

CHAPTER 1

Introduction to Managerial Accounting

Learning Objectives

- 1.1 Define managerial accounting and describe the managerial accountant's role in business operations.
- 1.2 Compare and contrast managerial and financial accounting.
- 1.3 Explain how to use the accounting information to implement business strategy and exercise business control.
- 1.4 Identify trends in managerial accounting.

Accounting in Life



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Many decisions in your life are similar to those faced by businesspeople. Learning to think like a managerial accountant will improve your personal decision-making. For example, a managerial accountant evaluating the decision to attend college would ask the following questions:

- Is college worth the cost based on your future income with additional training?
- What is the *real* cost of college, considering you would have to give up four years of income that you would have made if you were working?

Businesspeople are confronted with similar questions daily, and managerial accountants help them assemble the appropriate information to make sound decisions. Throughout the remainder of this book, we will cover many different types of decisions that businesses face and some of the equivalent situations you might encounter in your personal life.

What Is Managerial Accounting, and How Does Managerial Accounting Help Businesses?

Learning Objective 1.1

Define managerial accounting and describe the managerial accountant's role in business operations.

The use of accounting information to assist in making operational decisions is a managerial accounting function. **Managerial accounting** is a facet of accounting that focuses on internal operations and assists the company's owners, managers, and employees in making operating, investing, and financing decisions. **Managerial accountants** are internal business partners who use data to support management's formulation of strategies and decisions regarding how a business operates, invests its resources, and solicits financing. For example, a managerial accountant might aggregate and communicate information useful in answering questions like the following:

- How much do the business's products cost?
- Should the business outsource operations overseas?
- How can the business manage scarce resources most profitably?
- How much employee labor will need to be budgeted to meet expected production demands?
- What is the cause for costs overrunning expectations?

Managerial accountants play an important role in helping organizations formulate strategies, plan for operations, implement initiatives, guide activities, and evaluate results to assess performance and control future operations. They work closely with other business leaders and

are often part of cross-functional teams that operate a business through planning, facilitating, and controlling.

Planning

Managerial accountants assist businesses in developing strategies, goals, objectives, and profit plans at a high level. Managerial accountants assist in **planning** for operations through the development of operating budgets and financial forecasts. Managerial accountants must be familiar with all areas of business and work closely with people throughout the organization when formulating budgets and forecasts; thus, communication skills are essential.

Facilitating

Facilitating involves creating mechanisms that promote business strategies and initiatives that bring them to fruition. Consider these examples of initiatives:

- Development of structures that align employees' interests with the interests of owners, such as paying employee bonuses in shares of stock rather than cash
- Mechanisms that facilitate continuous improvement, such as basing employee bonuses on obtaining a performance target
- Production systems that minimize the amount of costly inventory the business keeps on hand, such as a just-in-time inventory system

Controlling

Operational control is accomplished through monitoring, evaluation, and feedback. **Controlling** keeps business plans on track by performing the following tasks:

- Identifying and developing focused performance measures
- Monitoring the measures by comparing them with targets
- Reporting the results and offering recommendations

Controlling is the last phase of a continuous loop of planning, implementing, evaluating, and making adjustments.

Managerial accountants play a vital role in evaluating performance and communicating the performance results to a diverse group of stakeholders. An effective managerial accountant can articulate results, explain why the results happened, outline the decisions the managers made that influenced the results, and present the strategies the business is employing that influenced the decisions. This analysis adds value to information.

ACCOUNTING IN BUSINESS



Stanley Morales / Pexels / Public Domain

Effective teamwork is critical for business success. Professors from the University of Amsterdam and the University of Michigan published an article chronicling two essential roles managerial accountants played: a *watchdog* role and a *team member* role.¹ The watchdog role emphasizes accountants' responsibility to outside stakeholders, such as stockholders and creditors, to ensure that the economic position of the company is presented fairly in financial reports. The team member role is concerned with making strategic and operational decisions to run the organization. The professors found that managing these two conflicting roles—operating as a team member while simultaneously serving as the watchdog of the team—is a particularly challenging part of managerial accountants' jobs.

¹Maas, V. and Matejka, M. (2009). Balancing the dual responsibilities of business unit controllers: Field and survey evidence. *Accounting Review*, 88(4), pp. 1233–1253.

LEARNING ACTIVITY 1.1

Identify if the following are planning, facilitating, or controlling functions.

1. Preparing a balance sheet.
2. Establishing organizational objectives.
3. Comparing budgets with actual results.
4. Implementing a computer system to track inventory.
5. Designing an incentive structure for traveling sales staff.
6. Preparing an operating budget.
7. Assessing if purchasing a new piece of equipment will improve profits.
8. Employing a system to automate routine accounting tasks.
9. Presenting quarterly business results to the board of directors.
10. Evaluating the costs and benefits of outsourcing production to China.

What Is the Difference Between Financial and Managerial Accounting?

Learning Objective 1.2

Compare and contrast managerial and financial accounting.

Financial and managerial accounting are similar in that they deal with data and they aggregate and communicate that data in a manner that is useful for decision-makers. They typically differ in key ways:

- Serve different groups
- Aggregate and communicate different types of data and information
- Prepare different types of reports
- Deliver reports at different intervals

We explore each of these areas in the discussion that follows.

Focus of Financial Accounting

Financial accounting provides information for external decision-makers, such as outside investors, lenders, customers, and the federal government. It generally records and aggregates accounting events needed to prepare typical financial statements such as income statements, balance sheets, and statements of cash flows. Businesses prepare financial statements on a consistent basis, usually monthly, quarterly, or annually.

Focus of Managerial Accounting

Managerial accounting, on the other hand, focuses on information for internal decision-makers, such as the company's owners, managers, and employees. It aggregates and communicates a broad range of data and information in the form of managerial reports that focus on the data needed for the decision. Managerial reports vary by the impending decision and are prepared when needed, often on an ad hoc basis. Managerial reports commonly contain both financial and nonfinancial data. Finally, verification of the accuracy, consistency, and legitimacy of managerial reports is the sole job of the managerial accountant. Financial statements, in contrast, are often audited by Certified Public Accountants (CPAs) to ensure they offer a faithful representation of the business. Table 1.1 illustrates some of the differences between financial and managerial accounting.

Table 1.1 Differences Between Managerial and Financial Accounting

Financial Accounting	Managerial Accounting
Provides information for external decision makers.	Provides information for internal decision-makers.
Aggregates and communicates financial information related to "accounting" events.	Aggregates and communicates detailed financial, nonfinancial, operational and "other" information.
Prepares regular financial reports, including the income statement, balance sheet, and statement of cash flows.	Prepares unstructured reports related to operational, investing, financing, and other ad hoc decisions.
Relies on auditors to verify reports for faithful representation.	Does not verify reports with outside parties.

LEARNING ACTIVITY 1.2

Identify if the following are functions of financial or managerial accounting.

1. Preparing a monthly balance sheet.
2. Working with the marketing department to develop a pricing structure for a new product.
3. Helping auditors with inventory test counts.
4. Working with the marketing department to set the price of a new product.
5. Ensuring that financial information is prepared in accordance with generally accepted accounting principles.

How Do Managers Know if They Are Implementing Plans Effectively?

Learning Objective 1.3

Explain how to use the balanced scorecard approach to implement business strategy and exercise business control.

Today's businesses use data to manage operational activities more than ever. They capture internal operational data like defect rates, production time, or internal costs. They record customer data like buying patterns or customer satisfaction and track broad business and economic data like industry trends or interest rates. Businesses use the data to make predictions, analyze results, and drive future business activity.

For example, consider the case of **Vinted**, a Europe-based online marketplace that allows users to buy, sell, and exchange secondhand clothing and accessories, focusing on a community-driven shopping experience. In 2008, while packing for a move, Milda Mitkute realized she had too many clothes she no longer needed and wanted a way to give them a second life. She shared the idea with Justas Janauskas, a programmer who helped build an initial website to sell the secondhand clothes, and Vinted was born. Vinted grew rapidly but encountered challenges faced by all businesses, especially startups and those that grow quickly. Cofounder Janauskas recalled in a *Wall Street Journal* interview, "At first, the biggest challenge for us was scraping together the €600 we needed to run our servers each month." Vinted struggled financially for nearly a decade but made a turnaround after hiring a Dutch consultant, Thomas Plantenga, who now serves as CEO. Plantenga recommended the organization revise its fee structure, reduce staff, overhaul the app, and centralize operations. To monitor



Sarah O'Shea / Pexels / Public Domain

progress, Vinted implemented key metrics like user engagement, transaction volumes, and customer satisfaction. This data-driven approach fueled Vinted's transformation into a leading secondhand fashion marketplace in Europe, with a valuation of \$5.26 billion and its first annual profit of €18 million in 2023.²

Large businesses are not the only ones that make use of data. Galen Hafla, owner and manager of a **Hokulia Shave Ice** franchise in Parker, Colorado, uses a number of nonfinancial metrics to evaluate essential aspects of his business. "My franchise provides a great product, but I still have to sell it. I operate as a merchant tenant at Walmart. The keys for my business to be successful are to capture Walmart's foot traffic, provide pleasing customer service, and upselling. I look closely at measures like customers per hour, percent of Walmart customers that convert to sales in my store, sales mix including the percent of sales contributed by add-ins, and average ticket price. I also monitor customer reviews on social media closely. If the numbers show that I am capturing a big percentage of Walmart's foot traffic, selling my more profitable items and add-ins, and have positive social media reviews, financial results follow."³

Balanced Scorecard

The **balanced scorecard** is a performance management tool that links key nonfinancial performance indicators to financial results. When implementing the balanced scorecard approach, managers select **key performance indicators (KPIs)**, which are important measures of success within one of four business perspectives: *learning and growth*, *internal business*, *customer value*, and *financial performance*. Measures within the **learning and growth**, **internal business**, and **customer value perspectives** represent factors that indicate the successful implementation of a business's strategy that should eventually lead to desired financial results. KPIs in the learning and growth, internal business, and customer value perspectives are commonly nonfinancial.

- **Learning and growth:** Indicators of the development of intellectual capital and technologies through training and investment
- **Internal business:** Indicators of the development and improvement of internal business processes
- **Customer value:** Indicators of the firm's satisfaction of customer desires
- **Financial performance:** Traditional performance indicators used by external stakeholders

The perspectives are interrelated. That is, investments in learning and growth should lead to improvement in a firm's internal operations by applying what has been learned through training or the implementation of new technologies. For example, investment and training in inventory management systems and techniques will likely lead to advancements in operational

²Moss, T. (2024, December 8). How an app selling secondhand clothes went from near collapse to worth \$5 billion. *Wall Street Journal*. Available from: <https://www.wsj.com/business/retail/vinted-vintage-clothes-app-65e6c2ed>

³Source: Author interview with Galen Hafla, owner and manager of a Hokulia Shave Ice franchise in Parker, Colorado.

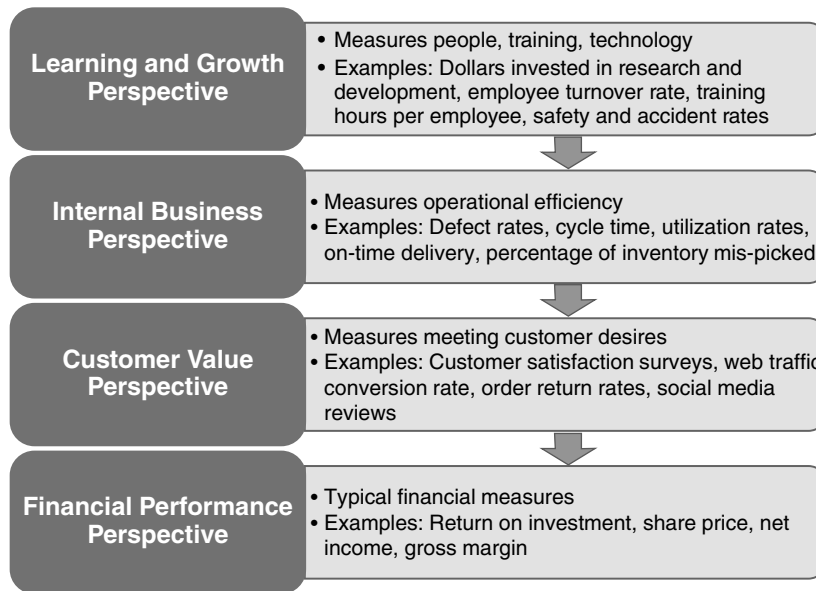


Figure 1.1 Four perspectives of the balanced scorecard.

performance, like more on-time delivery. Operational improvements should then lead to an ability to meet customer desires. For example, more accurate and timely deliveries should lead to a lower amount of returned merchandise and increased customer satisfaction. Increased customer satisfaction should lead to more orders in the future, a willingness by customers to pay higher rates for quality service, and eventually, greater financial results for stakeholders. See Figure 1.1 for the four perspectives of the balanced scorecard.

Question: How do businesses use data when putting strategy into action?
Answer: Many businesses use the balanced scorecard approach to implementing business strategy. The balanced scorecard approach focuses on reporting nonfinancial metrics related to business operations, recognizing that financial results are byproducts.

Strategy Maps

Firms can use the balanced scorecard approach and strategy maps to operationalize business strategy. **Strategy maps** outline strategic objectives across the four perspectives. Businesses select KPIs to measure progress on the objectives and set benchmarks for each KPI by researching industry norms or using professional judgment. Businesses then put initiatives in place to try to meet or exceed the benchmarks.

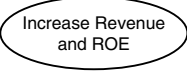



Denmon Electronics Strategy Map			
Strategic Objectives	KPIs / Measures	Targets	Initiatives
Financial Performance 	Market Share Revenue Growth Rate ROE	30% 20% 25%	Reduce stock ownership with a stock buyback program
Customer Value 	Customer Satisfaction Web Conversion Rate	90% 5%	Implement customer satisfaction survey
Internal Business 	Inventory Turnover Time from Order Receipt to Shipment Web Hits Per Hour	60 Days 7 Hours 5000	Implement an inventory storage area redesign Website redesign
Learning and Growth 	SG&A as % of Sales Investment in warehouse as % of total capital expenditures	15% 40%	Purchase data analytics software and train marketing staff Review and select warehouse automation vendor and obtain equipment

Figure 1.2 Denmon strategy map.

An example strategy map for Denmon Electronics, a fictitious internet-based electronics retailer, is illustrated in Figure 1.2. Denmon's ultimate objectives are to increase revenue and return on owner's equity (ROE). Denmon's keys to success as an internet-based retailer are convenience, large selection, and fast delivery. Denmon's strategy map illustrates how financial performance objectives are a function of investments in learning and growth, which lead to improvements in internal business that should help Denmon become more valuable

to customers and ultimately more profitable. Denmon's learning- and growth-related objectives are to invest in data analytics software and training to evaluate website traffic and to invest in warehouse automation equipment to make the handling of inventory more efficient.

Denmon has two key performance indicators that gauge their progress on the objectives: (1) selling, general, and administrative expenses as a percentage of company sales and (2) the amount invested in warehouse automation as a percentage of total capital expenditures. Targets for the measures are 15% of sales and 40% of capital expenditures, respectively. To obtain those targets, Denmon is undertaking active initiatives to select data analytics and warehouse automation vendors and obtain analytics software and warehouse automation equipment.

Denmon expects to use analytics software to analyze the effects of various online advertising methods and optimize ad placement to increase website traffic. Denmon is acquiring the warehouse automation equipment to make inventory selection and warehouse operations more efficient. Denmon gauges its internal business objectives with three KPIs: inventory turnover, time from receipt of an order to getting a shipment out to the customer, and number of website visits per hour. Targets are 60 days' worth of inventory on hand, orders shipped within 7 hours, and 5,000 daily website visits, respectively. Denmon is initiating redesigns of the inventory storage area and its website to achieve these targets.

Optimized advertising and fast inventory handling and delivery should result in happy customers, consistent with Denmon's objective of high customer satisfaction. Key measures of success at satisfying customer demand are their customer satisfaction ratings and the percentage of website visits that convert to sales (conversion rate). Targets are 90% and 5% for the two metrics, respectively. Denmon has initiated an online customer satisfaction survey that it sends to customers a week after an order has been placed online. They hope that information gleaned from the survey will help them identify how well they are satisfying the customer and potentially improve the customer experience.

Happy customers should eventually lead to increases in sales revenue and more profits for the owners (return on owner's equity or ROE). Key measures of success are market share, revenue growth rate, and percentage return on owner's equity. Targets are 30%, 20%, and 25%, respectively. One way in which return on owner's equity can increase is to reduce the dollar amount of investment by the owners, so Denmon has implemented a plan to purchase stock back from shareholders. If overall profits remain stable, dividing the same amount of profits by a smaller amount of stock ownership will increase the profits available to be paid out to remaining owners or stockholders, increasing return on equity.

Remember, sequential objectives are set along the four balanced scorecard perspectives. Investments in learning and growth lead to internal business improvements, which help companies satisfy customer demands, which should lead to greater financial performance. Once objectives are set, KPIs are selected, targets are established, and operational initiatives are put into action to achieve the targets.

LEARNING ACTIVITY 1.3

Match each key performance measures with the balanced scorecard perspective to which it belongs:

Performance Measures	Balanced Scorecard Perspective
1. Net income	Learning and Growth Perspective
2. Number of shipments per hour	
3. Social media rating	Internal Business Perspective
4. Number of safety violations	
5. Research and development costs as a percentage of sales	Customer Value Perspective
6. Stock price	Financial Performance Perspective
7. Gross profit margin	
8. Website visit-to-sales conversion rate	
9. Manufacturing defect rates	
10. Percentage of employee ownership	

What Will Managerial Accounting Look Like in the Future?

Learning Objective 1.4

Identify trends in managerial accounting.

Historically, managerial accountants were concerned with compiling and reporting cost data in financial reports and using the resultant information to evaluate product costs. Both functions remain vital today and are a focus of a subsequent chapter in this text. The modern managerial accountant's role, however, has expanded to encompass the managerial support functions we have discussed and future roles that we will now describe.

In the past, businesses evaluated operational performance by preparing financial reports and making simple return on investment calculations. Those straightforward measures were adequate for businesses that produced a limited amount of products and competed in limited markets with limited geographic dispersion; they are not adequate for today's multinational, e-commerce-powered businesses, nor will they be adequate in the future.

ACCOUNTING IN BUSINESS

Jim Deichert, Business Unit Manager at **Steffes, LLC**, a diversified manufacturer of products for the energy industry, relies on accurate and timely accounting information to make operational decisions that ensure the company is making progress on strategic

initiatives. A customer-focused company, Steffes is committed to providing innovative solutions at competitive prices. Comparing the cost of building component parts in-house versus outsourcing to suppliers is just one example of how Deichert and his supply chain team manage the cost of products. Per Deichert, “It is essential for us to have a good understanding of the cost of the components we produce when we compare them with the cost of outside suppliers that have the capabilities of producing them for us. We have to be careful to incorporate the right data into our evaluations; it can be tricky.” Deichert and his team work closely with managerial accountants to capture and analyze cost information. “Cost information is available in our accounting system, but sometimes, decisions require information that exceeds system limitations. We work closely with the accounting staff to capture relevant data and formulate projections in those situations; it takes a lot of teamwork.”⁴

The supply chain team at **Steffes, LLC** is concerned with more than just supplier prices. “Quality and delivery from our outsource suppliers weighs as heavy, or even heavier, than cost from them,” says Deichert. Thus, Jim and his team analyze supplier performance data that includes defect ratios and on-time delivery rates.

Introduction to Modern Tools

Today’s businesses operate internationally with ease, using internet sales. They are as likely to have a virtual storefront as they are to have a brick-and-mortar building. They are often large and complex, employ people with all ranges of business expertise, produce and sell a wide range of products with more options and customization than ever before through the use of sophisticated manufacturing principles, automation, and robotics. They use technology to capture large quantities of data and incorporate **data analytics**, the use of statistical techniques to analyze, evaluate, and turn data into information useful for decisions. Today’s managerial accountant’s role is equal parts technical accountant, communicator, and data analyst.

Managerial accounting jobs are expected to grow at a double-digit rate over the next decade,⁵ but tomorrow’s managerial accountants will see their role as data analyst and communicator grow in importance. Accountants’ function as technical accounting experts will decline as businesses expand their use of *artificial intelligence*, *machine learning*, and *automation* of routine managerial and accounting tasks. **Automation** is the performance of tasks by a machine that were previously done by a human. Many corporations already automate accounting and managerial tasks such as recording and compiling data for reports, but in the near future, companies will be using automation to query data, analyze reports, and make comparisons.⁶

⁴Source: Author interview with Jim Deichert, business unit manager at Steffes, LLC.

⁵Source: Bureau of Labor and Statistics, Occupational Outlook Handbook, <https://www.bls.gov/ooh/business-and-financial/accountants-and-auditors.htm>

⁶Source: Vasarhelyi, M. and Rozario, A. (2018). How robotic process automation is transforming accounting and auditing, *CPA Journal*, July.

Historically, automation has been done by IT departments by writing programs or coding. Now software called **Robotic Process Automation** or RPA allows users to automate simple processes through a point-and-click interface. Now managerial accountants can automate processes, such as complex data analyses, without programming skills. RPA works similar to an Excel macro, except that it can use multiple applications rather than being limited to just one.

Question: How do new technologies affect managerial accounting?

Answer: New technologies will automate many routine tasks and leave more time for managerial accountants to analyze and interpret information.

Managerial accountants are also using newer tools to allow for more in-depth data analysis. One of these tools is **artificial intelligence (AI)**, which is when a machine emulates the cognitive functions of a human through complex reasoning. AI systems will likely add human-like abilities to organizational information systems in the future. **Generative artificial intelligence (GenAI)** is a subset of AI that can produce new content in response to conversational prompts. Output can be computational, text, graphics, or video. GenAI programs utilize large volumes of data and information to learn relationships and then uses that knowledge to respond to prompts. Output from GenAI systems is constantly changing as the system learns from more data.

Another form of AI is machine learning. **Machine learning** uses large volumes of data and analyzes it for existing patterns. Based on the existing data, machine learning builds a model to help predict future outcomes. For example, **IBM Watson** is a supercomputer that uses machine learning by incorporating new data with old to constantly adjust predictive models and make them more accurate. Machine learning is an important aspect of AI systems.

There are two primary types of machine learning: supervised and unsupervised. **Supervised machine learning** involves algorithms that use labeled data and known inputs and outputs to develop a best-fit model. The model can be improved as subsequent data are labeled or subsequent results are obtained from new inputs. For example, a supervised machine learning model is built from credit card transaction data. Each transaction is labeled as fraudulent or not fraudulent. Machine learning uses this data to build a model to analyze incoming credit card transactions. As new transactions are made, the model will flag those it predicts are fraudulent. The new data will be incorporated into the model. **Unsupervised machine learning** is the process where the machine uses unlabeled data from large data sets to find patterns without the supervision of a human. For example, to develop an unsupervised model, the program could use the detailed purchase information by customer for a large supermarket. The machine learning program will analyze the data to look for patterns among customers and build a model to group the most similar customers together. This can be used for targeted marketing and other personalization features.

LEARNING ACTIVITY 1.4

Match the following examples of business activities with the appropriate key word.

Activities	Key Word
1. Using internet search data to sense a change in an existing customer's preferences.	Automation
2. Completion of repetitive accounting transactions by a machine.	Machine Learning
3. Tracking driving patterns to develop a driver risk profile in the insurance industry.	Artificial Intelligence
4. Readjusting formulas after obtaining new information.	
5. Using a voice-activated computer that assists in answering general questions.	

Technology, Analytics, and AI

AI is rapidly changing the way we live and work. According to a 2023 study by OpenAI, a leader in AI and producer of the GenAI platform ChatGPT, "... approximately 80% of the US workforce could have at least 10% of their work tasks affected by the introduction of GPTs, while around 19% of workers may see at least 50% of their tasks impacted."⁷ Some popular AI tools include ChatGPT, a chatbot that takes instructions from you and provides a detailed response; DALL-E, creates realistic images and art from a text description; Looka, an AI-powered platform to design a logo; Eightify, summarizes YouTube videos; and Decktopus AI, creates presentations in a flash.⁸

Workers will learn to incorporate AI technologies to enhance their productivity, much like they incorporated calculators, personal computers, and spreadsheets. Consider the following data table and the use of ChatGPT to analyze it quickly and accurately:

⁷Source: OpenAI.com. (2023). *GPTs are GPTs: An early look at the labor market impact potential of large language models* [online]. Available from <https://openai.com/index/gpts-are-gpts/>.

⁸Source: Kahn, S. (2023). *The ultimate 100 AI tools* [online]. Available at: <https://www.joinsuperhuman.ai/p/100-ultimate-ai-tools>.

Transaction Number	Transaction Date	Company Name	Dollar Amount
1001	7/4/2024	Ashworth Industries	\$ 240.50
1002	7/6/2024	SamsonCo	\$ 333.99
1003	7/6/2024	Feralite	\$ 175.75
1004	7/7/2024	Ashworth Industries	\$ 39.00
1005	7/7/2024	Ashworth Industries	\$ 19.99
1006	7/7/2024	HBC Incorporated	\$ 924.00
1007	7/8/2024	Feralite	\$ 116.00
1008	7/8/2024	Ashworth Industries	\$ 119.87
1009	7/10/2024	Joneboro Controls	\$ 230.00
1010	7/10/2024	SamsonCo	\$ 600.00
1011	7/10/2024	Ashworth Industries	\$ 289.99
1012	7/11/2024	JeneBuilt	\$ 320.00
1013	7/12/2024	Ashworth Industries	\$ 44.99
1014	7/12/2024	Feralite	\$ 69.00
1015	7/13/2024	Joneboro Controls	\$ 50.00
1016	7/13/2024	HBC Incorporated	\$ 704.44
1017	7/15/2024	Feralite	\$ 32.77
1018	7/16/2024	Ashworth Industries	\$ 75.00
1019	7/18/2024	Edinbaugh Technologies	\$ 99.99

ANALYSIS USING CHATGPT

Professor

Organize the following table by company.

ChatGPT

Sure! Here's the table organized by company name:

Company Name Transaction Number Transaction Date Dollar Amount

Ashworth Industries 1001 7/4/2024 \$240.50 Ashworth Industries 1004 7/7/2024 \$39.00 Ashworth Industries 1005 7/7/2024 \$19.99 Ashworth Industries 1008 7/8/2024 \$119.87 Ashworth Industries 1011 7/10/2024 \$289.99 Ashworth Industries 1013 7/12/2024 \$44.99 Ashworth Industries 1018 7/16/2024 \$75.00

Edinbaugh Technologies 1019 7/18/2024 \$99.99
 Feralite 1003 7/6/2024 \$175.75 Feralite 1007 7/8/2024 \$116.00 Feralite 1014
 7/12/2024 \$69.00 Feralite 1017 7/15/2024 \$32.77
 HBC Incorporated 1006 7/7/2024 \$924.00 HBC Incorporated 1016
 7/13/2024 \$704.44
 JeneBuilt 1012 7/11/2024 \$320.00
 Joneboro Controls 1009 7/10/2024 \$230.00 Joneboro Controls 1015
 7/13/2024 \$50.00
 SamsonCo 1002 7/6/2024 \$333.99 SamsonCo 1010 7/10/2024 \$600.00
 Please note that this is a basic organization by company name, and the table only
 includes the provided columns. Let me know if you need any further assistance!

Professor

Which company had the most transactions?

ChatGPT

To determine which company had the most transactions, we can count the number of transactions associated with each company in the table. Here's the breakdown:

- Ashworth Industries: 7 transactions
- Feralite: 4 transactions
- HBC Incorporated: 2 transactions
- JeneBuilt: 1 transaction
- Joneboro Controls: 2 transactions
- SamsonCo: 2 transactions
- Edinbaugh Technologies: 1 transaction

From the given data, Ashworth Industries had the most transactions with a total of 7 transactions.

Professor

Which company had the highest dollar amount of transactions?

ChatGPT

To determine which company had the highest dollar amount of transactions, we can calculate the sum of the dollar amounts for each company. Here's the breakdown:

- Ashworth Industries: $\$240.50 + \$39.00 + \$19.99 + \$119.87 + \$289.99 + \$44.99 + \$75.00 = \829.34
- Feralite: $\$175.75 + \$116.00 + \$69.00 + \$32.77 = \$393.52$
- HBC Incorporated: $\$924.00 + \$704.44 = \$1,628.44$
- JeneBuilt: $\$320.00$
- Joneboro Controls: $\$230.00 + \$50.00 = \$280.00$
- SamsonCo: $\$333.99 + \$600.00 = \$933.99$
- Edinbaugh Technologies: $\$99.99$

From the given data, HBC Incorporated had the highest dollar amount of transactions with a total of \$1,628.44.

The illustration demonstrates the potential for workers to save time and maximize their efficiency by using AI to their advantage. As man and machine work together, humans will need to understand the concepts well enough to interact with AI, read the output, monitor results, and take corrective action when AI goes awry.

Key Terms

artificial intelligence (AI) When a machine emulates the cognitive functions of a human.

automation Performance of tasks by a machine that were previously done by a human.

balanced scorecard A reporting approach that integrates key financial and nonfinancial measures to connect business results and business strategy.

controlling The process of monitoring, evaluating, and providing feedback to keep business plans on track.

customer value perspective Indicators of the firm's satisfaction of customer desires.

data analytics The use of statistical techniques to analyze, evaluate, and turn data into useful information for decision-making.

facilitating The creation of mechanisms that promote the implementation of business strategies.

financial performance Traditional performance indicators used by external stakeholders.

generative AI (GenAI) A subset of AI that can produce new content in response to conversational prompts.

internal business perspective Indicators of the development and improvement of internal business processes.

key performance indicators (KPIs) Important measures of success within one of four business perspectives.

learning and growth perspective Indicators of the development of intellectual capital and technologies through training and investment.

machine learning When a machine recognizes patterns and improves accuracy with each subsequent decision.

managerial accountant An accountant who serves as an internal business partner and assists the business in the use of data to formulate strategies and make decisions regarding how a firm operates, invests its resources, and solicits financing.

managerial accounting Focuses on information for internal decision-makers, such as the company's owners, managers, and employees.

planning The process of developing strategies, goals, objectives, budgets, and forecasts.

Robotic Process Automation Software that allows end users to automate processes using a point-and-click interface.

strategy map A diagram that depicts organizational goals across the four balanced scorecard perspectives on one page.

supervised machine learning Involves algorithms that use labeled data and known input and outputs to develop a best fit model in advance.

unsupervised machine learning The process where the machine uses unlabeled data from large datasets to find patterns without the supervision of a human.

LEARNING ACTIVITY SOLUTIONS

Learning Activity 1.1

1. *Controlling—Financial statements are prepared to evaluate and control financial performance and assess financial position.*
2. *Planning—Businesses set organizational objectives to support the business's mission. Activities and initiatives are then put into place to achieve the objectives in the future.*
3. *Controlling—Comparing actual results with budgeted plans helps businesses evaluate performance and formulate corrective actions.*
4. *Facilitating—Installing a computer system facilitates the performance of business operations.*
5. *Facilitating—This is an example of designing and implementing a managerial strategy to facilitate efficient operations.*
6. *Planning—Budgeting is a quintessential part of the planning process. Forward-looking budgets set operational and financial goals that businesses aim to achieve.*
7. *Assessing if purchasing a new piece of equipment will improve profits. Planning—Assessing the viability of purchasing and implementing new equipment is part of a business leader's forward-looking planning duties.*
8. *Facilitating—Employing a system to automate routine accounting tasks would help facilitate efficient operations.*

9. *Controlling—Evaluating and presenting financial results helps business leaders understand the business's financial performance and financial position and formulate plans for corrective action.*
10. *Planning—Evaluating a potential outsourcing opportunity is a forward-looking, planning function.*

Learning Activity 1.2

1. *Financial—A balance sheet is used to assess a company's financial position, a financial accounting function.*
2. *Managerial—Developing a pricing structure is an example of a way managerial accountants help facilitate business operations.*
3. *Financial—Auditors are primarily concerned with the accuracy of external financial statements.*
4. *Managerial—Setting pricing is a business operating decision that utilizes managerial accounting information.*
5. *Financial—External financial statements are prepared in accordance with generally accepted accounting principles. Auditors are concerned with ensuring the principles are applied correctly.*

Learning Activity 1.3

Performance Measures	Balanced Scorecard Perspective
<ol style="list-style-type: none"> 1. Net income 2. Number of shipments per hour 3. Social media rating 4. Number of safety violations 5. Research and development costs as a percentage of sales 6. Stock price 7. Gross profit margin 8. Website visit-to-sales conversion rate 9. Manufacturing defect rates 10. Percentage of employee ownership 	<p><i>Learning and Growth Perspective</i></p> <p>Research and development costs as a percentage of sales</p> <p>Percentage of employee ownership</p>
	<p><i>Internal Business Perspective</i></p> <p>Number of shipments per hour</p> <p>Number of safety violations</p> <p>Manufacturing defect rates</p>
	<p><i>Customer Value Perspective</i></p> <p>Social media rating</p> <p>Website visit-to-sales conversion rate</p>
	<p><i>Financial Performance Perspective</i></p> <p>Net income</p> <p>Stock price</p> <p>Gross profit margin</p>

Learning Activity 1.4

Activities	Key Word
<ol style="list-style-type: none"> 1. Using internet search data to sense a change in an existing customer's preferences. 2. Completion of repetitive accounting transactions by a machine. 	<p>Automation</p> <ul style="list-style-type: none"> • Completion of repetitive accounting transactions by a machine.
<ol style="list-style-type: none"> 3. Tracking driving patterns to develop a driver risk profile in the insurance industry. 4. Readjusting formulas after obtaining new information. 	<p>Machine Learning</p> <ul style="list-style-type: none"> • Tracking driving patterns to develop a driver risk profile in the insurance industry. • Readjusting formulas after obtaining new information.
<ol style="list-style-type: none"> 5. Using a voice-activated computer that assists in answering general questions. 	<p>Artificial Intelligence</p> <ul style="list-style-type: none"> • Using internet search data to sense a change in an existing customer's preferences. • Using a voice-activated computer that assists in answering general questions.

Review Questions

1. Managerial accounting is primarily concerned with preparing data for external stakeholders. **(Learning Objective 1)**
 - a. True
 - b. False
2. Developing a forecast is an example of a planning function. **(Learning Objective 1)**
 - a. True
 - b. False
3. Implementing a program to incentivize employees is an example of a facilitating function. **(Learning Objective 1)**
 - a. True
 - b. False
4. Which is the best example of a controlling function? **(Learning Objective 1)**
 - a. Preparing a budget
 - b. Comparing results with budgets
5. Which of the following describes a managerial accountant's job? **(Learning Objective 1)**
 - a. An internal business partner
 - b. A trusted advisor to clients
6. Managerial accounting reports are usually audited. **(Learning Objective 2)**
 - a. True
 - b. False

7. Which type of accounting typically focuses on aggregating accounting events into financial statements? **(Learning Objective 2)**
 - a. Financial
 - b. Managerial
8. Which type of accounting is more likely to report on operational data? **(Learning Objective 2)**
 - a. Financial
 - b. Managerial
9. What mechanism is used to link business strategy and financial results? **(Learning Objective 3)**
 - a. The operating budget
 - b. The balance scorecard
10. Which balanced scorecard perspective focuses on improvement in business processes? **(Learning Objective 3)**
 - a. The learning and growth perspective
 - b. The internal business perspective
 - c. The customer value perspective
 - d. The financial performance perspective
11. A _____ is a tool that integrates all four balanced scorecard perspectives. **(Learning Objective 3)**
 - a. strategy map
 - b. key performance indicator
12. Data analytics can best be defined as **(Learning Objective 4)**
 - a. the use of statistical techniques to turn data into useful information.
 - b. the use of tools to make managerial accounting more efficient.
13. _____ involves recognizing patterns in data and using the patterns to improve the accuracy of future decisions. **(Learning Objective 4)**
 - a. AI
 - b. Machine learning
14. Which tasks are most likely to be automated? **(Learning Objective 4)**
 - a. Recording and compiling data for reports
 - b. Interpreting data from reports
15. New technologies will give managerial accountants more time and tools for analyzing and interpreting data and information. **(Learning Objective 4)**
 - a. True
 - b. False

Short Exercises

S:1-1 (Learning Objective 1)

Which of the following is *not* a traditional managerial accounting function?

- a. Planning for operations
- b. Instigating operations through negotiating prices

- c. Facilitating operations through developing structures and strategies
- d. Controlling operations through preparing performance reports
- e. All of these are traditional managerial accounting functions.

S:1-2 (Learning Objective 1)

Emerson James is the corporate controller for True-Built Trailor Company in Miles City, Montana. Which of the following parts of Emerson's job would *not* be considered a planning activity?

- a. Performing a cost-benefit analysis before purchasing a new tube bending machine
- b. Analyzing labor costs from a production job in the factory
- c. Budgeting for material purchases
- d. Developing profit targets to meet stockholder objectives
- e. All of these are planning activities.

S:1-3 (Learning Objective 1)

Which of the following communications skills are necessary to be an effective managerial accountant?

- a. An ability to articulate results
- b. An ability to explain why results happened
- c. An ability to outline the decisions that led to the results
- d. An ability to link the strategies that influenced the decisions
- e. All of these are important communication skills.

S:1-4 (Learning Objective 2)

Which of the following is a primary difference between financial and managerial accounting?

- a. Financial accounting reports are primarily prepared for external users.
- b. Management accounting reports are not usually evaluated by auditors.
- c. Financial accounting reports are generally prepared at specific intervals.
- d. All of these are primary differences.

S:1-5 (Learning Objective 2)

Aram Stevens owns a boutique clothing store. Which of the following metrics would help Aram operate the store effectively?

- a. Monthly gross profit percentage
- b. Annual net profit
- c. Average amount of sale per customer
- d. All of these are important metrics.

S:1-6 (Learning Objective 2)

Consider Aram Stevens' clothing store. Which of the following metrics would be considered managerial accounting metric rather than a financial accounting metric?

- a. Monthly gross profit percentage
- b. Annual net profit
- c. Average inventory turnover rate
- d. All of these are important financial accounting metrics.

S:1-7 (Learning Objective 3)

The balanced scorecard perspective that emphasizes the use of intellectual capital is the

- a. learning and growth perspective.
- b. internal business perspective.
- c. customer value perspective.
- d. financial perspective.

S:1-8 (Learning Objective 3)

The balanced scorecard perspective that emphasizes how well businesses meet customer requests is

- a. learning and growth perspective.
- b. internal business perspective.
- c. customer value perspective.
- d. financial perspective.

S:1-9 (Learning Objective 3)

The balanced scorecard perspective that emphasizes the process businesses put in place to meet customer requests is

- a. learning and growth perspective.
- b. internal business perspective.
- c. customer value perspective.
- d. financial perspective.

S:1-10 (Learning Objective 3)

The balanced scorecard culminates in which perspective?

- a. The learning and growth perspective
- b. The internal business perspective
- c. The customer value perspective
- d. The financial perspective

S:1-11 (Learning Objective 4)

Which types of technologies are likely to disrupt the managerial accounting profession in the future?

- a. Machine learning
- b. AI
- c. Automation
- d. All of these technologies will likely disrupt the managerial accounting profession.

S:1-12 (Learning Objective 4)

A computer program that incorporates new data to become progressively more accurate would be an example of

- a. data analytics.
- b. machine learning.
- c. AI.
- d. automation.

S:1-13 (Learning Objective 4)

Today's managerial accounting job includes which function(s)?

- a. Accounting
- b. Data analysis
- c. Communication
- d. All of these are part of a managerial accountant's job.

Exercises

E:1-14 (Learning Objective 1)

Consider the following managerial accounting activities:

- a. Preparing a financial statement
- b. Comparing budget and actual results
- c. Implementing a reward system for production employees
- d. Preparing a budget
- e. Implementing a new accounting system
- f. Evaluating bids from suppliers

Requirement

List the activities under the correct functional category below.

Planning	Facilitating	Controlling

E:1-15 (Learning Objective 2)

Consider the following accounting characteristics:

- a. Provides information for external decision-makers.
- b. Aggregates and communicates detailed financial, nonfinancial, operational, and other information.
- c. Provides information for internal decision-makers.
- d. Does not verify reports with outside parties.
- e. Relies on auditors to verify reports for faithful representation.
- f. Prepares unstructured reports related to operational, investing, and other ad hoc decisions.
- g. Aggregates and communicates financial information related to accounting events.
- h. Prepares regular financial reports, including the income statement, balance sheet, and statement of cash flows.

Requirement

List the characteristics under the correct column below to indicate if they are financial or managerial accounting characteristics.

Financial	Managerial

E:1-16 (Learning Objective 3)

Consider the following performance indicators:

- a. Return on investment
- b. Employee turnover rate
- c. Customer satisfaction
- d. On-time delivery
- e. Cycle time
- f. Net income
- g. Order return rates
- h. Employee ownership percentage

Requirement

List the performance indicators under the correct balance scorecard perspective.

Learning and Growth	Internal Business	Customer Value	Financial

E:1-17 (Learning Objective 4)

Consider the following business tasks:

- a. Detecting potential nonpaying customers
- b. Matching invoices with purchase orders
- c. Predicting sales
- d. Interacting with customers reporting defective products
- e. Selecting samples of data to analyze

Requirement

List the business task with the new technology that will help make that task more efficient.

Machine Learning	Artificial Intelligence	Process Automation

Technology, Applications, and AI

T:1-18 Use GenAI for written response

Managerial accountants can do their jobs more efficiently using the large language models (LLMs), such as ChatGPT, Google Gemini, Anthropic Claude, or Microsoft Copilot. LLMs are a form of GenAI that can generate content based on a prompt. In this exercise, you will learn some basic prompting techniques and see how changing the prompts will provide better information.

Part 1

- Login to ChatGPT or any other LLM of your choice. You may need to create an account to use these tools. For this exercise, the free version of the tool is sufficient.
- Enter the following simple prompt.
What is the difference between managerial and financial accounting?

Questions to answer

- Based on what you learned in the chapter, is everything correct in the response?
- Was the response overall satisfactory? What would you improve if you were writing the response?

Part 2

Although the simple prompt provided a reasonably complete response, writing better prompts will get the user better information.

Users should consider adding the following to the prompt for a better response:

- **Define the role:** Specify the role or area of expertise you want the LLM to possess. For example, tell ChatGPT to play the role of an accounting expert or a tutor in accounting.
- **Provide context:** Provide any additional background information to ChatGPT.

- **Clearly write the task:** Give specific information on what you want ChatGPT to provide.
- **Set any parameters or restrictions:** If there is specific information to include or exclude, add this to the prompt.
- **Define the format:** Specify any particular format you want the output, such as tabular, paragraph, or bullet points.

Using the listed guidance, write a more complete prompt. Consider what information the first prompt was missing and ask ChatGPT to include it in this prompt. Limit the output to 1,000 words. Give ChatGPT the role of an accounting professor and direct it to write for a beginning accounting student.

Questions to answer

- Did the second prompt improve the answer? What changed?

Part 3 (Optional)

Use an alternate GenAI tool to complete the same exercise. How do the results differ? Which one provided more complete answers? Which response do you prefer?

T:1-19 Use GenAI for data analysis

Accountants can use GenAI tools to analyze data. In this exercise, use the recent free version of ChatGPT and upload the provided file *Office_Supply_Sales_Data_2025.csv*.

Note: if you are using ChatGPT, you must create a free account and sign-in to upload files.

Write prompts in GenAI to answer the following questions:

- Which store sold the most bookshelves?
- Summarize the sales by Product for January 2025.
- Compare January Sales with other months.
- Visualize monthly sales trends for furniture.

