The characteristics of a product or service that bear on its ability to satisfy stated or implied needs [the value perspective].
2. A product or service that is free of deficiencies [the conformance perspective].

The *value perspective* holds that quality must be judged, in part, on how well the characteristics of a particular product or service align with the needs of a specific user. This is consistent with the views of noted quality expert Joseph Juran, who defined quality as "fitness for use."

Consider how you might use the value perspective to evaluate the quality of a meal at a fast-food restaurant. You might consider such factors as the accuracy of the order-filling process (Did you get what you thought you would get?), the speed with which you were served, whether the food was fresh, and the price. On the other hand, the dimensions by which you evaluate quality will be quite different for a meal served in a four-star restaurant. What constitutes quality can differ from one situation to the next, as well as from one individual to the next.

**Quality**

(a) The characteristics of a product or service that bear on its ability to satisfy stated or implied needs. (b) A product or service that is free of deficiencies.

**Value perspective**

A quality perspective that holds that quality must be judged, in part, by how well the characteristics of a particular product or service align with the needs of a specific user.

American Society for Quality, *Glossary*, [www.asq.org/glossary/q.html](http://www.asq.org/glossary/q.html). Reprinted by permission of J. Deteco and J. M. Juran, eds., *Jurans Quality Handbook*, 6th ed. (San Francisco: McGraw-Hill, 2010).