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AUGUST 2023

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SPECIAL ISSUE

ACCOUNTING EDUCATION



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Education Is the Foundation

A successful accounting career requires a solid educational background and a commitment to keeping skills sharp.

By Richard T. Brady, CMA, CGFM, CDFM

The importance of education and upskilling in the field of accounting can't be overstated. In today's dynamic and ever-evolving business landscape, accountants play a crucial role in helping organizations make informed financial decisions, ensure regulatory compliance, and drive sustainable growth. With rapid advancements in technology and the increasing complexity of financial systems, accountants must continuously update their knowledge and skills to remain competent and competitive in their profession.

Education forms the foundation of a successful accounting career. It provides individuals with the necessary theoretical knowledge, practical skills, and conceptual understanding to navigate the intricacies of financial reporting, taxation, auditing, and other key areas. A solid educational background not only equips accountants with technical expertise but also cultivates the critical thinking, problem-solving, and analytical skills that are invaluable in a profession that requires

interpreting financial data and providing accurate and reliable insights. In the Strategic Finance articles this month, you can read more about innovations in accounting education and the tools that students need to prepare themselves for career success in our changing world.

The learning journey shouldn't end with formal education, however. The accounting profession is subject to constant changes in laws, regulations, and accounting standards. Accountants must stay up to date on the latest developments to ensure compliance and maintain the integrity of financial reporting. Additionally, emerging technologies such as AI, automation, and data analytics are transforming the accounting landscape, making it essential for accountants to upskill and adapt to these advancements.

The need for a curious, continually engaged mind has never been greater. Futurist Alvin Toffler was prescient when he wrote in his book *Future Shock* more than 50 years ago that “the illiterate of the 21st Century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.”

Upskilling in accounting encompasses a wide range of activities, including attending professional development programs, pursuing specialized certifications, and leveraging technology for enhanced productivity and efficiency. These efforts allow accountants to remain relevant, deliver value-added services, and capitalize on emerging opportunities in their field.

Education and upskilling are vital for accountants to thrive in today's dynamic accounting landscape, and IMA® offers an array of resources that can support professionals on this quest for knowledge, including webinars, podcasts, e-learning courses, and, of course, the CMA® (Certified Management Accountant) and CSCA® (Certified in Strategy and Competitive Analysis) certifications. Continuous learning ensures competence, adaptability, and relevance in a rapidly evolving profession. It empowers accountants to meet the complex demands of their role, deliver value to their clients or employers, and contribute to the growth and success of the organizations they serve. By investing in education and upskilling, accountants not only advance their own careers but also elevate the standards and impact of the accounting profession as a whole.

Listen to IMA's podcast, [Count Me In](#), about all things affecting the accounting and finance world.

Richard T. Brady, CMA, CGFM, CDFM, is the CEO of the American Society of Military Comptrollers (ASMC) and Chair of the IMA Global Board of Directors. He's a member of IMA's Nation's Capital Chapter. You can reach Rich at rich.brady@imanet.org or via [LinkedIn](#).



IMA's Certification for
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Welcome, New CMAs: June 2023

1,491 IMA members became CMAs between June 1 and June 30, 2023.

By Dennis Whitney, CMA, CFM, CAE

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Xinyi Zhu
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Yanqing Zhu
Yingchen Zhu
Yue Zhu
Yuling Zhu
Yun Zhu
Tao Zhuo
Jiayun Zong
Yimiao Zong
Haoyuan Zou
Jiali Zou

Lili Zou
Mengyi Zou
Hong Zuo



IMA Members Stepped Up to Networking and Learning at IMA23

The successful IMA23 conference offered new connections and learnings for valued members and IMA partners.

By Margaret Michaels

The IMA® (Institute of Management Accountants) 2023 Accounting & Finance Conference (IMA23), held June 11-14, 2023, at the Hyatt Regency in Minneapolis, Minn., provided IMA members with their first in-person introduction to IMA's new president and CEO, Mike DePrisco, as he opened the conference welcoming attendees and sharing his thoughts on his first few months in his role.

Nurturing the next generation of accounting and finance thought leaders is an important priority for DePrisco, so it was appropriate for the conference to begin with the 2023 Student Case Competition. Teams presented their innovative solutions to the student case “Kunapipi Gardens: Transfer Pricing in the Service Industry,” which appeared in Strategic Finance in August 2022.

The innovation on display in the Student Case Competition is a necessary component for the future of management accounting. This was made clear the next day by IMA23's first general

session speaker, Nancy Giordano, a strategic futurist, who discussed how technology is rapidly changing the profession and making advanced technology accessible to everyone.

“If you haven’t tried ChatGPT yet, just find a teenager,” Giordano joked. She talked about the forces shaping the future. From the rise of stakeholder capitalism to climate instability, Giordano asked everyone in the general session audience to consider how to retire outmoded ways of thinking and instead respond to large-scale shifts with a reliance on long-term thinking and fresh problem-solving approaches.



IMA President and CEO Mike DePrisco greeted attendees at IMA23 in Minneapolis.

Giordano’s remarks underscored the need for accounting and finance professionals to manage change and to help lead their teams through disruption, the perfect launching point for the afternoon’s general session, “Financial Reporting at a Crossroads: Update and Perspectives on New Rules and Trends.” This panel session featured speakers from PwC, the Financial Accounting Standards Board, UPS, Cleveland-Cliffs Inc., and the Connor Group, who discussed recently issued rules and proposals as well as the future of financial reporting. Many practical insights on implementing rules and capturing a balanced perspective were shared.

In the afternoon session “International Women’s Panel: Navigating the Global Business World,” accomplished female business leaders from around the globe shared their perspective on driving business performance. Stella Lu, group finance controller at EDGE, said, “In China, we always say that ladies support half the sky.” Lu emphasized women’s contributions to business and society. Gwen van Berne, Chair-Emeritus of the IMA Global Board of Directors, moderated the session



Jennifer Kirk, SVP, global controller, and chief accounting officer and CFO, Medical Surgical, at Medtronic, chats with Gwen van Berne, Chair-Emeritus of the IMA Global Board of Directors.

and spoke of the need for women to assume leadership roles in order for organizations to perform at their full potential. “Management accountants facilitate decision making in the organization,” van Berne said. “You can’t do that without multiple voices and perspectives.”

Throughout the first day of the conference, members networked in the Tech-Knowledge Center, where they interacted with conference sponsors and met new colleagues in accounting and finance. In the afternoon, some attended specialty track sessions on topics as diverse as how ChatGPT will affect accountancy to ways to attract more young people to the profession. Some members

chose to attend the Twin Cities tour offered in the morning.

On Tuesday, Jennifer Kirk, SVP, global controller, and chief accounting officer and CFO, Medical Surgical, at Medtronic, spoke about the how-to of finance transformation including how to build a realistic road map based on strategy. This road map should include plans for eliminating low-value services and replacing them with high-value ones. Transformation, as Kirk described it, entails maintaining alignment with current and future business needs, mastering data management, and improving staff skills.



IMA23 attendees Kyler Nicholas, junior accountant, State Insurance Company Limited, left, and Latoya O'donoghue, senior accounting officer, Citizenship By Investment Unit, enjoyed the conference.

Kirk's focus on finance transformation challenges management accountants to reimagine the way they work and the way they add value. While this new mindset can be applied to traditional finance and accounting activities (e.g., financial close), it's relevant for another emerging area of responsibility for the accounting and finance team, namely environmental, social, and governance (ESG) reporting and sustainability. The afternoon general session featured a panel of experts in this area who provided insight on "ESG and Sustainability: Global Trends and Opportunity for Management Accountants." The panel was moderated by Jeff Thomson, senior strategic advisor, Competent Boards, and former Committee of Sponsoring Organizations of the Treadway Commission board member, who noted the ways management accountants are uniquely suited for adding value to sustainability initiatives.

"As management accountants, we want to build internal capacity whether it is a regulation or the broader focus of sustainable business management," Thomson said. "We already have the competencies in reporting and analysis of nonfinancial KPIs."

The day's insightful series of educational sessions concluded with a trip to Target Field, home of the Minnesota Twins, for a Major League Baseball game between the Twins and the Milwaukee Brewers. For some international conference attendees, this event was their first time attending a baseball game.

IMA23 provided many new experiences, new connections, and new learnings, making it a memorable and successful conference.

Margaret Michaels is manager, brand content & storytelling, at IMA. She can be reached at margaret.michaels@imanet.org.

SAVE THE DATE

Join us in San Antonio, Texas, for IMA24, June 9-12, 2024.

CALL FOR SESSIONS

IMA is seeking breakout presentation proposals for IMA24. We're specifically looking for highly engaging sessions featuring experiential learning, peer collaboration, and innovative topics. For complete details, visit imaconference.org. All proposals must be submitted online by September 15.

COMING SOON

IMA's Student Leadership Conference will be held November 9-11, 2023, in Detroit, Mich. Registration opens September 5.

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2022-2023 Lybrand Awards

This year's Lybrand Awards recognize exceptional contributions to *Strategic Finance* and *Management Accounting Quarterly*.

By Christopher Dowsett, CAE

These awards recognize individuals who have made exceptional contributions to the profession through articles published in *Strategic Finance* and *Management Accounting Quarterly* from May 2022 through April 2023. A panel of judges selected these manuscripts as the top manuscripts of the year. Each article has helped to advance our knowledge of important topics in accounting and finance, and collectively, they have greatly strengthened IMA's reputation as a thought leader. Medalists and Certificate of Merit winners are IMA members, while Certificate of Appreciation recipients are nonmember coauthors. Judging was based on their original submission, so titles may differ. Please see the link following each story for the edited version that was published.

Congratulations to all of this year's winners.

LYBRAND GOLD MEDAL

W. Eric Lee, Ph.D., CPA, CGMA, CFE, "Artificial Intelligence and Digital Discrimination: Risk Mitigation Strategies," *Strategic Finance*, December 2022

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LYBRAND SILVER MEDAL

Richard O'Hara, CFA, and Douglas M. Boyle, DBA, CMA, CPA, "Creating a Data Analytics Mindset," *Strategic Finance*, February 2023
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LYBRAND BRONZE MEDAL

Margaret Shackell, Ph.D., CMA, CPA, "The Consultation Conundrum: Can You Be Collaborative and Promotable?" *Strategic Finance*, July 2022
Read the [published article](#).

CERTIFICATES OF MERIT

Romana L. Autrey, Ph.D., CMA, CPA, CFF, CFE; Elena Klevsky, Ph.D., CPA; and Margaret Shackell, Ph.D., CMA, CPA, "Connectors: Are There Employees Who Can Make Others Want to Stay?" *Strategic Finance*, December 2022
Read the [published article](#).

Andrew S. Bargerstock, Ph.D., CPA, "Tipping Toward Negative Stockholders' Equity: A Stock Buyback Downside," *Strategic Finance*, September 2022
Read the [published article](#).

Douglas M. Boyle, DBA, CMA, CPA, "SEC Targets Earnings Management through New EPS Initiative," *Strategic Finance*, May 2022
Read the [published article](#).

Douglas M. Boyle, DBA, CMA, CPA, and Jessica L. Evanko, CPA, "SEC Enforcement and Remediation Efforts," *Strategic Finance*, December 2022
Read the [published article](#).

Marinus de Pooter, CMA, CFM, RA, CIA, "Is Risk Management Redundant?" *Strategic Finance*, April 2023
Read the [published article](#).

Greg Gaynor, Ph.D., CPA; John Palmer, CMA; and Sabrina Landa, "The Effect of the New Revenue Recognition Standards (Topic 606) on Long-term Contracts," *Strategic Finance*, September 2022
Read the [published article](#).

D.J. Kilpatrick, Ph.D., CMA, "How Inflation Affects the Usefulness of Financial Information," *Strategic Finance*, April 2023
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Kari Joseph Olsen, Ph.D., CMA, CPA, and Sheldon R. Smith, Ph.D., CMA, CPA, "Opportunities for Accountants in Academia: Something for Everyone," *Strategic Finance*, May 2022
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CERTIFICATES OF APPRECIATION

Ken Abramowicz, Ph.D., "How Inflation Affects the Usefulness of Financial Information," *Strategic Finance*, April 2023
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Tim Bauer, Ph.D., CPA, and Kevin E. Jackson, Ph.D., "Connectors: Are There Employees Who Can Make Others Want to Stay?" *Strategic Finance*, December 2022
Read the [published article](#).

Jasmijn Bol, Ph.D., and Justin Leiby, Ph.D., “The Consultation Conundrum: Can You Be Collaborative and Promotable?” *Strategic Finance*, July 2022

Read the [published article](#).

Samantha F. Falgout, “SEC Enforcement and Remediation Efforts,” *Strategic Finance*, December 2022

Read the [published article](#).

Lisa S. Haylon, CPA, “Creating a Data Analytics Mindset,” *Strategic Finance*, February 2023

Read the [published article](#).

Sudha Krishnan, Ph.D., “The Effect of the New Revenue Recognition Standards (Topic 606) on Long-term Contracts,” *Strategic Finance*, September 2022

Read the [published article](#).

Laura Bea Lamb, CPA; Jessie Kinsley Wright, CPA, CVA, CGMA; and Stasia H. Morlino, CPA, “SEC Targets Earnings Management through New EPS Initiative,” *Strategic Finance*, May 2022

Read the [published article](#).

Arif Perdana, Ph.D., CA, “Artificial Intelligence and Digital Discrimination: Risk Mitigation Strategies,” *Strategic Finance*, December 2022

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Kevin R. Smith, Ph.D., CPA, “Opportunities for Accountants in Academia: Something for Everyone,” *Strategic Finance*, May 2022

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Christopher Dowsett, CAE, is editor-in-chief/vice president, Publications, at IMA. You can reach him at cdowsett@imanet.org.



Campus Influencers Make an Impact

Campus Influencers bring the message about IMA and the CMA certification to students across the U.S.

By Lori Parks

The legacy of dedicated volunteer Jimmie Smith lives on as the Campus Influencers program he started in 2016 continues to reach students on college campuses across the United States.

The program began with a handful of volunteers as a way to connect with college students about IMA[®] (Institute of Management Accountants), the CMA[®] (Certified Management Accountant) certification, and careers in management accounting. Although Smith passed away in 2019, the program he helped launch is thriving.

Since the program's inception, Campus Influencers have made nearly 750 presentations and reached more than 26,000 students. In 2022 alone, Influencers made presentations to more than 4,500 students, the most in program history.

Currently, more than 370 volunteers are part of the Campus Influencers program. The following seven are "Superstars," having made at least three campus visits during the 2022 academic year:

Scott Berry, CPA
Jennifer Cargo, CMA, CSCA
Joe Fangman, CMA
Derek Fuzzell, CMA, CSCA, CPA
Ed Imparato, CMA
Michael Lovelace, CMA, CPA, CISA
Peter VanderHeide, CMA, CPA, CFE

The program seeks two kinds of volunteers: (1) those who identify schools and universities and contact accounting professors and accounting department chairs, and (2) those who make presentations to accounting classes and student clubs. A Campus Influencer can fill just one of those roles or both.

Speakers are provided with all the resources they need to succeed, including a detailed, scripted presentation; supporting documents; and marketing materials. IMA also conducts training sessions for all Campus Influencers to ensure those joining the program are comfortable in their new role.

If you'd like to learn more about becoming a Campus Influencer, contact campusinfluencers@imanet.org for more information.

Lori Parks is a staff writer/editor at IMA. You can reach her at (201) 474-1536 or lori.parks@imanet.org.



2023 IMA Student Manuscript Winner: How IMA Has Benefited Me

IMA® is pleased to showcase this winning article from the 2023 IMA Student Manuscript Competition, created to provide opportunities for students to share their membership experiences through publication with IMA.

By Kayla Watwood

Ever since I was young, I always knew that I wanted to go to college and become an accountant. I assumed I would graduate, become a CPA (Certified Public Accountant), then work for one of the Big 4 accounting firms. It was only in my junior year at Athens State University (ASU) that I learned that this path wasn't my only option. When I first started at ASU, I was introduced to IMA® (Institute of Management Accountants) and invited to join the IMA student chapter on campus and to learn more about what the chapter did and how it could benefit me as a student and as a future accountant.

Before learning about IMA, I had never heard of the CMA® (Certified Management Accountant) certification. Through IMA and ASU's student chapter, I've been able to hear from professionals who hold the CMA, and I decided that I wanted to earn the CMA and work in more of a management accounting role rather than a public accounting role.

Once I decided that I wanted to pursue the CMA, I needed to figure out how I was going to achieve that goal financially. As a full-time college student only working part-time, being able to afford to sit for the CMA exam was one of the biggest things holding me back from achieving my goal. I was thrilled to discover that IMA offers the CMA Scholarship, which is awarded to 10 students, who are nominated by professors, at each university. The scholarship includes membership to IMA and study materials to help students prepare for the CMA exam and covers exam fees the first time students take the exam. In 2022, I was nominated and chosen to be one of the students from ASU to receive the CMA Scholarship. Because of that, I can now sit for the exam and become a CMA without worrying about how to pay for it.

The CMA Scholarship was a financial benefit of joining IMA, and there were also so many nonfinancial benefits that I received as well. During my time with the ASU IMA student chapter, I've strengthened my leadership skills. Since joining the chapter, I've held multiple officer positions, including treasurer, vice president, and, currently, communications director. Being able to step up and fill these roles has given me the opportunity to grow leadership skills that I can then take into my career and use at work. I've also been able to work on my public speaking when leading a couple of our student chapter meetings.

Participating in community outreach programs is also a big part of the ASU IMA student chapter. Throughout the year, we have multiple opportunities for officers and members to volunteer for the community. Our most significant outreach program is sending canned food and money to our local food bank. During the fall semester, we set out boxes throughout the school so that students can donate food or money that will go directly to people in need in our community. For Valentine's Day, we collect valentines with short notes written by students, which are then given to residents of a local nursing home to brighten up their day.

A valuable part of being involved with IMA and the ASU student chapter is being able to hear from local people who work in the accounting industry during our meetings. Getting to listen to these people and learn about what they do every day has helped me see how the things that I learn about in class will actually be used in my career. These meetings have also been a great way for me to learn about the different career options that are available to accountants. Along with regular meetings, we also participate in industry tours. This allows us to see accountants in action and what methods different organizations use in their accounting operations.

All in all, IMA has made a tremendous difference in my time as a student. Without it, I might not have learned about all of the different areas of accounting besides getting a CPA and working in a Big 4 accounting firm. Now I know there are various fields in which accountants can work. By receiving the CMA Scholarship, I have the opportunity to sit for the CMA exam and gain a skill that can help advance my career by setting me apart from others.

Before joining the ASU IMA student chapter, I hadn't had many opportunities to practice leadership. Being able to hold a leadership role has helped me become more confident that I can one day lead a group of people in my job. I'm very appreciative that the ASU IMA student chapter puts an emphasis on community work because it allows me to give back to a community that has poured so much into me. I'm always excited to hear from our different speakers during every club meeting. Learning about what their jobs look like day-to-day is something I couldn't have learned from a textbook. That makes each meeting so valuable to me.

Kayla Watwood is a student in accounting at Athens State University and the communications director of the Athens State University IMA student chapter. She can be reached at kwatwood@my.athens.edu.



The Attributes of Successful Professionals

While even senior executives may glean useful advice from this book, it's especially instructive for early-career professionals.

By Amanda Laura, CMA

By many recent accounts, the corporate world has become harsh, especially toward young, inexperienced employees. As many senior businesspeople continue to progress in their careers, a significant segment of young professionals are finding it hard to cope with the strong competition, move up the ladder, and take on leadership roles due to a range of factors.

Carla Mashinski, in her book *Five Attributes to a Successful Career: Change Your Career Path with a Practical Roadmap to Overcome the Challenges and Achieve Success*, shares her real-life experiences and career journey. The book acts as a guide for professionals, including but not limited to early-career individuals, seeking direction or advice to progress in their career. She provides insight into her career progression, offering practical tips based on different aspects of her professional journey to encourage readers to learn from her successes and missteps.

The author does an excellent job of explaining these five desirable attributes based on

workplace anecdotes and examples of best practices and pitfalls to avoid. She explains a situation and then states the attribute connected to that experience. She describes the attributes in detail and advises readers on how they can achieve each one by giving a summary of main takeaways and an action plan. The way Mashinski takes readers through a step-by-step process of how she handles professional hardships and setbacks and teaches readers how to tackle on-the-job challenges is fascinating.

Early-career professionals will find that this book acts as a great guide. Moreover, experienced professionals will be able to relate to most of the book's central concepts and examples and likely glean useful tidbits from it.

The book emphasizes the importance of ethics and diversity, equity, and inclusion, important subjects for every professional and company. The author also explains her career journey through a psychological lens, focusing on how our minds perceive various workplace situations and how we can cope with challenges and take advantage of opportunities.

Whether you're a seasoned executive or just starting out on your career journey, the information in the book will probably resonate with you. I don't think there's any professional out there who wouldn't benefit from reading this book due to Mashinski's skill at sharing useful tips based on what she's learned from the various jobs she's had.



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Subjective Performance Evaluation Systems and Employee Ratings

The level of detail in performance evaluation systems can influence how supervisors assess their employees' performance when a job promotion is coming up.

By Eric W. Chan, Ph.D., and Todd A. Thornock, Ph.D., CMA, CPA, CGMA

Performance evaluation systems are important tools that organizations use to motivate employees, provide them with productive feedback, and align their goals with those of the organization. Organizations today are adopting increasingly complex performance evaluation systems that often feature two key elements: 1) They contain multiple performance measures, and 2) they require supervisors to use their subjective judgment.

Using multiple performance measures can help supervisors evaluate their subordinates' skills and qualities across various dimensions that the organization values. Allowing supervisors to exercise their subjective judgment in performance evaluations can also be beneficial because they can incorporate aspects of their subordinates' performance that can't be measured precisely or objectively. A major problem with subjective evaluations is that supervisor biases can come into play.

We wanted to better understand how subtle designs of a subjective performance evaluation system can affect supervisors' performance evaluations of their employees. Specifically, does it matter whether supervisors use a holistic evaluation system, where supervisors assign a single overall performance rating, or a detailed evaluation system, where supervisors assign separate ratings for each performance measure and an overall rating? We conducted a survey of supervisors and subordinates to get a better understanding of how these two evaluation systems are used and viewed. We designed an experiment to examine whether using a holistic or detailed performance evaluation system will indeed make a difference on supervisors' assessments (see "Disaggregated versus Holistic Performance Evaluations in a Promotion Setting," *Journal of Management Accounting Research*, Fall 2022).

Holistic vs. Detailed Evaluation Systems

Using Amazon's Mechanical Turk, we screened and surveyed 54 supervisors and 52 subordinates based on their work experience and familiarity with their organization's performance evaluation system. We learned that approximately 80% of the respondents' organizations use a detailed evaluation system and 20% use a holistic evaluation system. Both types of evaluation systems are common across different company sizes and industries. The typical evaluation system contains three to four different performance measures, most of which relate to an employee's current job, but some also relate to the employee's next job after promotion.

We also learned from the survey results that, compared to a holistic evaluation system, respondents generally prefer a detailed evaluation, which they think is fairer and provides more useful feedback, even though it takes supervisors more time and effort to complete. Interestingly, our respondents, particularly supervisors, think that the two different evaluation systems can potentially lead to different assessments.

We then decided to test the research question of whether using a holistic or detailed performance evaluation system makes a difference on assessments in the context where supervisors must make a promotion decision shortly after assessing their subordinates' job performance.

Deciding whom to promote is a critical personnel decision that supervisors must often make. What makes promotion decisions particularly fascinating is that they aren't always tied to employees' performance in their current job. The nature of an employee's job and their skill requirement can change drastically after a promotion. For example, when a rank-and-file employee (e.g., engineer, salesperson, or accountant) gets promoted to a manager position, skills like leadership and people management become much more important.

In this case, supervisors can face the dilemma of either promoting their best-performing employee in the current job or the employee best suited for success at the promoted position. The problem with promoting the best current job performer is that the promoted employee could turn out to be ill-suited and incompetent for the new job.

Our Study

With this promotion setting in mind, we conducted an experiment with 120 MBA students in which they took on the role of a retail store manager tasked with evaluating the performance of two sales associates and then deciding which sales associate to promote to an open assistant manager position. We described one sales associate as being better at the current job (i.e., star salesperson with the ability to develop strong relationships with customers) and the other associate as being better suited for promotion (i.e., strong organizational skills and attention to detail). This creates a dilemma in the supervisor's promotion decision because they must strike a delicate balance between rewarding the best current job performer vs. promoting the employee best suited for the higher-level job.

To test whether the type of evaluation system influences supervisors' assessments of subordinates' performance, and whether supervisors' anticipation of the upcoming promotion

matter, we required half of the participants to complete their performance assessments under a holistic evaluation system, whereas the other half completed the same assessments under a detailed evaluation system. Second, we told half of the participants that they'll make a subsequent promotion decision before they complete their performance assessments, whereas the other half didn't know about the upcoming promotion until after they completed their performance assessment.

From our experiment, we learned that when supervisors don't know that a promotion is coming up, the evaluation system doesn't matter as supervisors give the same overall performance ratings under both a holistic and a detailed system. Yet when supervisors know that a promotion is coming up after they complete their performance assessments, they give different overall ratings under the two systems. Specifically, supervisors give a higher overall rating to the employee who's best suited for promotion under a holistic system as compared to a detailed system. We found further evidence showing that some supervisors do this strategically because they want to justify promoting that employee later, while others do this subconsciously because they mentally place greater focus on the performance measures that relate to the upcoming promotion as they complete the performance assessments.

Key Takeaways

Our research highlights some of the pros and cons that organizations should consider carefully when designing their performance evaluation systems. In a promotion setting, we find that, on one hand, a holistic system allows supervisors to better align their performance assessments with their desired promotion decision, which can increase the likelihood that they'll later promote the subordinate best suited for promotion. On the other hand, a holistic system raises fairness issues as it arguably biases against the employee best at the current job whose performance assessment is negatively affected when the supervisor focuses on the upcoming promotion.

Ultimately, whether an organization should adopt a holistic or detailed evaluation system depends on its goals, values, and culture. For example, for an organization that values empowering its managers, a holistic evaluation system could be preferable because it gives managers more flexibility to exercise their discretion and control during the assessment process. Yet for an organization that values equity and employee trust, a detailed evaluation system could be preferable because it reduces supervisors' real or perceived biases in their assessments and likely provides more informative feedback for employees.

Our survey findings that more organizations appear to use a detailed evaluation system may suggest that maintaining fairness perceptions and providing employee feedback could be the priority for many organizations.

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Ethical Principles Apply to AI

The IESBA chair says it's challenging but necessary to apply ethics standards to AI and other new, transformative technologies.

By Daniel Butcher

Gabriela Figueiredo Dias, chair of the International Ethics Standards Board for Accountants (IESBA) and co-CEO of the International Foundation for Ethics and Audit (IFEA), the organization that houses IESBA and the International Auditing and Assurance Standards Board (IAASB), is tasked with ensuring that IESBA initiatives have a public-interest focus as well as developing global ethics and independence standards.

Led by Dias and IESBA's Technology Working Group, the IESBA has worked to provide guidance on ethics in an era of rapid technological advancement. For example, in March 2022, it published [Exploring the IESBA Code, A Focus on Technology: Artificial Intelligence](#), which examined the application of the *International Code of Ethics for Professional Accountants*' conceptual framework to address ethics and independence issues arising from the use of AI. Also in 2022, the board released the [IESBA Technology Working Group Phase 2 Report](#), which charted the evolution of

the technology landscape and outlined trends, opportunities, impact, and risks of robotic process automation; AI; blockchain, cryptocurrencies, tokens, and decentralized finance; and cloud computing, among other technologies.

In April 2023, the IESBA approved [technology-related revisions to its Code of Ethics](#) to “guide the ethical mindset and behavior of professional accountants in both business and public practice as they take advantage of the opportunities created by technology and adapt to new technology [and] remain relevant and applicable in the ever-evolving landscape of technology transformation.”

“We’re quite attentive to what technology means for accountants, and we’re following technological developments very closely, because we’re aware that they aren’t neutral with respect to accountancy and the product that the profession provides, which is corporate information,” Dias says. “There are many impacts in two different areas or sectors—on the one hand, technology impacts the work of auditors of the companies that corporate reporting [specialists] and assurance accountants are responsible for, but it also directly impacts the activity of accountants in business.”

AI COMPLICATES ACCOUNTING ETHICS

The data-gathering and content-creation capabilities of AI are already making impacts on, and driving significant changes to, the accountancy profession as well as many other industries and professions. The IESBA works to identify ethics questions and concerns raised by these technological developments.

“Whatever the latest technological developments may be, there are many ethical issues, because you have machines, so to speak, working on behalf of human beings, but [AI and machine-learning algorithms] don’t have a critical mindset, and [their outputs] aren’t based on values,” Dias says. “They don’t have [the capacity for] critical thinking, they don’t apply any kind of [professional] skepticism, and they aren’t the best at protecting data from being biased—on the contrary.

“The ethical problems arise from applying technology developments to accountancy, and if you don’t have clear guidance and standards with respect to the ways the professionals use technology, you will end up in a situation where you have issues or an empty space with respect to the values that this activity must be subject to,” she says.

As an example, Dias cites the dramatic growth of accountants using generative AI applications such as OpenAI’s ChatGPT. She says that there’s a widespread concern that usage of AI chatbots may drive the accountancy profession’s activities in a negative direction in that the approach of some may lack a critical mindset or ethical lens.

Yet Dias also acknowledges that there are potential advantages to accountants using new technology, including generative AI. Her approach to these technological developments as IESBA’s leader and spokesperson is to take a practical and balanced stance.

“We can’t say we shouldn’t use [new technologies], prohibit them, or refuse to acknowledge that they’re there—this isn’t possible,” Dias says. “This isn’t something that the profession or even regulators can do, because technology developments are like Mondays or taxes—you may not like them, but you can’t do much against them, so you just have to make the best of them.”

Making the best of these technological developments and impacts means making sure to take advantage of all the good things that they may bring to the profession ethically, Dias says. For instance, AI allows professional accountants to gather and share information from different sources in a much faster way, which they weren’t able to get access to or manage previously, so it enables them to use more data more efficiently than they could do without AI. That said, it also challenges accounting professionals to apply an enhanced critical mindset and competence, which are ethics principles from the IESBA *Code*.

“Accountants have to be even more rigorous with respect to understanding AI, selecting the information, and using only what is indeed reliable, robust, and appropriate for a specific activity

or task,” Dias says. “So the user is trying to capture the reality of AI use cases and determine which are the most relevant impacts that this technology has on their responsibilities.

“Developments in technology are raising ethical issues and questions with respect to the accountancy profession, and we’ve been addressing them against the principles that the *Code of Ethics* already includes: competence, objectivity, integrity, professional due care, etc., and using the conceptual framework of applying a critical mindset and skepticism, avoiding bias, and evaluating threats in ways that are probably completely different from what many of these professionals are used to, but that will be inevitable and absolutely necessary in the near future and, in fact, are already extremely relevant,” she says.

ETHICAL PRINCIPLES STILL APPLY

The ethics problems that accounting and finance professionals have been grappling with in classical approaches to accountancy are often exacerbated when technology is added to the equation. Regardless, universal ethical principles and standards still apply.

“Because everything goes faster and moves in different ways, an additional effort has to be made by professionals to make sure that they understand this reality, which brings very important and relevant challenge for ethics education and addressing the ethical challenges in an appropriate way,” Dias says.

These technological developments also highlight the need for the use of technology experts to educate staff, she says. It’s incumbent on accounting professionals to take advantage of continuing professional education to learn about new technologies to be able to connect the dots to their ethical implications.

“Because of the complexity of the technologies and ethical matters that accountants have to deal with, more will be forced to tap into the expertise of people who may or may not be fellow accountants but who bring the necessary specific technical knowledge about technological methods and innovations so that they can better understand the questions, the information, etc.,” Dias says. “This raises additional ethics problems related to conflicts of interest, independence, bias, and again the need for professional accountants to apply a critical mindset and all their competence in using the work of these technology experts to address the ethical problems that they may raise.”

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Using Positive Pay to Prevent Check Fraud

Small businesses can safeguard from check fraud, losses, and other liabilities by implementing positive pay.

By Mai Luu, CMA, CPA, CFE

Small businesses are vulnerable to check fraud and are prime targets for fraudsters because they frequently have limited resources and fewer robust financial controls in place than larger enterprises. By understanding the many types of check fraud and their distinctive characteristics, taking the necessary precautions, and remaining attentive, companies can prevent check fraud from damaging their finances and reputation.

Fraudsters use various techniques to access the funds of a business, such as altering checks, forging signatures, and creating counterfeit checks. To prevent this type of fraud and safeguard their finances, companies must implement effective cash management practices.

One solution to counter check fraud is to use “positive pay,” an automated cash management service offered by most banks that detects fraudulent checks and prevents them from being paid. Positive pay is an important tool for preventing check fraud, losses, and other liabilities. This

service often comes with a fee, although some banks now offer it for free.

HOW POSITIVE PAY WORKS

With positive pay, the issuing company electronically sends its bank a list of the most recent check run, detailing the check numbers, amounts, payees, and check dates. When a check is presented to the bank for payment, it's compared against the information submitted by the issuer for matching.

When there's a difference, the bank flags the check, notifies the customer via an exception report, and gives the check issuer a choice to accept the check or not. When the company fails to review a flagged check within the specified time frame, the check is returned to the issuer.

ACH POSITIVE PAY

Automated clearing house (ACH) positive pay is effective in preventing unauthorized ACH debits by allowing businesses to set up permission for certain vendors to withdraw funds from their bank accounts and also block some other transactions. The Association of Financial Professionals states that ACH debit fraud comes in second place to check fraud.

Scammers can obtain a company's ACH information from its paper checks and make unauthorized ACH debits. Businesses have a limited time window to take back an unauthorized ACH transaction. Without having ACH positive pay in place, it's particularly critical for small businesses to keep an eye on ACH transactions on a daily basis to avoid fraudulent ACH debits.

REVERSE POSITIVE PAY

Reverse positive pay is a variation of the positive pay concept except that it's less effective. On a daily basis, the bank sends the company information about checks that are presented to the bank for payment. If the company doesn't reject the checks within a fixed time frame, the bank will allow the checks to be cashed.

The main difference between positive pay and reverse positive pay is in the reviewing authority and liability. In reverse positive pay, when the company fails to review a flagged check within a specified time, the bank will process the check.

BENEFITS OF POSITIVE PAY

Positive pay provides several benefits, including convenience, easy access to the exception approval process, consistent account monitoring, fewer human errors, and less labor cost. Other benefits include the following:

Fraud detection. By comparing the checks presented for payment with the list of authorized checks provided by the customer, any discrepancies can be quickly identified. This includes alterations to the payee name, the check amount, or unauthorized checks altogether.

Reduced financial losses. By catching fraudulent checks before they're paid, positive pay helps clients avoid financial losses. It provides an opportunity to review and reject questionable checks, protecting the company's funds from being disbursed to fraudsters.

Enhanced security. Positive pay acts as a deterrent for potential fraudsters, making it more difficult for them to successfully execute check fraud schemes. This can help protect both businesses and individuals from financial harm.

Customizable parameters. Positive pay allows small business clients to tailor the level of control by setting specific parameters for verification such as check number, payee name, and check amount to ensure that only authorized checks are processed.

Streamlined reconciliation. Because only authorized checks are paid, the need for extensive manual reconciliation is reduced. This saves time and effort for accounting departments and helps maintain accurate financial records.

Peace of mind. It instills confidence in the check payment system and helps build trust with financial institutions.

LIMITATIONS OF POSITIVE PAY

Positive pay also brings with it some unique challenges, which companies should review and resolve or rule out before any implementation plan is in place.

Implementation and maintenance. Setting up positive pay may require initial effort and coordination with the bank. Small businesses need to provide the necessary information and maintain accurate records of issued checks to ensure effective fraud detection. It's crucial to train staff members on how to use the new system correctly and adhere to specified security measures and workflows. Employees may require extensive training to understand the importance of following established security protocols.

Potential false positives. There's a possibility of legitimate checks being flagged as fraudulent due to discrepancies, leading to delays and inconvenience for both the business and the payee. This can require additional verification steps to ensure accurate processing.

Reliance on the bank's system: Positive pay relies on the bank's system to compare and verify checks. If the bank's system experiences technical issues or failures, it can disrupt check processing and delay payments.

Cost and fees. Some banks may charge fees for implementing positive pay services. While the cost may be outweighed by the potential savings from preventing fraud, businesses should consider the financial implications.

Limited protection. While positive pay is effective in detecting and preventing check fraud, it may not cover other forms of payment fraud or unauthorized transactions. Small businesses should employ additional security measures to protect against different types of fraud.

It's important for small businesses with limited resources to weigh these pros and cons when considering the implementation of positive pay and assess its suitability based on their specific needs and circumstances. But for companies wishing to safeguard their finances and enhance their general financial health, automated cash management systems are a sensible investment due to their advantages, which include improved fraud detection, increased efficiency, and long-term cost savings.

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Disaggregating Income Statement Expenses

The FASB is preparing a new exposure draft around disaggregation of income statement expenses.

By Shari Littan, J.D., CPA

At the IMA[®] (Institute of Management Accountants) 2023 Accounting & Finance Conference, Financial Accounting Standards Board (FASB or Board) member Marsha Hunt alerted attendees that the FASB is readying a new exposure draft that, if adopted, will require new disclosures regarding the expenses that appear in the face of the income statement. In her remarks, Hunt suggested that the proposed guidelines, called disaggregation of income statement expenses (DISE), represent a carefully balanced compromise between investor demands and potential burdens on preparers.

Addressing the line items that appear on the face of the income statement has been on the FASB's agenda for several years. For public entities in the United States, Regulation S-X has established requirements for expense captions to be presented on the face of the income statement. The guidance under U.S. Generally Accepted Accounting Principles (GAAP), Topic 205,

Presentation of Financial Statements, and Topic 225, *Income Statements*, provides minimal additional specifics on what a reporting entity must present in the related notes.

In 2017–2018, the FASB had considered a project regarding the disaggregation of income statement items around performance-based metrics, but it was set aside. The Board returned to the project in 2022, primarily as a result of its 2021 agenda consultation. As the FASB reconsidered the project, Chair Rich Jones publicly noted the Board was reflecting users' views that they aren't receiving the requisite level of detail to understand a reporting entity's operations. Simply, users seek more detailed information for insights on how a reporting entity expends its resources, and a high priority is data around compensation.

The FASB's pathway differs from the guidance under the International Financial Reporting Standards. Unlike U.S. GAAP, International Accounting Standard 1, *Presentation of Financial Statements*, states in paragraph 104 that a reporting entity must classify expenses by function and disclose additional information on the nature of expenses, including depreciation and amortization expense and employee benefits expense.

The FASB disclosure guidance, as proposed, would require a reporting entity to add a new note to the financial statements with a table that provides the amounts charged to specified subcategories:

- Employee compensation
- Depreciation
- Intangible asset amortization
- Inventory expense and other manufacturing expenses
- Depreciation, depletion, and amortization (specific to oil- and gas-producing activities)

Suppose, for example, that a company has cost of goods sold (COGS) of \$74,351 and selling, general, and administrative expenses of \$18,872. In applying the proposed guidance, a note to financial statements would provide a table that breaks out the mandatory categories.

The disaggregated category, inventory and other manufacturing expenses, would include costs capitalized as "inventory" as well as other expense items, such as purchase price variances, shipping, and warehousing, that typically are reportable within COGS. The proposed requirements would require a second table that disaggregates total inventory and manufacturing expenses by the specified categories.

REBUILDING ERP PROCUREMENT SYSTEMS

A chief concern that preparers are raising is the tracking of expenses to comply with DISE, which differs from how companies generally track costs today.

"ERP [enterprise resource planning] systems were designed to track a very large number of transactions from initial procurement to accrual and then cash payment with general ledger account coding. They weren't naturally built to report on financial statements, costs from a subledger, or lower-level detail," explains Alex Eng, senior vice president, general counsel and legal office at IMA; vice president, U.S. Corporate Finance at EDF Renewables; and former IMA Global Board Chair. In addition, preparers are noting that there are allocations routinely used in financial reporting, such as corporate-level activities, that would require new breakdowns and tracking. "All this allocation and mapping to the smaller buckets would need new processes, controls, and procedures to be audit-ready for disclosure in the financial statements," says Eng.

This could be tricky, as some preparers observe, if a financial reporting system rests on multiple legacy systems, including systems from varied acquisitions. There seems to be an assumption by many financial statement users—data aggregators and financial institutions—that companies have highly sophisticated accounting systems that can readily apply new software, applications, and algorithms to accumulate large amounts of data for various reporting purposes. Yet despite the acceleration of technological transformation, corporate reporting often is viewed as an area of the business with a lower-priority budget than other functions for new technology.

In addition, some are raising the matter of potential inconsistencies between the disaggregation of expense items for expected new segment disclosure rules and the disaggregation that may be required under DISE. For segment disclosures, the breakdown of line items isn't prescribed but applies a management-oriented chief operating decision-maker approach.

Conversely, the DISE standard, if adopted, will prescribe specific line items that may or may not reconcile with the disaggregated amounts shown in the segment disclosure. Rather than creating clarity, the differences may be confusing to financial statement users, particularly for reporting entities that operate in multiple segments, such as a manufacturer that also sells services or has a customer financing segment.

For now, citing cost-benefit considerations, the FASB has decided to scope out private companies from the DISE proposal. But companies that eye going public in the future may want to consider implementation, particularly if the company is building internal capacity to track expenses and meet future disclosure requirements.

The clamor for more disaggregation may not stop with the income statement. According to the FASB's research agenda, disaggregation of items on the statement of cash flows may be the next step.

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Dual CMA and CPA Certification: A Winning Combination

Attaining both of these designations can help an aspiring management accountant or other financial professional to stand out.

By Lori R. Fuller, Ph.D., CPA; Joseph M. Hargadon, Ph.D., CMA, CPA,;
Peter F. Oehlers, DBA, CMA, CPA

Earning both the CMA[®] (Certified Management Accountant) and CPA (Certified Public Accountant) designations is a huge differentiator for accounting students in today's competitive and dynamic business environment. Dual certification signifies that holders have a broad and deep range of knowledge, skills, and expertise in accounting and finance beyond auditing, tax, and financial reporting. It also shows prospective employers that the holder is highly motivated, ambitious, and seriously committed to lifelong continuing professional education.

It can also put more money in the pocket of the dual-certification holder. The March 2021 IMA[®] (Institute of Management Accountants) [Global Salary Survey](#) reported that professionals who hold both the CMA and CPA designations earn 149% more median total compensation than their noncertified counterparts. For that to even be possible, students need to pass the requisite exams. In January 2023, the American Institute of Certified Public Accountants (AICPA) finalized

and approved significant changes to the Uniform CPA Examination under its CPA Evolution model. These CPA exam changes, effective January 1, 2024, necessitate another update to our comprehensive nine-step model that prescribes a viable path for undergraduate accounting majors to prepare for and pass both the CMA and the “new” CPA examinations.

In 2007, we first proposed a streamlined strategy for undergraduate accounting majors to pass the CMA examination before graduation and the CPA exam within six months after earning their bachelor’s degree. Since the 2007 article, there have been four major sequels: 2010, 2015, 2018, and 2019, each incorporating various changes to the CMA and/or the CPA exams. These changes ranged from modifications of the content (topics) tested and the structure (number of parts on each exam) to the format (time per part and multiple-choice questions vs. task-based simulations) of each exam.

Our premise since 2007 continues to be that undergraduate accounting students who follow our comprehensive nine-step plan can efficiently prepare for both exams when they’re in the ideal position to do so—while they’re still students. As students, they’re used to preparing for and taking examinations. In addition, they can capitalize on the “freshness” and overlap of the topical content covered on each exam.

This article modifies the relevant aspects of our streamlined plan to reflect the “new” CPA exam changes. The modifications include the sequencing, timing, and types of courses we recommend to better align with the two exams.

Once again, we’ve limited our focus to the dual CMA/CPA certification because:

- Both permit candidates to take one section (part) at a time.
- Both are computer-based, using Prometric testing sites. Thus, the modes of delivery and assessment are similar.
- Both exams provide for flexible scheduling (see Table 1).
- Both require qualifying work experience to earn the designation.

TABLE 1: TESTING PERIODS

CMA	CPA
All parts are offered daily, except Sundays and holidays, although some days off vary by region.	Site dependent: Exam is available five to seven days a week, excluding major holidays.
Both parts are offered in three testing windows: <ul style="list-style-type: none"> ■ January-February ■ May-June ■ September-October 	Continuous testing (no specific limitations)
One or both parts may be taken in any window in any order.	One or more parts may be taken in any order.
Prometric testing center is used.	Prometric testing center is used.

Exam Changes

ICMA® (Institute of Certified Management Accountants) establishes the criteria to sit for the CMA exam and earn the global designation and also administers the exam. Its counterpart for the CPA exam is the AICPA. Both organizations strive to ensure that their certification requirements

are relevant, rigorous, and current. Both examinations are regularly reviewed and modified, if warranted, to better reflect the increasing expectations and expanding roles that accounting and financial professionals play in an ever-changing global business environment. For example, and not surprisingly, given the rapid changes in technology, both ICMA and the AICPA continue to place more emphasis on data analytics and information technology (IT) in their respective examinations.

Our August 2019 article incorporated the CMA exam changes that were effective January 1, 2020. Those changes are still in place today, as ICMA hasn't yet instituted any additional CMA exam changes beyond those. The AICPA, on the other hand, has made noteworthy changes to the CPA exam through its Uniform CPA Examination Blueprints. This is known as the CPA Evolution model and is designed to test the knowledge and skills needed for newly licensed CPAs. These changes are effective January 1, 2024.

Although the CPA examination remains in four parts, all candidates must now take the same three "core" parts and select one of three "discipline" parts.

The core parts include:

1. Auditing and Attestation (AUD)
2. Financial Accounting and Reporting (FAR)
3. Taxation and Regulation (REG)

The discipline parts include:

1. Business Analysis and Reporting (BAR)
2. Information Systems and Controls (ISC)
3. Tax Compliance and Planning (TCP)

The core areas are similar to the existing CPA exam parts. In fact, the same acronyms (AUD, FAR, and REG) are still being used; however, the weighting of certain topics in the core parts has changed, and some topics have been moved to the discipline parts. For example, accounting for state and local governments is now tested in the BAR discipline section.

The Business Environment and Concepts (BEC) section of the pre-2024 exam will no longer be a part of the CPA exam. But the content areas covered on BEC will still be tested, to varying degrees, in the following sections of the new CPA exam: AUD, FAR, BAR, and ISC. In addition, some of the topics previously tested on FAR and REG will now be covered in BAR and TCP, respectively.

The three core areas are designed to test the key fundamental concepts in each of the respective parts, whereas the discipline parts take a much deeper dive into more expansive and complex concepts. A candidate may select only one discipline part. If a candidate doesn't pass the discipline part, however, they may select a different discipline.

Note that, because of the newly established discipline parts of the CPA exam, our streamlined plan is modified to incorporate all three discipline parts.

Educational Requirements

Although the CPA exam is uniform across all licensing jurisdictions, each state board mandates the specific education requirements for a candidate to be eligible to sit for the exam. All licensing jurisdictions have adopted the 150-credit-hour requirement (the equivalent of a master's degree) to ultimately obtain the CPA license. But in most licensing jurisdictions, the CPA candidate must complete a bachelor's degree (with the requisite number of accounting and business-related credits) to take the CPA exam. Thus, undergraduates can't sit for the CPA exam. (Note: Several states are permitting CPA candidates to sit for the exam once they've earned 120 semester credits—even if the degree hasn't yet been conferred.) The candidate's licensure doesn't take place until the completion of 150 credits and one year of qualifying work experience. It's important to note that

working under a CPA in private industry now counts as qualifying CPA work experience (and CMA experience); the work no longer needs to be in the attestation (audit) area.

CMA candidates, on the other hand, don't have to complete their bachelor's degree to be eligible to take the exam. This means that they can sit for the CMA exam while they're still undergraduate students, provided they're registered for six credits per semester during the academic year.

Globally, more than 30% of CMA candidates are students. ICMA doesn't specify any number of accounting or business-related credits to take the CMA exam, but the candidate must complete a bachelor's degree, in any area, from an accredited college or university within seven years of passing the exam. Two years of qualifying work experience is also required.

Our updated nine-step streamlined approach capitalizes on the fact that students can take the CMA exam while they're still in school and then sit for the CPA exam immediately after they graduate (or immediately after completing 120 credits in some states). By strategically scheduling and sequencing coursework to align with the topics tested on the exam parts, students can prepare for both exams more efficiently and benefit from the content overlap between the CMA and CPA exams.

TABLE 2: A COMPARISON OF CMA AND CPA EXAM CONTENT AREAS

CMA EXAM Effective January 1, 2020	CPA EXAM CORE SECTIONS (listed alphabetically by core) Effective January 1, 2024
Part 1: Financial Planning, Performance, and Analytics	Auditing and Attestation (AUD)
External Financial Reporting Decisions (15%)	Ethics, Professional Responsibilities, General Principles (15%-25%)
Planning, Budgeting, and Forecasting (20%)	Assessing Risk and Developing a Planned Response (25%-35%)
Performance Management (20%)	Performing Further Procedures and Obtaining Evidence (30%-40%)
Cost Management (15%)	Forming Conclusions and Reporting (10%-20%)
Internal Controls (15%)	
Technology and Analytics (15%)	
Part 2: Strategic Financial Management	Financial Accounting and Reporting (FAR)
Financial Statement Analysis (20%)	Financial Reporting (30%-40%)
Corporate Finance (20%)	Balance Sheet Accounts (30%-40%)
Decision Analysis (25%)	Select Transactions (25%-35%)
Risk Management (10%)	
Investment Decisions (10%)	
Professional Ethics (15%)	
	Regulation (REG)
	Ethics, Professional Responsibilities, Federal Tax Procedures (10%-20%)
	Business Law (15%-25%)

Table 2 continued on next page.

	Federal Taxation of Property Transactions (5%-15%)
	Federal Taxation of Individuals (22%-32%)
	Federal Taxation of Entities (including tax preparation) (23%-33%)
	CPA EXAM DISCIPLINE SECTIONS (listed alphabetically by discipline) Effective January 1, 2024
	Business Analysis and Reporting (BAR)
	Business Analysis (40%-50%)
	Technical Accounting and Reporting (35%-45%)
	State and Local Governments (10%-20%)
	Information Systems and Controls (ISC)
	Information Systems and Data Management (35%-45%)
	Security, Confidentiality, and Privacy (35%-45%)
	Considerations for System and Organization Controls (SOC) Engagements (15%-25%)
	Tax Compliance and Planning (TCP)
	Tax Compliance and Planning for Individuals and Personal Financial Planning (30%-40%)
	Entity Tax Compliance (30%-40%)
	Entity Tax Planning (10%-20%)
	Property Transactions (disposition of assets) (10%-20%)

TABLE 3: STRUCTURE AND FORMAT OF THE EXAMS

Exam Part	Question Format	Allotted Time
	CMA	
Part 1	100 multiple choice, 2 essays	4 hours
Part 2	100 multiple choice, 2 essays	4 hours
	CPA	
AUD - Core	78 multiple choice, 7 task-based simulations (TBS)	4 hours
FAR - Core	50 multiple choice, 7 TBS	4 hours
REG - Core	72 multiple choice, 8 TBS	4 hours
BAR - Discipline	50 multiple choice, 7 TBS	4 hours
ISC - Discipline	82 multiple choice, 6 TBS	4 hours
TCP - Discipline	68 multiple choice, 7 TBS	4 hours

The current content areas tested on each exam, incorporating the changes to the CPA exam that will become effective on January 1, 2024, are summarized in Table 2. To earn both designations, a candidate must pass a total of six parts (see Table 3 for the structure and format of these exams).

Finally, because state rules change, students should regularly verify CPA state licensing requirements with the [National Association of State Boards of Accountancy](#).

The Nine-Step Approach

We recommend a nine-step plan to students who are serious about obtaining professional certifications but who may or may not end up pursuing a career in public accounting. Our recommendations are based on the assumptions detailed below and are applied to a student candidate who's an undergraduate accounting major attending a college or university that has a two-semester academic year. Accordingly, the student candidate will:

- Take one exam part at a time to keep the workload manageable and increase the chances for success on that part.
- Use some form of a CMA and CPA review preparation program and materials (such as a review course, software, etc.) in addition to coursework.
- Take additional finance credits and/or minor in finance.
- Take a separate business analytics course and an additional IT course if available. This is valuable to the CPA candidate taking the ISC discipline.
- Take additional undergraduate or graduate tax courses if a CPA candidate selects the TCP discipline.
- Complete the CMA exam while still a student.

The alignment in content areas between the CMA and CPA examinations is illustrated in Table 4. This allows a candidate to readily follow our recommended strategy for sequencing coursework and

TABLE 4: OVERLAP OF TOPICS BETWEEN THE CMA AND CPA EXAMS

CMA Part 1	Related CPA Exam Sections
External Financial Reporting (15%)	FAR and REG (Tax Implications)
Planning, Budgeting, and Forecasting (20%)	BAR
Performance Management (20%)	BAR
Cost Management (15%)	BAR
Internal Controls (15%)	AUD and ISC
Technology and Analytics (15%)	AUD and ISC
CMA Part 2	Related CPA Exam Sections
Financial Statement Analysis (20%)	FAR, AUD (Analytical Review), and BAR
Corporate Finance (20%)	BAR
Decision Analysis (25%)	BAR
Risk Management (10%)	AUD (Audit Risk) and ISC
Investment Decisions (10%)	BAR
Professional Ethics (15%)	AUD and REG

Note: The alignment in content doesn't indicate the degree of overlap in specific topical coverage, nor the breadth or depth of the topics covered.

related CMA and CPA exam parts. It's important to note the significant overlap in content areas (but not necessarily breadth and depth of topical coverage within these areas) on Parts 1 and 2 of the CMA exam and the AUD, BAR, and FAR sections of the CPA exam.

The CMA exam has long used Bloom's taxonomy. The levels tested on the CMA exam are Level A, introductory knowledge and comprehension; Level B, application and analysis; and Level C, synthesis and evaluation. Level C topic areas may also contain requirements at Levels A and B. All content areas in Parts 1 and 2 of the CMA exam are tested at the C level.

Bloom's taxonomy was slightly tweaked, and the CPA exam adopted it to better capture the higher-level thinking that's needed for entry-level accounting professionals. The "blueprints" to the Uniform CPA exam use Bloom's Revised Taxonomy to assess four skill levels on each section of the exam: remembering and understanding, application, analysis, and evaluation. Each section of the exam tests the first three skill levels at varying degrees: Only the core AUD section tests at the evaluation level.

A student who pursues a minor in finance or takes additional credits beyond the traditional required corporate finance course will be better prepared for both exams because advanced-level finance courses typically incorporate case analyses, which require the use of higher-order thinking skills such as application, analysis, synthesis, and evaluation. Since most undergraduate accounting curricula include some free electives, taking additional coursework in finance, business analytics, and IT is advisable. Furthermore, additional coursework in information systems or income tax would be ideal for a CPA candidate pursuing the ISC or TCP disciplines, respectively. These additional credits will count toward the 150-credit-hour requirement for CPA licensure.

TABLE 5: THE NINE-STEP PLAN

Step Time Period	Preparation Strategy	Exam Parts and Timing
1. Junior year (September to May-June)	<ul style="list-style-type: none"> ■ Over the course of junior year, complete intermediate accounting, corporate finance, an information systems/IT course, operations management, business ethics, and a finance elective. 	
2. Junior year (May-June)	<ul style="list-style-type: none"> ■ Use CMA review program materials to study for CMA Part 2. 	CMA Part 2 End of May or June
3. Senior year (September-December)	<ul style="list-style-type: none"> ■ Complete cost/advanced managerial accounting course. ■ If available, complete undergraduate business capstone course and/or case course in finance. ■ Complete auditing course and possibly take first tax course. ■ Complete an additional IT or business analytics course if available. ■ Use CMA review program materials to begin studying for CMA Part 1. 	
4. Senior year (Winter break) (December-January)	<ul style="list-style-type: none"> ■ Use CMA review program materials and intensively prepare for CMA Part 1. 	CMA Part 1 Late January or early February
5. Senior year (January-May)	<ul style="list-style-type: none"> ■ Complete tax course(s), business law, advanced accounting courses, and second auditing course if available. 	
6. Graduate with undergraduate degree (May)	<ul style="list-style-type: none"> ■ Take one to two weeks off after graduation. ■ Be sure to register for Core 1 and discipline section selected. 	

Table 5 continued on next page.

Step Time Period	Preparation Strategy			Exam Parts and Timing
	Use CPA review program materials to prepare for discipline exam sections: Choose one discipline			
Disciplines:	BAR	ISC	TCP	
7. Post-undergraduate (June)	<ul style="list-style-type: none"> Start preparation for FAR and BAR sections of the CPA exam. 	<ul style="list-style-type: none"> Start preparation for AUD and ISC sections of the CPA exam. 	<ul style="list-style-type: none"> Start preparation for REG and TCP sections of the CPA exam. 	
8. Post-undergraduate (July-August)	<ul style="list-style-type: none"> Finish preparation for FAR section (Core 1). Finish preparation for BAR section (discipline). 	<ul style="list-style-type: none"> Finish preparation for AUD section (Core 1). Finish preparation for ISC section (discipline). 	<ul style="list-style-type: none"> Finish preparation for REG section (Core 1). Finish preparation for TCP section (discipline). 	CPA: Core 1 in early July CPA: Discipline in late August
9. Post-undergraduate (October-November)	<ul style="list-style-type: none"> Use CPA review program materials for AUD (Core 2) and REG (Cores 3). Study intensively in September, October, and early November. 	<ul style="list-style-type: none"> Use CPA review program materials for FAR (Core 2) and REG (Cores 3). Study intensively in September, October, and early November. 	<ul style="list-style-type: none"> Use CPA review program materials for FAR (Core 2) and AUD (Cores 3). Study intensively in September, October, and early November. 	CPA: Core 2 in late October CPA: Core 3 in late November**

*After Step 4, if successful, the candidate has completed the CMA exam prior to graduation.

**After Step 9, if successful, the candidate has completed the CPA exam.

NOTE: Please go to [nasba.org/stateboards](https://www.nasba.org/stateboards) to determine whether you can sit for the CPA exam prior to earning your degree.

Our updated plan is outlined below and summarized in Table 5.

1. During junior year, the student completes the intermediate accounting sequence (usually two courses), corporate finance, an information systems/IT course, operations management, business ethics, and, if possible, a relevant finance elective. We expect that most accounting majors will have completed coursework in economics and quantitative methods (statistics) by the end of their junior year. The CMA exam assumes that a candidate has knowledge in business economics, time value of money concepts, statistics, and probability. This completed coursework covers a majority of the topics tested on Part 2 of the CMA exam and is invaluable in preparing for this part of it.

2. After the junior year is complete, the student uses the CMA review program materials to prepare intensively for Part 2 of the CMA exam, Strategic Financial Management. The student takes this part of the exam in late May or early June and then recharges in the months of July and August. We suggest starting with Part 2 since this will provide the student with more time to take coursework in business analytics and IT if available.

3. During the first semester of senior year, the student typically completes cost/advanced managerial accounting, auditing, an additional IT or business analytics course, and the undergraduate business capstone course if available. Typically, capstone courses are case-oriented and require application and integration skills (Level C) to examine budgeting, forecasting, performance, and control issues, which are invaluable in preparing for Part 1 of the CMA exam,

Financial Planning, Performance, and Analytics. If such a capstone course isn't required or available, the student should look for an elective case course in finance. At this point, the student will have completed more than three years of college in an accounting program and should have a solid foundation in most of the topics tested on Part 1 of the CMA exam.

4. Over the winter break (December-January), the student uses the CMA review program materials to study for Part 1 of the CMA exam, with the intention of sitting for this part in late January or early February. We recommend this timing because it's early in the spring semester and most likely before major course assignments are due. If the student is participating in an internship in the spring semester, we suggest that they request that it begin in late January. If successful up to this point, the student will have completed the CMA exam prior to graduation in May or June. This is quite an accomplishment and should serve as further motivation to aggressively pursue the CPA exam once the student graduates. It's also a tremendous confidence builder—the student now knows that they can pass a rigorous professional examination.

Note: Obviously, the total amount of study time needed to pass these two parts will vary per candidate. Based on our prescribed timing and sequencing of coursework, most of the topics covered in the required and recommended courses are quickly reviewed and reinforced in a timely manner with the CMA review program materials. As a result, we expect the total study time to be less than it would otherwise be if the student took these two parts after graduation.

5. During the second semester of senior year, the student schedules tax, business law, and advanced financial accounting courses. If this isn't possible, they should take the advanced and/or tax course in the first semester of senior year. Ideally, the student should take two tax courses: individual taxation and business entity taxation. If available, one tax course could be taken per semester. Although it isn't common, adding a second auditing course (IT auditing, for example) would also be useful.

6. After graduation in May (with a degree in hand and the CMA exam completed), the student candidate immediately applies for the CPA exam, then takes one to two weeks off. To capitalize on the synergy and related content areas (and frameworks) between specific CPA core and discipline sections, steps 7 through 9 will differ based on the candidate's selection of discipline area. For example, the FAR (core) and BAR (discipline) sections both have substantial coverage of technical financial accounting and reporting matters. Therefore, studying these two sections together is likely more efficient, as the candidate is focusing on related content and frameworks. The same rationale holds for AUD (core) and ISC (discipline), as well as REG (core) and TCP (discipline). In all cases, we recommend that the candidate take the core section first (since it tests the key fundamentals in that section), followed by the related discipline section, which takes a much deeper dive into the topical areas.

Note: Steps 7 through 9 vary according to the student's choice of discipline: BAR, ISC, or TCP. For each of the remaining steps, A relates to BAR, B relates to ISC, and relates to TCP.

7. In June, the candidate uses the CPA review program materials to prepare for their core (Core 1) and related discipline section.

A. FAR (Core 1) and BAR sections of the CPA exam (remaining cores: AUD and REG)

or

B. AUD (Core 1) and ISC sections of the CPA exam (remaining cores: FAR and REG)

or

C. REG (Core 1) and TCP sections of the CPA exam (remaining cores: FAR and AUD)

Because the candidate recently studied for the CMA exam, the preparation time for the two CPA sections selected is shortened since the student is familiar with the testing materials, study plans, and exam question layouts (multiple-choice questions and task-based simulations). The candidate schedules their Core 1 section in early July.

8. For the remainder of July and early August, the candidate uses the CPA review program materials for their discipline section choice. If they've completed relevant coursework in the

senior year as we recommend, much of the material will be relatively fresh in their mind, reducing the amount of study time needed. The candidate schedules their discipline section at the end of August.

9. While steps 1 through 8 were challenging, the real test of the candidate's dedication, motivation, and commitment is now at hand, particularly if the individual is starting their career in the fall after graduation. Starting in September, candidates must maintain their focus for three to four more months and use the CPA review program materials to prepare for their Core 2 and Core 3 sections, then schedule and take those remaining parts. For example, if FAR is the student's Core 1 and BAR is their discipline, then AUD is Core 2 and REG is Core 3. Recall that the candidate has already completed one of the core sections (Core 1) and the corresponding discipline section.

A. AUD (Core 2) and REG (Core 3) sections of the CPA exam

or

B. FAR (Core 2) and REG (Core 3) sections of the CPA exam

or

C. FAR (Core 2) and AUD (Core 3) sections of the CPA exam

With the emphasis on external financial reporting, technology, and analytics in Part 1 of the CMA exam, the candidate will have reviewed and been tested on many intermediate accounting topics covered in FAR. Furthermore, many of the analytics, financial ratios, and professional ethics covered in AUD were tested on both parts of the CMA exam. Additionally, if the candidate completed the business law and tax courses in their senior year as we advised, 75% to 90% of the content tested in the REG section should be relatively fresh in their mind.

The candidate schedules Core 2 in late October and Core 3 in late November (or early December). This timing is desirable because it's before calendar year-end corporate closings and public accounting's "busy season." If successful, the May accounting graduate will complete both exams by late November (or early December), six months after graduation.

Stand Out, One Step at a Time

Candidates following this nine-step plan will take one exam section at a time (two while a student and four shortly after graduation), thereby capitalizing on the timing of their coursework, test-taking ability, and professional exam experience. All of this should improve their chances of success on both the CMA and CPA exams. That said, we recognize that this nine-step plan is extremely ambitious and may not appeal to all accounting students—even though it's a viable choice for those who are highly motivated and dedicated (honors students, for example). It may also appeal to students who plan to go straight to graduate school to earn their 150 credit hours. Students majoring in accounting and taking additional coursework in finance and analytics are ideal candidates.

To promote and encourage students to take the CMA exam, IMA established the [CMA Scholarship](#) in 2012. It's designed for high-achieving students who attend an accredited college or university. At each institution, faculty can nominate a maximum of 10 students per academic year, and all student nominees will earn the scholarship.

Recipients of the CMA Scholarship will receive a comprehensive package of benefits enabling them to study for and take the CMA exam at no cost. The benefits include:

- IMA student membership for three years,
- Entrance fee to the CMA program,
- Exam support package—an assessment tool that can help assess the content covered on the CMA exam,
- Registration fees for the first attempt at both parts of the CMA exam, and
- [Gleim course](#) provider review material for one year (all regions except China).

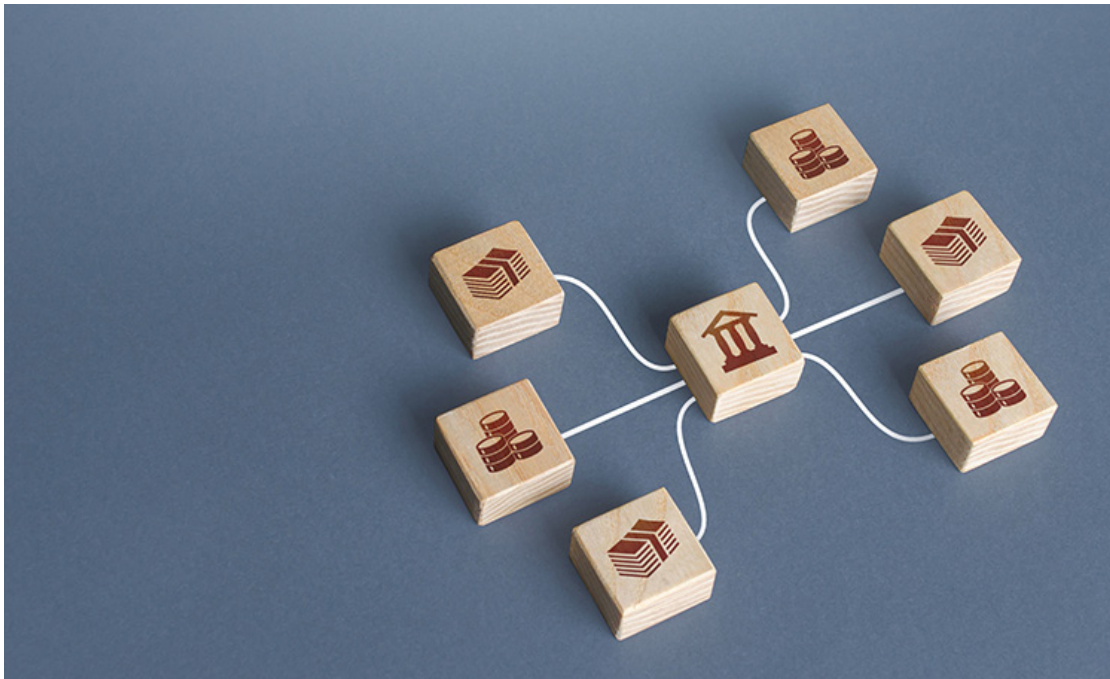
IMA accepts applications from September 1 to June 30.

Nominating students for the CMA Scholarship is an investment that has a triple future payoff. First, improved success rates on professional accounting exams are direct assessment measures for assurance of learning in undergraduate accounting programs. Second, students are more likely to endorse accounting programs where they received such encouragement and goodwill. Third, those students who successfully follow our plan will have passed the CMA exam before they start their employment or graduate studies, making them more valuable to their employer, which leads to a higher demand for the institution's accounting graduates. In short, everyone wins!

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2024 Student Case Competition: Determining How to Classify Stock Investments: The Case of Unbekannt, Inc.

A finance team must decide whether to keep using the fair value method or switch to the equity method for its stock investment.

By Jason Porter, Ph.D.; Michael W. Penn Jr., Ph.D.

2024 STUDENT CASE COMPETITION

The Student Case Competition is sponsored annually by IMA® to provide an opportunity for students to interpret, analyze, evaluate, synthesize, and communicate a solution to a management accounting problem.

Unbekannt, Inc., is a food distributor that specializes in foreign events. While headquartered in the United States, it does business around the world, shipping specialized food, beverages, and decor from one nation to another in order to host special events. For example, it provides German beverages, sausages, and costumes to venues in the U.S. as part of Oktoberfest events. The

company also ships Mexican foods, horchata, sombreros, and other traditional items to Japanese hotels wishing to host Cinco de Mayo celebrations.

Overall, the business has been very successful, especially with its respectful focus on sharing cultural traditions. It has low production costs, since it purchases food, beverages, and decorations from established vendors in the countries where the traditions originate and rents shipping space from large airlines. Most of its costs are driven by labor, since it hires experts in linguistics and local traditions and customs. Because specialty suppliers, not the company, host the events, Unbekannt doesn't take on much risk. In other words, it gets paid whether or not the event is a success. That said, Unbekannt's employees take pride in their work and do everything they can to help the different venues around the world plan and execute successful events that will become local traditions, providing Unbekannt with continuing markets for its services.

Unfortunately, the company faced challenges during a recent economic downturn as venues closed and shipping became more difficult. The company was able to leverage its existing connections and continue to operate by modifying its services. Instead of supplying large gatherings, Unbekannt would provide party boxes for individuals and outdoor decorations. The result was a series of small, more reasonably priced events that kept the company solvent and its employees paid. As the downturn continued, Unbekannt was able to provide some exciting opportunities for clients looking to host parties and other activities to reinvigorate communities or advertise their products.

By the end of last year, in fact, Unbekannt's finance team was in the unusual position of having extra cash and no readily available investment opportunities. After long consultations, the team decided that its best option was to purchase stock in some of its suppliers, especially a company named *Éxito Real, Inc.* *Éxito* is headquartered in Mexico City and provides most of the food and costumes Unbekannt uses for its popular Cinco de Mayo events. *Éxito's* shares on Nasdaq dropped significantly during the downturn, and Unbekannt's finance team felt that purchasing stock in *Éxito* would not only give Unbekannt a chance to help support a key supplier but would also give it a way to ensure that *Éxito* continued to provide Unbekannt with the same services it had offered in the past. At the time of its initial investment, Unbekannt became the largest single shareholder in *Éxito* other than the company's founder, who owned 25%.

Finance Leadership Meeting

During the downturn, Unbekannt's finance team held daily meetings to address cash needs, financing options, reporting requirements, and, more recently, investment opportunities. The meetings were led by Azul, the company's CFO, with support from Beslau, the controller, and Kendi, the director of finance.

Other team members were invited as needed, but today's meeting included only the three leaders. They needed to make some decisions about their recent investment in *Éxito Real*, and Azul felt the meeting would be more effective with just the leadership team.

"Good afternoon, Beslau," Kendi said as they entered the boardroom for the day's meeting. "How are you doing?"

"I'm doing well, *danke*," Beslau replied, with a light German accent. Beslau was born in Munich but migrated to the U.S. with family at age 11. Most of the time, Beslau's accent was barely recognizable, but it did tend to come out late in the day as he got tired. "And you?"

"I'm doing just fine, although I wish this meeting were over." Kendi was an immigrant from the Ivory Coast but came to the U.S. as a baby. There was no accent to give away Kendi's origin.

"Really?" Beslau asked. "Why's that?"

"Because this isn't going to be a good meeting, and you know it." Kendi slouched into a chair and looked out the window. "It's going to be all about GAAP [Generally Accepted Accounting Principles] rules as we get ready for the annual financial statements."

Kendi held up a hand. "Don't tell me. You're all excited about it, but some of us, believe it or not, find it kind of boring."

TABLE 1: UNBEKANNT, INC., FINANCIAL STATEMENTS

TABLE 1A: MULTI-STEP INCOME STATEMENT FOR YEAR ENDED DECEMBER 31, 2022

Sales revenue	\$31,750,000	
Cost of goods sold	\$22,034,500	
Gross profit		\$9,715,500
 <u>Operating activities</u>		
Selling expenses		
Advertising expense	\$595,313	
Bad debt expense	\$495,000	
Sales force salaries expense	\$1,706,563	
Shipping expense	\$259,953	
Total selling expenses	\$3,056,829	
Administrative expenses		
Executive salaries expense	\$2,032,000	
Insurance expense	\$47,625	
Depreciation expense	\$635,000	
Miscellaneous admin. expenses	\$31,750	
Rent expense	\$762,000	
Utilities expense	\$127,000	
Total administrative expenses	\$3,635,375	\$6,692,204
Income from operations		\$3,023,296
 <u>Other gains and losses</u>		
Interest expense	(\$202,406)	(\$202,406)
Income from continuing operations before taxes		\$2,820,890
Income tax expense		\$789,849
Net income		\$2,031,041
Earnings per share		\$0.97

Beslau just chuckled and found a seat that also had a good view of the nearby lake. “You finance people don’t know fun when you see it! This is going to be a great meeting.”

“Of course it is!” Both Kendi and Beslau jumped as Azul came in. Azul was born in south Texas and had a deep southern drawl, despite being raised by Mexican parents and speaking Spanish fluently. “We’re gonna have us a great time this afternoon. I mean, who doesn’t love figuring out how to share good news with our investors?”

Kendi sighed. “Can’t you at least pretend to be a finance person still?”

Azul laughed. “I’m the CFO, Kendi. I can’t afford to play favorites between accounting and

finance. I have to work both sides, so of course I'm excited to be here. Let's get started."

Azul sat down between the two other senior members of Unbekannt's finance department. "I'll keep it quick, since some of you have unreasonable prejudices."

Kendi sighed. It was going to be one of those meetings.

"We're comin' up on year-end, like Kendi said. How're our books looking?" Azul asked.

Beslau shrugged. "Given what's going on in the world, they look pretty good. Actually, they look much better than last year. The increases in prices across the board haven't helped, so our margins aren't as good as they were before the economy tanked, but we're doing okay. I think we'll just meet analysts' forecasts."

Kendi smiled. "Excellent. Everything looks good, we're going to meet our targets, and everyone's happy. Meeting adjourned!"

Azul frowned. "Kendi," he said reprovingly.

"All right. I'm sorry. What's up?" Kendi said.

"I think we need to decide what to do with our investment in Éxito," Azul answered.

Beslau frowned. "Why? Do you want to buy more shares? Or maybe you want to sell a few. I haven't seen the current market price for their stock."

"No, no. I'm happy with our stake," Azul said.

Kendi frowned. "Then what do we need to decide?"

"How to treat it for accounting purposes," Azul said.

"It's a stock investment, and we're using the fair value method. That's really our only option, since Éxito's stock is publicly traded and the price is easy to find," Beslau said.

"No," Azul disagreed. "It's not our only option. We could use the equity method."

"Why would we want to do that?" Beslau asked.

"Have you looked at Éxito's current stock price?" Azul asked.

"I know it has fluctuated the last few weeks. That's why I thought, like Kendi, that you might be thinking of adjusting our holdings," Beslau said.

"I don't want to buy more; we need our cash for other things right now," Azul said.

"It's not a big change in value, so it won't have a big effect on our financials. I mean, our EPS [earnings per share] is going to meet analysts' expectations regardless of what happens with Exito's stock price," Beslau replied.

TABLE 1B: BALANCE SHEET AS OF DECEMBER 31, 2022

	2022	2021
Assets		
Current assets		
Cash	\$476,250	\$603,250
Accounts receivable	\$1,349,375	\$952,500
Allowance for bad debts	(\$158,750)	(\$476,250)
Inventory	\$4,127,500	\$4,445,000
Total current assets	\$5,794,375	\$5,524,500

Table 1B continued on next page.

<u>Long-term assets</u>		
Expansion fund	\$72,000	\$0
Land	\$3,492,500	\$2,222,500
Building	\$2,540,000	\$2,540,000
Equipment	\$8,890,000	\$4,127,500
Accumulated depreciation	(\$3,810,000)	(\$3,175,000)
Total property, plant, and equipment	\$11,184,500	\$5,715,000
Total assets	\$16,978,875	\$11,239,500

Liabilities and Stockholders' Equity

<u>Current liabilities</u>		
Accounts payable	\$1,930,334	\$1,905,000
Salaries payable	\$555,625	\$317,500
Unearned revenue	\$793,750	\$476,250
Total current liabilities	\$3,279,709	\$2,698,750
<u>Long-term debt</u>		
Loan payable	\$2,540,000	\$952,500
Notes payable	\$4,445,000	\$2,540,000
Total long-term debt	\$6,985,000	\$3,492,500
Total liabilities	\$10,264,709	\$6,191,250
<u>Stockholders' equity</u>		
Common stock (\$ par, 5,300,000 authorized, 2,100,000 outstanding)	\$2,100,000	\$2,100,000
Additional paid-in capital	\$952,500	\$952,500
Retained earnings	\$3,661,666	\$1,995,750
Total stockholders' equity	\$6,714,166	\$5,048,250
Total liabilities and stockholders' equity	\$16,978,875	\$11,239,500

Azul nodded. "As long as there isn't a big bump between now and year-end, but what if something happens in this last week, or what if, heaven forbid, the auditors find something in our financials that has to be corrected? Wouldn't it be better to use the equity method for the investment? That will give us an income effect that's easier to forecast than market prices."

"What are you talking about?" Kendi asked. "I don't remember much about the equity method from my college accounting classes, but I do remember you can't use it unless you own at least 20% of the outstanding stock, and we aren't even close."

"Wait," Beslau objected. "Azul might be right. We might have a case for using the equity method. I haven't looked at the rules in a while since we don't own any other investees, but I believe the term the FASB [Financial Accounting Standards Board] uses is 'significant influence' over the investee company to switch to the equity method, and the FASB presumes that you have significant influence once you own at least 20% of the outstanding stock."

"But we don't own 20% of the outstanding stock," Kendi started to say, but Azul jumped in.

TABLE 1C: STATEMENT OF CASH FLOWS FOR YEAR ENDED DECEMBER 31, 2022

<u>Cash flow from operations</u>		
Net income		\$2,031,041
Adjustments:		
Depreciation	\$635,000	
<u>Change in working capital accounts</u>		
Change in accounts receivable	(\$714,375)	
Change in inventory	\$317,500	
Change in accounts payable	\$25,334	
Change in salaries payable	\$238,125	
Change in unearned revenue	\$317,500	\$819,084
Net cash flow from operations		\$2,850,125
 <u>Cash flow from investments</u>		
Purchase of securities	(\$72,000)	
Purchase of land	(\$1,270,000)	
Purchase of equipment	(\$4,762,500)	
Net cash flow from investments		(\$6,104,500)
 <u>Cash flow from financing</u>		
Repayment of loans	\$1,587,500	
Issuance of notes payable	\$1,905,000	
Payments of dividends	(\$365,125)	
Net cash flow from financing		\$3,127,375
Net increase (decrease) in cash		(\$127,000)
Cash, January 1, 2022		\$603,250
Cash, December 31, 2022		\$476,250

“No, but we’re the second biggest stockholder, and the founder doesn’t have a controlling vote.”
 “But we don’t have a seat on the board,” Kendi countered.
 “But they did offer us one,” Beslau said with a slight frown. “We just didn’t like the conditions they put on us.”

“Oh, yeah,” Kendi nodded. “Didn’t they say that we couldn’t buy any more stock for like 12 months or something?”

Azul nodded. “Which suggests that they’re afraid that we own too much of the stock and supports us having a significant influence.”

“And we’re one of their biggest customers,” Beslau added. “That also indicates some influence.”

“I don’t know,” Kendi said. “Aren’t we pushing here? And for what? Just to switch from a market-based adjustment to an investee profit-based adjustment? That doesn’t seem worth the hassle. And we aren’t even sure about the rule. For all we know, GAAP may require that we do have to own a full 20%. We need to find out.”

“That’s a good point,” Beslau agreed. “This can’t be about our projections. It needs to be about following GAAP. That’s what our investors expect and what the auditors are looking for. I agree that a more stable prediction would be nice, especially since we’re having a good year. But it isn’t worth a fight with the auditors.”

Azul nodded. “Which means we should switch.”

TABLE 2: INVESTMENT IN ÉXITO REAL, INC.

Number of shares	
Éxito Real, Inc.’s total shares outstanding	150,000
Number of shares owned by Unbekannt	18,000
Stock price	
Purchase price	\$4.00
Market price on 12/31/2022	\$7.25
Financial results	
Éxito Real, Inc.’s reported net profit (loss)	(\$20,000)
Dividends paid by Éxito Real during 2022	\$35,000
Other Important Numbers	
Tax rate	28%

“Which means,” Beslau disagreed, “that we need to dig a little deeper, reread the rules, look at the entries, and see which option would provide the best information for our investors and other stakeholders.”

“Oh, sure,” Azul said, “and I’m sure that will be to use the equity method.”

Kendi sighed. “I’m sure you do feel that way. But for now, maybe Beslau and the accounting team can run some numbers and do some more research for us.”

“Good idea. Let’s meet again in two days,” Azul decided. “Beslau, please bring the information about both options and a recommendation so we can get the change made.”

Case Questions

1. Make the necessary adjusting entries to account for Unbekannt, Inc.’s investment in Éxito Real, Inc., at the end of the fiscal year, assuming that Unbekannt’s finance team decides to use the fair value method to account for the investment.
2. Update Unbekannt, Inc.’s financial statements to incorporate the effects of the adjusting entries for the fair value method.
3. Make the necessary adjusting entries to account for Unbekannt, Inc.’s investment in Éxito Real, Inc., at the end of the fiscal year, assuming that Unbekannt’s finance team decides to use the equity method to account for the investment.
4. Update Unbekannt, Inc.’s financial statements to incorporate the effects of the adjusting entries for the equity method.

5. Find the financial accounting standards that a company should use to determine when to use the equity method of accounting. If you're studying in the U.S., please use U.S. GAAP, available at FASB.org, for your research. If you're studying outside of the U.S., please use International Financial Reporting Standards (IFRS), available at IFRS.org, for your research. Note: You'll need to register for a free account to access the IFRS database if you don't already have one.

6. Using your answers to the previous questions, determine the correct classification for Unbekannt's investment in Éxito Real, Inc. Defend your answer sufficiently to convince the finance team to follow your recommendation.

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ChatGPT and AI in Accounting Education and Research

When viewed in a new light, ChatGPT and AI can enrich the classroom experience for professors and students.

By Laurie Burney, Ph.D., CMA, CSCA; Kimberly Church, Ph.D.; Mfon Akpan, DBA, CGMA; Scott Dell, DBA, CPA

Not a day goes by without headlines about AI, offering hope and, more often, fear relating to these powerful technology tools. AI technologies, notably ChatGPT, have taken the world by storm. Therefore, the decision facing educators is whether to embrace these powerful tools for classroom and research activities.

Although AI has existed for more than 60 years, its use has recently reached a fever pitch. One application of these tools can conduct a text-based “chat,” hence the category name AI chatbots. These bots allow for a “conversation” based on user “prompts” to answer questions, produce programming code, and draft a variety of useful responses.

NEXT-GEN AI

Generative AI tools such as ChatGPT-3.5 have quickly progressed through many iterations

since GPT-3's initial release in June 2020. Technological advances include an ability to use a conversational tone, understand images, and decline inappropriate prompts. These advances are possible due to the rapid increase in available parameters or levers that enable the generation of responses. Other players in the space include LLaMA by Meta (Facebook), Bard by Alphabet (Google), as well as Amazon Lex and Salesforce Einstein. Predictions for 2023 estimate an investment of more than \$1 trillion into the chatbot space. PwC alone plans to spend more than \$1 billion over the next three years, with the hope of improving productivity and efficiency.

Based on a large language model using natural language processing, the current technology analyzes user prompts and existing words and then predicts the next word based on statistical probabilities. It can accomplish this task with astonishing speed and remarkable English grammar.

So should accountants start updating their résumés? Not quite yet. Caution is warranted when using these tools because the AI output may appear insightful when, in reality, the generated answer may be invalid (see Bill Jelen's [How Well Does ChatGPT Know Excel?](#) for a good example). The technical term used in the industry associated with improper responses is "hallucination." Additionally, while ChatGPT is excellent for summarizing and synthesizing many tasks, given its text-prediction process, it can't effectively generate new knowledge (see [Summary of CHATGPT/ GPT-4 Research and Perspective Towards the Future of Large Language Models](#)).

What path do we take moving forward? Students are already using AI tools. That, in and of itself, doesn't justify the further integration of AI. But as educators, we need to be aware of AI and be ahead of the curve in understanding how to leverage emerging technologies. Our responsibility is to prepare students, as evolving professionals, to use these tools responsibly and ethically.

AI IN THE ACCOUNTING CLASSROOM

The use of ChatGPT and other AI in an educational setting often raises resistance because students' use of ChatGPT can tread a fine line between questionable integrity and employing a valuable educational tool. Certain school districts and universities have expressed apprehension about students' use of AI, leading to instances in which certain AI tools have been blocked or banned on campus. But instead of resisting these emerging tools, it's important to consider embracing them, given their potential to augment the learning experience. This gives rise to concerns about how we can successfully shift to harnessing the power of AI tools.

Accounting education has evolved, even if sometimes begrudgingly, as innovative tools have emerged. AI in the classroom, particularly the application of ChatGPT, signals what feels like a seismic change. But this change, as with many others in history, has the potential to revolutionize the learning experience for educators and students. ChatGPT's advanced capabilities provide opportunities for educators to enhance teaching methodologies, promote interactive learning, and foster students' critical thinking skills.

Many educators are already using AI through its integration into textbook publishers' homework management systems and adaptive learning tools. The effectiveness of these tools ultimately depends on the use. Publisher materials often engage students passively or indirectly, limiting their potential impact. In contrast, ChatGPT surpasses these functionalities and serves as a more direct and active collaboration tool.

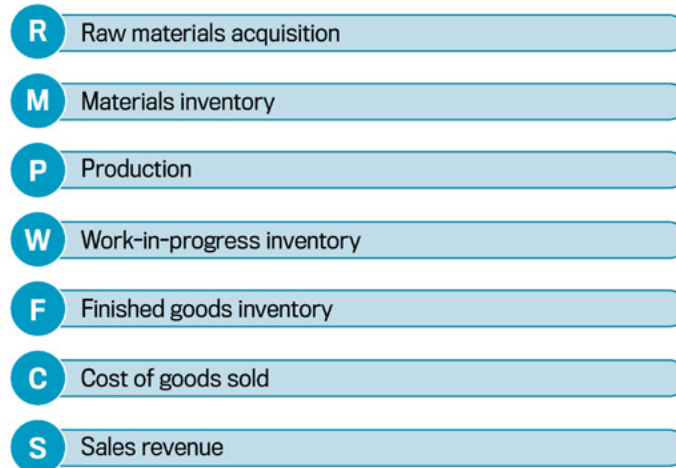
STUDENT AND EDUCATORS' USE

AI has immense potential for student development in the accounting discipline through access to real-time interaction and feedback. When used properly, ChatGPT can enhance language, critical thinking, and writing skills. It can be leveraged to generate or refine ideas for class projects, establish an initial list of viable topics and citations for research, or serve as a valuable resource for writing the first draft of an assignment. Students can create personalized study materials, such as mnemonic phrases or songs, to improve their memory and retention beyond what adaptive learning tools provide. Note, however, that an element of learning is to recognize that the output may need revision for accuracy (see Figure 1 for an example). ChatGPT can also enable customized

tutoring based on individual needs, thus facilitating a more tailored learning experience. ChatGPT can serve as a valuable partner for educators in various ways. Think of it as an advanced

FIGURE 1: CHATGPT-GENERATED MNEMONIC

Here's a mnemonic to help you remember the flow of costs in manufacturing:



You can remember it using the acronym "RMPWFCS": Remember, many products will fail—costly sales!

graduate assistant. It can aid in idea generation and assessment, allowing educators to leverage its capabilities to create or modify course materials (see Figure 2 for an example). By integrating AI-generated imagery, educators can enhance the visual experience for students, allowing for complex accounting concepts to become more accessible.

Educators can utilize ChatGPT to prepare or modify lecture content or develop customized problem sets outside of publisher-produced materials. This enables a more tailored approach to activities, projects, and exams, thus promoting critical thinking and problem-solving skills. Educators can also rely on the tool to:

- Assist in providing timely and personalized feedback for writing assignments, overcoming the limitations of time and resources that typically hinder comprehensive feedback.
- Aid in student responses and inquiries, such as drafting emails or tactfully declining unreasonable requests.
- Write letters of recommendation, showcasing unique skills and strengths of students by connecting to their LinkedIn profiles.

Rather than viewing ChatGPT as a threat to the traditional classroom environment, educators can embrace it as a valuable resource to enrich the learning experience. Educators can unlock new opportunities for student engagement and creative problem solving by:

- Emphasizing the significance of prompt engineering (well-structured and clear prompts) to enhance the quality of the responses generated by ChatGPT.
- Creating crucial awareness among students about the limitations and potential biases of AI to understand the tool's limitations. Students must critically assess and validate the responses generated by ChatGPT to improve the accuracy and reliability of its response, which can also enhance language and writing skills.

FIGURE 2: CHATGPT-GENERATED CLASS ASSIGNMENT

TOPIC

Applying Management Accounting Terminology through Online Video Plant Tours

Objective: To apply management accounting terminology through virtual plant tours and to develop a better understanding of how accounting concepts can be applied in real-life situations.

INSTRUCTIONS

1. Divide the class into small groups and assign each group a virtual plant tour to watch. The tours can be sourced from YouTube, the company website, or other relevant online sources.
2. Ask each group to watch the video and identify relevant accounting terminology used in the video. Examples of terms could include fixed costs, variable costs, direct labor, indirect labor, overheads, depreciation, etc.
3. After watching the video, each group should discuss and create a list of accounting terms used in the video and how they were applied in the context of the plant tour.
4. Each group will present their findings to the class and explain how the accounting terminology they identified was used in the plant tour.
5. As a class, discuss the key accounting concepts identified across all the plant tours and how they relate to management accounting practices.

ASSESSMENT

1. The group presentation will be assessed on the accuracy and completeness of the accounting terms identified and their application in the context of the plant tour.
2. Participation in the class discussion will be assessed based on the student's ability to contribute to the discussion and their understanding of the accounting concepts discussed.

Note: This exercise can be modified based on the level and needs of the class. The focus could be on different accounting concepts, and the plant tours could be chosen to align with the focus of the exercise.

- Rewriting questions and cases to focus on the process rather than the outcome. By incorporating open-ended and critical thinking questions, students are encouraged to analyze and evaluate accounting scenarios.
- Rethinking assessment by having students assume the role of auditor. Provide students ChatGPT solutions to exams, which can contain roughly 54% errors, and ask them to validate (provide opinions or recommendations) the responses for their grade. This approach not only tests students' understanding but also exposes them to real-world scenarios and AI limitations while still being mindful of grading time.
- Including a clear statement or policy in the course syllabus regarding the appropriate use of AI-generated content. Clear guidelines can be established to educate students on the importance of prompts, AI hallucinations, biases, and proper citation and referencing. Emphasizing the importance of academic integrity and providing guidance on ethical practices can help mitigate concerns while still reaping the benefits of AI technology.

AI, particularly ChatGPT, presents myriad opportunities for both educators and students in the accounting classroom. By embracing this tool and leveraging its capabilities, educators can augment learning science and promote critical thinking, writing skills, and customized learning experiences. As we navigate the evolving educational landscape, AI stands as a powerful ally, revolutionizing the way we teach and learn accounting.

CHATGPT AND AI IN RESEARCH

Many routine tasks are involved in creating and preparing research papers and presentations, consuming countless hours. Although these tasks often can't be eliminated from the process, researchers should learn to leverage AI tools to facilitate a more effective and efficient process. We'll touch on a sampling of available tools to raise awareness of options that streamline low-value-added research activities:

Research project management. Managing a research project is vital to any successful publication. [Researcher.Life](#) by Editage is a (mostly) free tool that enables project planning and organization from ideation through submission. The first step in creating a project is to identify the research stream. This tool lists relevant articles, including working papers.

An abstract can be viewed and the potential paper accessed as available through your institution. In addition, the R Discovery portion of the application includes a weekly roundup that features papers in trending topic areas, thus enabling the user to scan abstracts and determine whether a paper is relevant. Researcher.Life continues to support the project by editing drafts, helping locate a publication outlet, ensuring that the article is consistent with journal submission recommendations, and preparing summaries for a manuscript overview. Courses in research skills, mostly targeting beginning researchers or those writing for an audience in a non-native language, are also available.

Multilingual support. ChatGPT can comprehend and produce content in more than 100 languages. This feature benefits non-native language speakers and expands access to diverse sources. Additionally, its multilingual capabilities broaden the research field and promote cross-cultural comprehension and cooperation.

Identifying relevant sources and literature review. Research success depends on developing an interesting research topic and identifying relevant and reliable sources of information. The vast amount of online information can make this process time-consuming and challenging.

[Connected Papers](#) generates a graphical display of related citations arranged based on their similarity to the target publication. This application is connected to [Semantic Scholar Paper Corpus](#), which it uses to develop a graph. Two free graphs are allowed per month, with the option of creating an account to gain three more monthly. To create the graph in Figure 3, we entered the following paper citation: Laurie L. Burney, Robin R. Radtke, Sally K. Widener; "The Intersection of 'Bad Apples,' 'Bad Barrels,' and the Enabling Use of Performance Measurement Systems." *Journal of Information Systems* 1 June 2017; 31 (2): 25–48."

The distance between nodes represents the degree of connection among the articles, whereas the opacity of the node's color reflects its recency. Not only does Connected Papers generate this interactive graph, but it also provides the following for all included articles: the citation, full paper abstract, and links for the article for a PDF version (if free), the publisher page, Semantic Scholar page, and Google Scholar page.

[You.com](#) is a useful tool for obtaining an overview of an issue and identifying a research stream. After entering a question, such as "Does the coercive use of management controls impact employee behaviors?" You.com provides links to online resources on topics ranging from popular press to business press to academic papers, including those in process and published.

[ResearchRabbit](#) is primarily an application that allows users to build a collection of articles for a project. It also searches for related articles, relying on the Semantic Scholar database to build an interactive visualization of relevant papers.

Summarizing and synthesizing findings. AI models such as ChatGPT are valuable resources for researchers seeking to summarize and synthesize findings. ChatGPT can generate concise and simplified summaries of research papers, making it easier for researchers to identify key findings and insights. Additionally, AI can provide thematic analyses of the existing literature, which can help researchers gain a more comprehensive understanding of the current body of knowledge in their field. Using AI models, such as ChatGPT, can help researchers save time and effort while ensuring a more thorough understanding of their research area.

Drafting manuscripts and editing. [Paperpal](#) is a more powerful writing tool than ChatGPT for academic purposes. This tool evaluates writing and provides suggestions for improvement. It's especially useful for non-native English-speaking authors, as it helps improve writing and allows the user to write in one language and translate to another. The application is also available as an add-in to Word. Note that the first 500 suggestions are free, with a charge for additional edits.

[Writefull](#) provides useful tools for completing a manuscript. With the abstract generator, the user inserts the text of an article and Writefull generates an abstract. Additional assistance comes from a title generator, a paraphraser that provides alternative versions of a passage, and an "academizer" that converts an informal sentence into an appropriate version for an academic audience.

Formatting and citation management. Another time-consuming task is formatting citations and references (and also reformatting, many times, for submission to a new journal). Several tools are available to facilitate citation management and formatting, such as [Mendeley](#), [Zotero](#), [EndNote](#), [PowerNotes](#), and [NoodleTools](#). Each has its own strengths and weaknesses; thus, investigation is key before making a final choice.

Microsoft Word includes a function to allow the author to build a source list on the References tab. Once the source is input, the author can insert a citation as the manuscript is written. The format of this citation can be changed to fit journal style requirements. This tool also creates a reference list.

Note, that while Word provides an option of including all references vs. works cited, at this time the works cited still includes all sources. A simple work-around is available: When viewing the listed papers under Manage Sources, a small check mark appears by sources that are cited in the current manuscript. Upon completion of the manuscript, a works cited list can be generated by deleting the sources that don't have a check mark (i.e., cited in the manuscript), creating a cited papers reference list.

Presentations. Designing powerful and consistently themed presentations is another time-consuming task. Its importance can't be overstated given the value presentations have in communicating our research and developing our reputation. PowerPoint currently includes a feature to assist in the design of slides, but this is an ideal space for AI to step it up a notch. Many AI presentation tools are available, such as [beautiful.ai](#), [Designs.ai](#), [Presentations.AI](#), [Venngage](#), and [Mind the Graph](#).

These tools have templates that often include basic graphs, illustrations, presentation slides, infographics, and posters. Some vendors even allow live polling. Along with these templates, AI tools assist in improving the organization and quality of the presentation, often with tools to integrate directly into PowerPoint and other presentation software. Although many allow free trials, most require a subscription beyond the basic trial.

Sometimes, a basic approach is sufficient instead of paying for all the bells and whistles. Word's web-based version currently provides a feature to export text to PowerPoint. AI will add a theme, design, imagery, icons, etc., providing a variety of options. We tested this with a manuscript. While the conversion doesn't result in a final polished presentation, it effectively and quickly converts the main text into PowerPoint. That alone saves significant time, with time further saved with the PowerPoint design.

This feature is part of Microsoft's initiative to integrate GitHub's AI tool, Copilot, into Word, Excel, PowerPoint, and Outlook. As with other products, Microsoft products' ability to be leveraged for efficiency and effectiveness will continue to grow.

WORDS OF CAUTION

There should be caution when relying on AI-generated content. For instance, a query for ChatGPT regarding the history of management accounting may appear to provide valid references, but this may not be the case.

Misinformation and biases. A close look at the generated history of management accounting

shows that the narrative contained inaccuracies, such as “The work of Robert Anthony and his colleagues at Harvard Business School was particularly influential during this period,” in the context of discussing the contributions of activity-based costing and the balanced scorecard. While the attribution to Harvard is correct, it was actually Robert Kaplan who contributed these management initiatives instead of Robert Anthony, who was a pioneer of management accounting and who retired in 1982, prior to these innovations.

Overreliance on AI-generated content. While AI models offer significant benefits, overreliance on generated content can inhibit critical thinking and creativity. Educators and researchers should use AI-generated content as a supplement rather than a replacement for their expertise and judgment.

Plagiarism and academic integrity. AI-generated content raises concerns regarding plagiarism and academic integrity. Users must be vigilant in ensuring that AI-generated content doesn’t compromise the originality of their work and adheres to ethical standards.

Various AI tools have been developed that purport to detect AI-generated content. We first tested [GPTZero](#). We input two paragraphs generated by ChatGPT-3.5, as referenced earlier about “Robert Anthony.” The tool identified these paragraphs as likely entirely written by AI. One sentence in particular influenced this conclusion: “Your sentence with the highest perplexity, ‘This led to the development of new techniques and tools for management accounting, such as activity-based costing, balanced scorecards, and enterprise resource planning systems.’ has a perplexity of: 65.” But editing these complex and wordy sentences may prevent the detection of AI drafts.

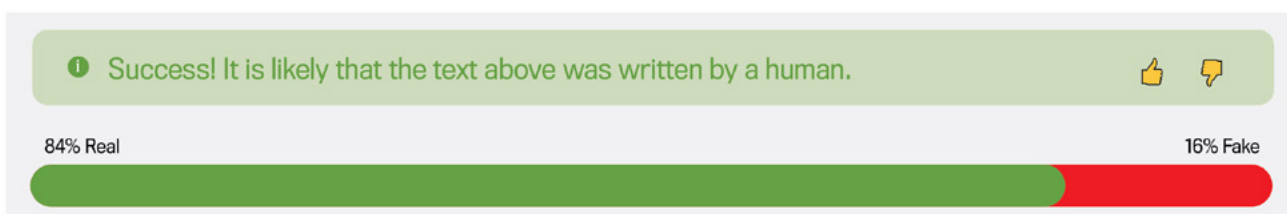
We also entered a ChatGPT initial draft of this article’s background from ChatGPT-3.5 and GPT-4. The result, as shown below, was that the text was likely entirely written by a human, and no sentences were identified as likely AI-generated. Thus, as expected, passages generated by GPT-4 versions are less likely to be detected.

Other detection tools produced similar results. [GPTKit](#) was unable to detect that the text was generated by AI, producing the following:

Finally, Writefull’s GPT Detector indicated that a portion of the text was likely generated by AI but only estimated that probability at 12%.

Your text is likely to be written entirely by a human.

Privacy and data security concerns. AI models often access sensitive data, raising concerns regarding privacy and data security. Users must ensure that their personal identifiable information



and other private data are protected and that AI models comply with relevant data protection regulations.

CLOSING THOUGHTS GENERATED BY CHATGPT

In summary, integrating AI tools into the accounting classroom and research has the potential to revolutionize the way accounting is taught, practiced, and researched. By embracing AI technologies responsibly, educators can equip students and professionals with the necessary skills and knowledge to navigate the evolving landscape of accounting and contribute to its continued growth and innovation.

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Adding Data Analytics to Cost Accounting Curricula

Data analytics is an important part of a young accountant's training and should be incorporated into the classroom.

By Li Qu, Ph.D., CMA

The technology and analytics domain of the IMA® (Institute of Management Accountants) [Management Accounting Competency Framework](#) requires accountants to be adept in information systems, data governance, data visualization, and data analytics. Specifically, the Framework refers to data analytics competency as the ability to “extract, transform, and analyze data to gain insights, improve predictions, and support decision making.” Therefore, helping students gain data analytics competency is extremely important.

Adding data analytics to cost accounting curricula is a good alternative because cost accounting is related to data analytics, given its emphasis on using data to support decision making. And cost accounting textbooks have already started to incorporate data analytics. For example, the textbook chosen for my cost accounting course, the 17th edition of [Horngren's Cost Accounting](#), written by Srikant M. Datar and Madhav V. Rajan and published in 2020, includes a

chapter emphasizing data analytics that didn't exist in the previous version.

In this study, I describe in detail how I added data analytics to my cost accounting curriculum by adopting the data analytics content in *Horngrén's* and adding more content that complements it. I also show how my students benefited from this. My practice concurs with the call in the article [Teaching Toward Tomorrow](#) that promotes adding CMA[®] (Certified Management Accountant) exam content to accounting curricula. According to the article [How the CMA Exam Is Made](#), data analytics is included in the CMA exam. Ultimately, instructors who are considering adding data analytics to their accounting course curricula may benefit from this research.

ADDING DATA ANALYTICS CONCEPTS

The specific data analytics added to my cost accounting curriculum are listed in Table 1. The second column presents the data analytics added to my course, and the third column shows the levels of data analytics in the course, classified according to the Framework. The fourth column explains the rationale behind integrating data analytics and specific traditional cost accounting content.

Chapter 2 in *Horngrén's*, covered early in the semester, introduces basic concepts to be used in the course, setting the foundation. Yet most introductory management accounting courses would also cover most, if not all, of these concepts. The chapter itself doesn't include data analytics, so adding it to the discussion turns a potentially dull review into the beginning of an exciting data analytics journey. And while the chapter serves as a base for cost accounting concepts, adding data analytics also sets the foundation for learning data analytics in the course. Starting data analytics early in the semester also helps spread the study load while providing the opportunity to turn short-term memory into long-term memory.

To briefly introduce data analytics, I first discuss the domains in the Framework, pointing out that data analytics is among IMA's designated competencies. Then I introduce the five steps in the data analytics process: know the question to be answered, obtain the relevant data to answer the question, clean the data, analyze the data, and report the results. I emphasize that, in this course, we focus on data analysis.

I then describe data analytics as the process of building a house using tools and concepts. The house is the final result of data analytics, and the tools include Microsoft Excel, Tableau, and other software packages. The concepts are drawn from knowledge of cost accounting and statistics. I emphasize that the only tool used for data analytics in my course is Excel because it's sufficient for my purposes: helping students learn basic knowledge of data analysis and motivating them to study it in the future. Once students have a passion for data analysis, they can quickly learn more complicated data analysis concepts. According to Raef Lawson and Daniel Smith, analytics and visualization programming can be learned in [16 to 20 hours](#).

After introducing my students to data analytics in a single class session, I show them how to obtain descriptive statistics of a data set containing total costs and variable costs using the Data Analysis option in Excel. Additionally, using a data set with outliers, I call my students' attention to the difference between the mean and median to show that outliers can severely affect the mean.

Although obtaining descriptive statistics using Excel is simple, this is the first time in my course that they see the analysis tools in Excel. They can find not only the Descriptive Statistics tool but also the Correlation and Regression tools after clicking on the Data tab and then the Data Analysis option, thus preparing them for future data analysis in my course. Additionally, using the data set with cost variables provides the students with new experience connecting data analytics with cost accounting.

NEXT UP: CREATING A CVP ANALYSIS

Chapter 3 in *Horngrén's* discusses cost-volume-profit (CVP) analysis, to which I add data analytics that complement this. First, I show students how to make a cost-volume graph, which is a line chart, using Excel and provide a link to a [YouTube video](#) for their future reference. After we

TABLE 1: SMART ADJUSTMENTS TO AN ADVANCED ACCOUNTING CURRICULUM

Traditional Cost Accounting Content Covered*	Data Analytics Added	Level(s) in the Framework	Rationale for Combining Data Analytics with Traditional Cost Accounting Content
Chapter 2: An introduction to cost terms and purposes. Main purpose: Review the management/cost accounting terms learned in management accounting.	A brief introduction to data analytics		Set the foundation for both traditional cost accounting and data analytics study. Make the chapter interesting. Expose the students to data analytics from the beginning of the semester.
	Descriptive statistics	Basic knowledge	
Chapter 3: CVP analysis. Main purpose: Review basic CVP analysis content and apply CVP to complicated decision-making situations.	Pie and line charts, descriptive statistics, and correlation	Basic knowledge	Making a CVP chart in Microsoft Excel helps students understand the chapter's key terms. Simple OLS regression is related to the cost behaviors covered in this chapter. Descriptive statistics and correlation are essential steps for deciding to use OLS regression. Sensitivity analysis is part of CVP analysis and can be provided efficiently using Excel.
	Simple OLS regression	Applied knowledge	
	Sensitivity analysis #1	Skilled	
	Sensitivity analysis #2		
Chapter 10: Determining how costs behave. Main purpose: Introduce the advantages and disadvantages of different methods to estimate cost behaviors, interpret the OLS regression results, and evaluate models estimated using OLS regressions.	Descriptive statistics, correlation, and scatter chart	Basic knowledge	This chapter focuses on using OLS regression to estimate cost behaviors, but the textbook directly provides the regression results for students to evaluate the models. When students obtain the regression results by themselves, they're more motivated to understand the results and evaluate the models, engaging in active learning.
	Simple OLS regressions with or without the impact of outliers	Applied knowledge; skilled	
	Multiple regressions with or without collinearity	Skilled	
	Regressions modeling nonlinear relationships		
Chapter 11: Data analytics thinking and prediction: Gini impurities, decision trees, confusion matrices, payoff matrices, and receiver operating characteristics (ROC) curves.	None	Skilled	Chapter 11 isn't traditionally covered in cost accounting.

* The traditional cost accounting content covered in my class but not listed in this table includes job costing, activity-based costing and activity-based management, master budgets and responsibility accounting, variance analysis, and decision making using relevant information.

make the cost-volume chart in Excel, I ask them to label it and find the breakeven point. While we're on the topic of visualization, I also show them how to use Excel to create a pie chart that illustrates the components of manufacturing overhead.

In Chapter 3, I also show students how to estimate a simple regression using Excel to determine unit variable and fixed costs, which are frequently used in CVP analysis. So, adding simple

regression to estimate unit variable costs and fixed costs is still relevant. Moreover, adding simple regression in Chapter 3 helps spread the study load and keeps data analytics on the students' radar for a longer time. Here, I emphasize only the interpretations of the estimated intercept and slope and discuss t-statistics for statistical significance, leaving more complicated discussions for Chapter 10.

Before estimating simple regression, I first help the students to obtain the descriptive statistics to see whether there are outliers that make ordinary least squares (OLS) regression inappropriate. Then, for data points belonging to a normal distribution, we obtain the correlation between the dependent variable and the independent variable.

Because sensitivity analysis is part of cost-volume analysis in this chapter, I use Excel to add two complementary sensitivity analysis methods. Adapted from a [YouTube video](#), the first sensitivity analysis is used to predict operating income for different combinations of sales volume and price, with an emphasis on the importance of classifying the costs into fixed costs and variable costs.

The second sensitivity analysis uses a case study published in 2011, [Goats: The Green Alternative \(A\)](#), from Harvard Business Publishing, which allows instructors who sign up on the company's website to review the case and the solution for free, although adoption of the materials requires a small fee for each copy. This case describes a real-life situation to which CVP analysis with a sustainability emphasis can be applied. Students need to extract cost information from the case description and then use the functions in Excel to calculate the operating income given an offer from a potential customer. The resulting model is used to predict operating income if any variable used to calculate the operating income is changed.

THE INS AND OUTS OF COSTS

Determining cost behaviors is the focus of Chapter 10, which introduces the regression analysis method, including simple regression and multiple regression, used to determine variable costs per unit and fixed costs that are used to predict total costs. This chapter also provides specific criteria to evaluate cost functions and discuss collinearity problems, and it also comes with exercises complete with data, regression results, and requirements for interpretations of regression results. Therefore, I use Chapter 10 in my cost accounting curriculum to help students gain data analytics competency.

The content in this chapter is complemented by additional content. What does this mean? First, before calculating regression estimations, students obtain descriptive statistics and correlations of variables using Excel and the data for regression exercises, because the descriptive statistics and correlations are necessary to determine whether OLS regressions are appropriate. Second, for the exercises chosen from Chapter 10, students replicate the textbook's regression results using Excel. Third, using Excel and the specific data sets I create, I show students the impact of outliers on the OLS regression results and the effect of collinearity on the estimated coefficients in multiple regressions. Finally, I create data points to show nonlinear relationships estimated using Excel.

PREDICTING BEHAVIOR AND OUTCOMES

The concepts of Gini impurities, decision trees, confusion matrices, payoff matrices, and receiver operating characteristics curves are introduced in Chapter 11, the main purpose of which is to predict customers' behavior. The content in this chapter is data analytics-intensive, so I place it in my cost accounting course.

The data analytics added to my cost accounting curriculum belong to three levels of data analytics, which are presented on page 33 of the Framework, as follows:

First, according to the Framework, obtaining descriptive statistics is a basic data analytics skill. The two sensitivity analyses are related to creating spreadsheets and using basic functions in Excel, so they're also part of the basic knowledge. Note that charts, such as pie charts and line charts, are part of the basic knowledge of data visualization, as shown on page 34 of the

Framework. To simplify the learning process, I include them as basic knowledge related to data analytics in my cost accounting course.

Second, because a type of applied knowledge in the Framework is the ability to “Use simple linear regression to predict business outcomes and interpret results,” I classify simple regressions as applied knowledge. Correlation is not mentioned in the Framework; I classify it as applied knowledge because it’s obtained using the Correlation analysis tool in Excel, just as the simple regression is estimated using another Excel analysis tool, Regression, which the Framework classifies as applied knowledge.

Third, the Framework defines one kind of skilled data analytics technique as using “predictive analytics techniques to interpret results, draw insights, and make recommendations.” The two sensitivity analyses predict operating income, and Chapter 11 focuses on techniques used to predict customer behaviors, so they’re at the skilled level according to the Framework. Another kind of skilled data analytics technique in the Framework, “Use multiple regression for predictive and prescriptive purposes, and interpret results,” corresponds to the multiple regression practice in Chapter 10. In addition, because I was unable to find a classification in the Framework, I classify the simple regressions used to emphasize the impact of outliers, as well as the regressions used to show nonlinear relationships, as the skilled-level knowledge, because they’re related to evaluating specific issues affecting regressions beyond a simple regression discussion.

DELIVERY AND EVALUATION METHODS

I organize the data analytics content in Excel spreadsheets. For each practice, the question area and the answer area are in the same spreadsheet. Whenever possible, I also include useful knowledge and online links for the practice exercise. Additionally, when I design the answer area, I highlight the title in green and highlight in yellow the

What the Students Had to Say

In question 7, the students were asked to discuss their experience of learning data analytics in a cost accounting course and possibly their plans to learn more data analytics in the future. Here’s how they responded:

“The data analytics in the class was SO helpful! I have had classes with this content before, but I learned and understood more from your class than all the other classes that I’ve had before. The time that we spent on data analytics was so valuable, and I feel like I have a much stronger foundation now to learn more. I most definitely will continue learning about data analytics through continuing education and hopefully through my career path. Thank you for including this in the class!”

“I took a data analytics course before this class, so I felt the material was easy to learn. I could see students struggling to learn the material if they haven’t taken a data analytics course.”

“I think I will use data analytics frequently in my future life. It is very interesting, important, and convenient.”

“I enjoyed learning another layer of data analytics in this course, and it was a very nice break from sometimes just learning budgets and costing. I appreciated the variety.”

“I found that data analytics was interesting to learn about, and I do wish to learn more about other methods too. It’s a somewhat difficult concept for me to understand right away, but I think overcoming that difficulty with more practice using these tools would still be beneficial.”

“I have realized the importance of learning data analytics and hope to take classes in the future to further my education. I have come to realize that no matter what you have in a career, the importance of continuing your education plays a drastic role.”

“The data analytics component to the class was so great. Everything we learned was interesting and relevant. What we have covered in class has inspired me to research more about data analytics on my own, and I’m actually considering pivoting from accounting to data analytics for my master’s program.”

“The last time I was exposed to OLS regression was in a statistics course and in a data analytics class. If you don’t frequently practice building or testing predictive models, you lose those skills or your confidence in those skills. I plan to continue my education with data analytics after graduation by finding courses that can help me build on or strengthen what I know.”

“I never have thought about data analytics as a subject at all, but ever since you introduced it in class, I have been thinking about it and its applications to my career.”

“Data analytics was seamlessly integrated into the Excel practice in this course. I feel that there is merit to data analytics as a tool for accountants, so I will most definitely follow through with my data analytics learning.”

“Data analytics is complex for me. I am still working on understanding the concept. However, I personally think that accountants need to learn it.”

cells or areas that the students need to finish, making it easy for them to find their task and for me to grade their work. I post the Excel workbooks in the weekly modules on Canvas so that my students can find and download them easily.

During the class sessions for data analysis, I first explain the basic content needed and then illustrate the method using Excel. I also create practice questions for the students to finish during class, with help from me and their peers, if necessary.

How do I compensate for the limited class time I have to cover data analytics and the traditional cost accounting content? For one, for comprehensive activity-based costing practices, there are calculations for multiple direct and indirect costs for multiple products. I provide answers to some of these costs, leaving the rest for in-class practice. The in-class time saved can be used for data analytics. Also, in the Excel workbooks, the last one or two spreadsheets contain questions with answers provided to allow students to practice on their own after class, making up for the limited class time.

Class participation is the key to the primary evaluation of data analytics using Excel. As such, I use Canvas to record class participation. I create quizzes in Canvas that are in the form of [graded surveys](#).

TABLE 2: MEASURING EXPOSURE TO CLASS CONTENT

	Percentage of 20 Students Answering Yes
1. Before we practiced descriptive statistics and OLS regression using Excel, had you learned the content in other courses using Excel or another software package?	75%
2. Before we discussed outliers' impact on OLS regression in this course using Excel, had you learned the outliers' impact on OLS regression in other courses using Excel or another software package?	60%
3. Before we discussed the collinearity problem in OLS regression using Excel, had you seen that the collinearity problem can cause OLS regression results from Excel or another software package to be meaningless in other courses?	30%
4. Before we discussed how to use the decision tree algorithm for prediction using Excel, had you learned the decision tree algorithm for prediction in other courses using Excel or another software package?	25%
5. Do you think accountants should learn data analytics?	100%
6. Did the data analytics learned in this class motivate you to study more data analytics in the future?	90%

After students finish one Excel practice exercise, I open a quiz to allow them to upload their work as the answer to the quiz. After students submit their finished Excel practice exercise, they earn total points per the graded surveys' design, understanding that I or another instructor will review their submitted work for completeness and accuracy and adjust points accordingly. The graded surveys enable instructors to monitor the quality of students' in-class Excel practice while reducing the grading load. Because the answers are given during class time, there's no need to provide feedback on the graded surveys, so there are minimal drawbacks to using them. In addition to class participation, I include some key knowledge points related to data analytics in my students' midterm and final exams.

BENEFITS FOR STUDENTS

My goal in enhancing the cost accounting curriculum is to help students learn basic data analytics and motivate them to pursue data analytics in the future. Their in-class performance shows whether they've grasped the basic data analytics concepts covered in the course. After multiple applications of the data analysis tools in Excel, such as those for descriptive statistics, correlation,

and regression, students can quickly find the tools and use them. This helps them gain confidence in their ability to learn data analytics.

To investigate the motivation effect, I conducted a survey for the cost accounting class. All 20 students in the class provided feedback. Table 2 presents the first six survey questions and the percentage of students answering yes to each of the questions. Namely, some students already had some exposure to the content covered in the class, but not all of them. Also, they all agreed that accountants should learn data analytics, and 90% of the students think that data analytics added to the cost accounting course would motivate them to study more data analytics in the future. I also report representative answers to question 7, which is about students' data analytics learning experience in my class and their plans for furthering their data analytics learning (see "What the Students Had to Say"). In general, students confirmed their interest in data analytics and said they intended to learn more about it.

I was successful in adding data analytics to my cost accounting curriculum, with the result being that students clearly benefited. If you're an instructor who is considering including data analytics in your accounting curricula, this article provides some important advice and resources. Still hesitant? I was too. But my students' positive attitude toward data analytics made me realize how very crucial it was to add it to their accounting curriculum.

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Master of Science in Strategic Finance

Indiana University Southeast's strategic finance graduate degree prepares students to be successful finance and accounting professionals.

By Michael R. Wieck, DBA; Douglas K. Barney, Ph.D., CMA, CFM, CPA; Arun K. Srinivasan, Ph.D.

Strategic decision making plays an important role in management accounting. Accounting and finance professionals must possess the necessary skills to make strategic decisions and navigate ethical dilemmas. As a result, there's a need for colleges and universities to teach not only functional knowledge of accounting and finance but also the skills needed for students to make strategic decisions in their future careers.

While Indiana University Southeast (IUS; see "IUS Background") first developed two traditional graduate business programs, the MBA and the Master of Science in Accountancy (MSA), it developed the Master of Science in Strategic Finance (MSSF) in response to this need. Since its inception in 2004, the MSSF, which is now a respected program in the IUS School of Business, has evolved, culminating in its current status as a fully online program offered collaboratively among five regional Indiana University (IU) campuses through the IU Office of Online Education.

IUS Background

IUS is a regional campus in IU's seven-campus system. It's located on the northwest side of the Louisville, Ky., metropolitan area. Kentucky students in seven counties around Louisville can attend IUS at Indiana in-state (reciprocity) tuition rates to earn a Big Ten degree (the Big Ten Conference is the oldest Division I collegiate athletic conference in the U.S. Big Ten schools are major research universities with large financial endowments and strong academic reputations). In fall 2022, IUS had 3,842 students, with most of those students from Indiana and about 35% from Kentucky. The IUS School of Business offers a bachelor's degree with 10 concentrations, including accounting and finance. The IUS School of Business also offers three master's degrees: MBA, Master of Science in Management (MSM), and MSSF.

Through the MSSF degree, students develop knowledge and abilities for successful careers as accounting or finance professionals and leaders. This degree delves into topics that enhance students' skill sets that they can use after they graduate and years beyond graduation. Let's explore how this successful program came to be at IUS.

HISTORY OF THE MSSF DEGREE

IUS's first graduate business degree was the MBA in 1991, followed eight years later by the MSA, which was the school's attempt to prepare students more thoroughly for the CPA (Certified Public Accountant) exam and for a professional accounting career. Specifically, IUS offered the MSA to meet the CPA 150-credit hour requirement in the U.S. state of Indiana. The MSA included graduate accounting courses considered traditional at that time and required 30 credit hours after meeting foundation requirements. The foundation courses were considerable for someone without an accounting background.

Most of the foundation courses were three credit hours, resulting in a total of 43 credit hours required before students officially entered the graduate program. These courses and credit hours essentially ensured that individuals entering the MSA program had the accounting components of an undergraduate accounting degree. The MSA was clearly designed for business students preparing for the CPA exam. See Table 1 for the foundational courses and required graduate courses for the MSA.

While the intent for this degree was admirable, low enrollments didn't enable continuity of the program. Only six students graduated with the MSA. After four years of the MSA, IUS started to rethink the program to become one that would address student educational needs, including more than CPA exam preparation, and that would be attractive to potential students and their employers.

Around the same time, accounting and finance faculty attending academic and professional conferences gauged the changing landscape of accounting education. The push in accounting and finance higher education emphasized information technology, strategy, and valuation in addition to the core accounting curriculum. This industry focus, along with low enrollment in the MSA program, encouraged IUS to rethink the direction of the program. A review of programs nationwide identified no school offering a master of science in strategic finance, further spurring the decision to drop the MSA and develop an MSSF program at IUS. The MSSF originally was a 30-credit hour program with seven core courses and three elective courses. It didn't have the sole intent to prepare students for the CPA as the MSA did. The IUS School of Business designed this program with a broader application, specifically to prepare students to become business leaders, especially in accounting and finance fields, with a track focusing on CMA® (Certified Management Accountant) certification.

The learning objectives of the original MSSF program were to:

1. Evaluate accounting and finance concepts and principles.
2. Apply and integrate accounting and finance concepts and tools for analysis and decision making.

TABLE 1: MSA FOUNDATIONAL AND REQUIRED COURSES

Foundational Courses	Required Graduate Courses
Foundations in Accounting	Advanced Auditing
Intermediate Accounting I	Tax Research and Planning
Intermediate Accounting II	Contemporary Issues in Accounting
Cost Accounting	Business Ethics
Auditing	Business Communications
Taxation of Individuals	International Environmental Analysis
Legal Environment of Business	Fraud Issues in Business
Commercial Law	Community Service in Business
Foundations in Finance	
Foundations in Economics	
Foundations in Marketing	
Business Calculus	
Statistics	
Operations Management	
Management Information Systems	

3. Interpret and respond to financial and accounting information.
4. Develop ethical strategies to address issues faced by financial and accounting professionals.

Nonbusiness students were required to complete 10 credit hours of foundation courses or their equivalent. Business undergraduates would have already met these foundation requirements. The program also required three additional courses chosen from a long list of electives. (See Table 2 for a list of the core courses and elective courses for the MSSF program.) Clearly, the MSSF took a new direction with broader application than its predecessor program, the MSA.

TABLE 2: MSSF CORE COURSES AND ELECTIVES

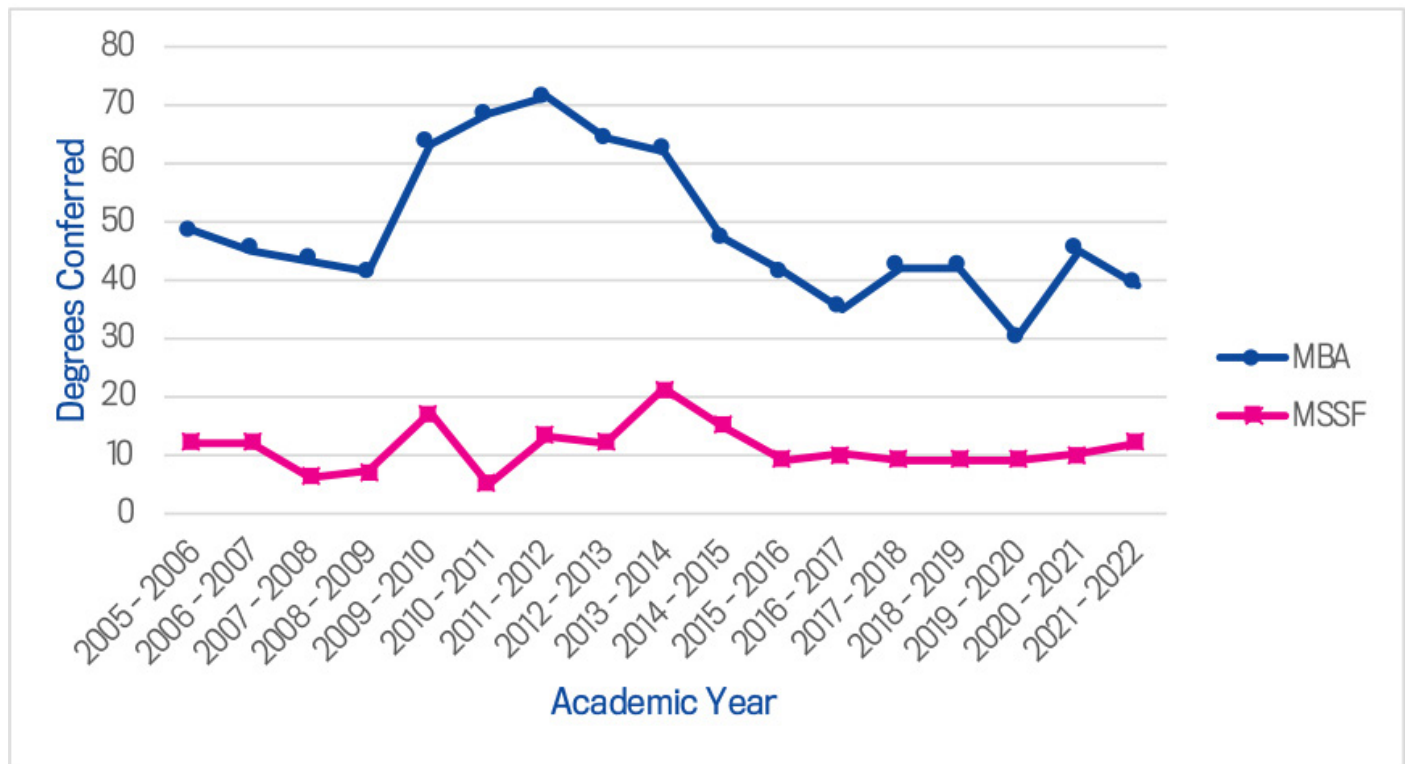
Core Courses	Elective Courses*
Strategic Cost Management	Investment Management
Modeling and Simulation	International Financial Management
Financial Management	Portfolio Management and Investment Analysis
Financial Statement Analysis	Advanced Accounting
Business Analysis and Valuation	Advanced Corporate Taxation
Advanced Corporate Finance	Legal and Ethical Environment of Business
Fraud Issues in Business	Accounting Analytics
	Business Intelligence
	Econometrics

*Possible choices, but not an exhaustive list

TABLE 3: MBA COURSES AND CONCENTRATIONS

Core Courses	Elective	Data Analytics Concentration	Accounting Concentration	Human Resource Management	Management	Finance
		Choose one course:	Choose any three:	All courses required:	All courses required:	Choose any three:
Strategic Cost Management	Community Service in Business	Automation and Databases	Intermediate Accounting I	Human Resource Management	Managing the Team-Based Organization	Investment Management
Managerial Economics		Special Topics in Business: Business Intelligence	Intermediate Accounting II	Industrial Labor Relations	Negotiation	Portfolio Management and Investment Analysis
Modeling and Simulation		Choose two additional courses:	Advanced Corporate Taxation	Wage and Salary	Human Resource Management	Financial Statement Analysis
Organizational Behavior and Leadership		Introduction to Econometrics	Auditing			Business Analysis & Valuation
Legal & Ethical Environment of Business		Business Data Analytics and Visualization	Financial Statement Analysis			Advanced Corporate Finance
Operations and Supply Chain Management		Business and Economics Applications of GIS	Automation and Databases			
Marketing Management		Special Topics in Business: Market Analytics	Independent Study (in accounting)			
Financial Management		Automation and Databases				
Business Policy and Strategy		Special Topics in Business: Business Intelligence				

FIGURE 1: IUS GRADUATE BUSINESS DEGREES CONFERRED



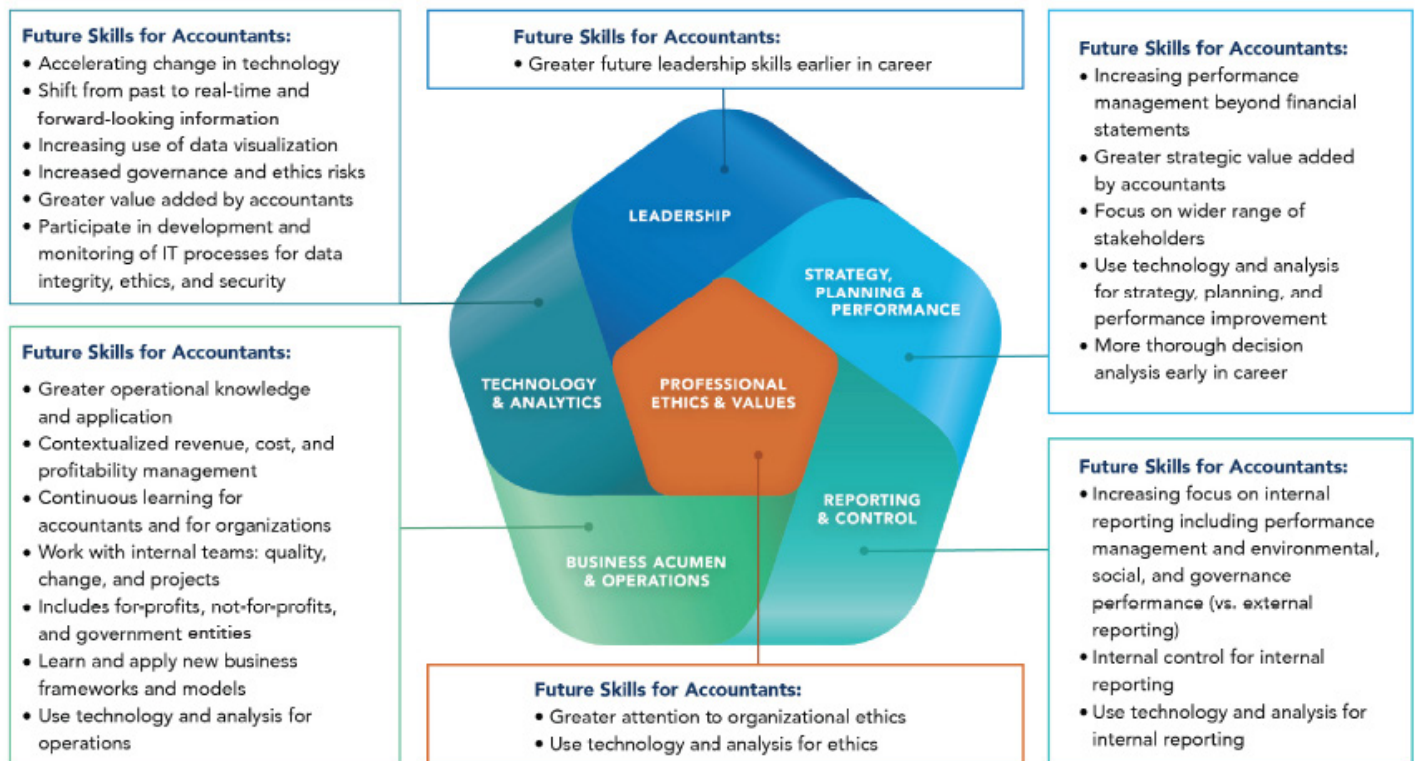
The MSSF program quickly became a strong partner for the vibrant MBA program. Students could complete a double master’s degree with an additional 18 credit hours in addition to the MBA courses (see Table 3). The pairing enhanced enrollments and gave students valuable options. About 10 MSSF degrees have been issued each year since 2006. Figure 1 shows conferred degrees for

the MBA and the MSSF since the inception of the MSSF. IUS graduate business programs are part-time programs, so there are many students who take longer than one year to complete the degree. Further, students often enter the IUS graduate business program seeking both the MBA and the MSSF. We advise these students to complete the MBA first and then complete the MSSF. This way, students are more likely to finish one degree even if they don't complete both degrees. For this reason, the count of degrees conferred underrepresents total MSSF enrollments and interest in the degree, as many MBA students will also eventually pursue the MSSF.

The MSSF program has also been well received by professionals in the service region. A recent graduate employed at a *Fortune 50* company said that the courses, assignments, and projects designed with strong real-world applications enabled him to apply those financial principles at his company. Another graduate stated that in a highly dynamic hospitality industry, MSSF program graduates add value to a company in strategic managerial finance and accounting.

The MSSF aligns well with the [IMA Management Accounting Competency Framework](#), which contains six major focal areas: Strategy, Planning, and Performance; Reporting and Control; Business Acumen and Operations; Technology and Analytics; Leadership; and Professional Ethics and Values (see Figure 2). The MSSF program has a specific emphasis on leadership and ethics from an accounting and finance perspective in a business context. Students take classes in both accounting and finance courses to learn about cost management, financial planning, business valuation, analytics, financial statement analysis, fraud detection and prevention, and corporate financial strategy. Through electives, students can take any MBA course as well as additional accounting, finance, and analytics courses. Table 4 provides a more complete mapping of the

FIGURE 2: EVOLVING COMPETENCIES AND THE IMA MANAGEMENT ACCOUNTING COMPETENCY FRAMEWORK



Source: IMA, *Essential Management Accounting Competencies for All Entry-Level Accountants*, December 2021.

TABLE 4: IMA'S ESSENTIAL MANAGEMENT ACCOUNTING COMPETENCIES TO COURSE MAPPING

Domain	Competency	MSSF Coverage
Strategy, Planning & Performance	Increased performance management beyond financial statements	Strategic Cost Management, Financial Management, Business Analysis and Valuation
	Greater strategic value added by accountants	Strategic Cost Management, throughout the program
	Focus on a wider range of stakeholders	Strategic Cost Management
	Use technology and analysis for strategy, planning, and performance improvement	Modeling and Simulation, Business Analysis and Valuation, analytics electives
	More thorough decision analysis early in career	Throughout the program
Reporting & Control	Increased focus on internal reporting	Strategic Cost Management, Financial Management, Advanced Corporate Finance
	Internal control for internal reporting	Fraud Issues in Business, accounting electives
	Use technology and analysis for internal reporting	Analytics electives
Business Acumen & Operations	Greater operational knowledge and application	Strategic Cost Management, Financial Statement Analysis
	Contextualized revenue, cost, and profitability management	Strategic Cost Management
	Continuous learning for accountants and for organizations	We emphasize obtaining professional certifications (especially the CMA)
	Work with internal teams: quality, change, and projects	Learned in career
	Includes for-profits and government entities	Accounting electives
	Learn and apply new business frameworks and models	Financial Management, Business Analysis and Valuation, Advanced Corporate Finance
	Use technology and analysis for operations	Modeling and Simulation, analytics electives
Technology & Analytics	Accelerating change in technology	Analytics electives
	Shift from past to real-time and forward-looking information	Modeling and Simulation, Business Analysis and Valuation, analytics electives
	Increasing use of data visualization	Modeling and Simulation, analytics electives
	Increased governance and ethics risks	Fraud Issues in Business
	Greater value added by accountants	Throughout the program
	Participate in development of monitoring of IT processes for data integrity, ethics, and security	Accounting electives
	Greater future leadership skills earlier in career	Throughout the program
Professional Ethics & Values	Greater attention to organizational ethics	Fraud Issues in Business, throughout the program
	Use technology and analysis for ethics	Modeling and Simulation, analytics electives

framework to the MSSF course offerings. While the MSSF doesn't emphasize specific information technology applications and context for specific industries, there's a strong correlation of the MSSF program to the IMA Management Accounting Competency Framework.

REEVALUATION OF MSSF

Prior to fall 2019, the IUS School of Business faculty determined it was time to reevaluate the MSSF. Student demand for online university programs was growing, and, therefore, the IUS School of Business decided to offer the program completely online. Taking a program completely online in the IU system requires asking the other regional campuses (IU East, IU Kokomo, IU Northwest, and IU South Bend) to participate. All five regional campuses agreed to participate

in offering the MSSF completely online asynchronously. IU's Office of Collaborative Programs administers collaborative regional programs, such as the MSSF. Each of the regional campuses has a representation on dean and faculty curricular committees for these programs.

In the collaborative online MSSF program, the faculty committee agreed to offer three tracks including managerial finance (CMA), accounting, and investment management (Certified Financial Planner) tracks. IUS continues to offer the original MSSF, with a combination of online, hybrid, and in-person classes, along with participation in the 100% online collaborative MSSF with the other four regional campuses.

The process of developing the online MSSF program involved a meeting of the Collaborative MSSF Faculty Committee. This committee determined the admission requirements, prerequisites (for students without a business degree), curriculum, equivalent courses across the campuses in the curriculum, and faculty qualifications per the Association to Advance Collegiate Schools of Business standards specifically for campuses that hire adjunct faculty with professional experience to teach in the program. In the collaborative online MSSF program, the faculty committee determined eight courses that students must complete and two specific elective courses to specialize in one of the three tracks. The prescribed list of courses in the curriculum was intentionally designed for full-time students to complete their degree requirements in one year with minimal guidance from advisors. To further appeal to more undergraduate business students to earn dual degrees, the faculty committee is designing the curriculum for students to complete the MSSF in five years by extending their undergraduate degree one more year.

The learning outcomes for the collaborate online MSSF are:

1. Analyze the information provided by financial statements and/or other financial resources.
2. Apply finance concepts and tools.
3. Evaluate the implications of potential financial decisions.
4. Apply sound ethical reasoning in financial decision-making processes.
5. Develop appropriate financial strategies.
6. Communicate financial information and strategies effectively.

The program is designed for students from any of two undergraduate backgrounds:

1. Students with undergraduate degrees in business can start straight into the MSSF.
2. Students with nonbusiness backgrounds will need to complete six hours of foundation courses in accounting, finance, economics, and quantitative tools.

The collaborative online MSSF is a 30-credit hour program. In addition to core 24-credit hours, students take an additional two courses based on the track they select (see Table 5). The core courses in the collaborative online MSSF are the same as the original MSSF, with the addition of a graduate version of Intermediate Accounting. The primary differences between the original

TABLE 5: COLLABORATIVE ONLINE MSSF CORE AND TRACK COURSES

Core Courses	Managerial Finance Track (2 courses)	Investments Track	Accounting Track
Intermediate Accounting	Investment Management	Investment Management	Auditing
Strategic Cost Management	Portfolio Management	Portfolio Management	Advanced Tax
Modeling and Simulations	International Finance		
Financial Management	Strategic Financial Management		
Financial Statement Analysis			
Business Analysis and Valuation			
Advanced Corporate Finance			
Fraud Issues in Business			

MSSF and the collaborative online MSSF are the reduced foundation courses, the addition of Intermediate Accounting in the core, and the possibilities offered with the three tracks and their related coursework. The collaborative online MSSF closely reflects the IUS original MSSF curriculum because IUS initiated the proposal for the collaborative degree.

In spring 2023, the IU Office of Collaborative Academic Programs (part of IU's Office of Online Education) officially launched the [collaborative online MSSF](#) nationwide with the first group of students to be admitted to the program beginning in fall 2023.

Replacing the MSA with the MSSF has been successful. While the MSA was a highly specialized degree, the MSSF serves many more students. Through the 2021-22 academic year, 188 degrees have been awarded since the first degree conferred in 2006. The MSSF has prepared many finance and accounting professionals for successful leadership careers. We expect both the in-person version and the fully online collaborative MSSF to be vibrant programs for years to come.

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Innovation in Teaching Management Accounting Competencies

As we get ready for a new school year, it's time to think about new and interesting ways to reach and teach our students.

By Margaret Shackell, Ph.D., CMA, CPA; Emma Cole, CPA, CGMA, ABD;
Kimberly A. Zahller, Ph.D., CMA

For us—Margaret Shackell of Ithaca College, Emma Cole of the University of Montevallo, and Kimberly Zahller of Appalachian State University—the IMA® (Institute of Management Accountants) Management Accounting Competency Framework is a key teaching resource (see Figure 1). Here, we elaborate on ways to help students learn the material and be practice ready.

We have each chosen parts of our courses that we consider unique: things that we do that you may not be doing in your classroom. We link our content to primarily free IMA content that allows professors to develop student competencies through the curriculum across the entire competency map.

Margaret Shackell discusses how her students' desire to give each other real-time feedback following presentations allowed those students to increase not only their communication skills, but also their collaboration and motivation skills. Emma Cole discusses her elaborate use of cases,

FIGURE 1: IMA MANAGEMENT ACCOUNTING COMPETENCY FRAMEWORK



podcasts, and articles to deepen students' understanding of reporting and control, technology and analytics, and professional ethics and values. Kimberly Zahller discusses how she creatively uses podcasts and other resources to enrich and enhance the course curriculum through what she calls "threads." In other words, students in her class need to synthesize resources to enrich their learning and earn extra credit.

SHACKELL

I'm going to talk about something extraordinary that happened this past semester, and how that will influence my use of materials and teaching of competencies going forward. I've been teaching for more than 20 years, and every once in a while I have a class or a semester that's unlike any other. This past spring semester was like that for me. It started out like any other semester in which I teach cost analysis. Half of the students were seniors, and half were juniors. I assigned them three presentations: 1) leading a case from the *IMA Educational Case Journal (IECJ®)*; 2) a podcast from IMA's *Count Me In* podcast series; and 3) a competency from the IMA Management Accounting Competency Framework. In my mind, these presentations would help them learn communication skills.

I had targeted them to learn at least basic knowledge: "Organize and present thoughts, information, and facts logically." A few classes into the semester I did a KSQ feedback segment. KSQ stands for "keep, start, quit." I hand out a paper with those three letters on it and ask them three questions: 1) What should we KEEP doing that is going well? 2) What should we START doing that we aren't doing? and 3) What should we QUIT doing that we're currently doing? The feedback from the students was "We'd like real-time feedback at the end of each presentation." I was surprised, but the students in the class seemed keen, so I decided to try it.

COMMUNICATION SKILLS

Listen effectively to others, and convey thoughts or ideas through various forms of communication including written, spoken, and nonverbal

LIMITED KNOWLEDGE	BASIC KNOWLEDGE	APPLIED KNOWLEDGE	SKILLED	EXPERT
<ul style="list-style-type: none">Limited knowledge, skills, and/or experience communicating in a professional setting	<ul style="list-style-type: none">Organize and present thoughts, information, and facts logicallyUnderstand verbal and nonverbal cues and their importance	<ul style="list-style-type: none">Prepare clear and concise written communicationsListen effectively, ask questions, and express concernsTailor communications to culturally diverse audiences	<ul style="list-style-type: none">Recognize differences in others' communication styles, and adjust own as appropriateCommunicate both positive and negative results effectively with sensitivity to the listenerMake effective presentations (i.e., engaging, motivating, concise, well-prepared)Use technology (e.g., social media) tools effectively as a communication vehicle, taking into consideration recipients' preferencesDesign communication programs, taking into consideration global diversity and local customs and norms	<ul style="list-style-type: none">Develop communication strategies to optimize messaging through tools, tone, and timingAnswer difficult questions from key stakeholders (e.g., staff, board members, auditors, investment analysts, the media) effectively, providing persuasive and credible responsesCoach others on how to communicate effectively and build consensusExcel at the use of technology tools to expand leadership presence

It was amazing. Not only did these students enhance their basic knowledge of presenting content logically, but they also worked on many of the higher-level skills in communications. They listened effectively, asked questions, and expressed concerns. They tailored their communication to diverse audiences, recognized differences in others' communication styles and adjusted, and were able to give positive and negative feedback in a very sensitive manner. The students made engaging presentations and worked to optimize their messaging tone and timing. They answered difficult questions on why they made the choices that they did, and they coached others on how to communicate effectively. In reviewing the skills that a communication champion has, my students worked on all of them this semester.

It was an incredibly rewarding experience for me and for them. When reflecting back on this experience, I noticed that no longer were they just improving on the communications competency, they were also working on the competencies "Motivating and inspiring others" and "Collaboration, teamwork, and relationship management." Some of the key components that I saw developing were: identifying strengths and areas of growth for team members, recognizing differences in personality style and preferences when motivating team members, providing effective advice and feedback to enable individual contributors to achieve goals and improve performance, consideration of emotions on communication and interaction with others, providing positive feedback as appropriate, inspiring others to perform to their full potential, leading by example, communicating in a respectful and consistent manner, listening proactively to others, providing constructive feedback, and serving as a role model in thinking outside the business areas to identify opportunities.

I can't take credit for this, but I will now work to see how I can make this be as great for my students in the future as it was this past semester. My plan for next year is to incorporate this feedback into the course. I'll explain what happened this year and how effective it was at drastically increasing the quality of the presentations. I'll link to the other competencies that I discussed here and show how learning to give and receive this level of feedback can help them with collaboration and motivating and inspiring others. I'm quite excited to see if I can replicate this success in future years.

MOTIVATING AND INSPIRING OTHERS

Influence, motivate, and gain support of others in order to achieve organizational goals through the use of emotional intelligence, accountability, and setting the “tone at the top”

LIMITED KNOWLEDGE	BASIC KNOWLEDGE	APPLIED KNOWLEDGE	SKILLED	EXPERT
<ul style="list-style-type: none"> Limited knowledge, skills, and/or experience with motivating and inspiring others 	<ul style="list-style-type: none"> Recognize the importance of motivation 	<ul style="list-style-type: none"> Identify strengths and areas for growth of team members Recognize differences in personality style and preferences when motivating team members Provide effective advice and feedback to enable individual contributors to achieve goals and improve performance Consider the impact of emotions on communication and interactions with others Demonstrate the importance of continuously expanding professional knowledge, skills, and abilities for self and team in order to grow expertise and add value to the organization 	<ul style="list-style-type: none"> Identify and adopt appropriate leadership style for a given situation Provide positive feedback to staff as appropriate, and communicate recognition to the team and others Build effective teams, and implement innovative ways to motivate team members Anticipate emotional reactions, and respond effectively in guiding and leading others 	<ul style="list-style-type: none"> Inspire others to perform to their full potential and exceed expectations Motivate teams across the organization to overcome challenging situations Coach others on how to motivate individuals/teams effectively Lead managers to inspire and motivate their teams Lead by example, especially in difficult times

COLLABORATION, TEAMWORK, AND RELATIONSHIP MANAGEMENT

Work effectively with others in order to achieve a trusting relationship that yields positive results

LIMITED KNOWLEDGE	BASIC KNOWLEDGE	APPLIED KNOWLEDGE	SKILLED	EXPERT
<ul style="list-style-type: none"> Limited knowledge, skills, and/or experience with collaboration and teamwork 	<ul style="list-style-type: none"> Communicate with team members in a respectful and consistent manner Contribute to team achievements by taking responsibility for own efforts and seeking input/assistance when needed 	<ul style="list-style-type: none"> Work across departmental boundaries, and contribute beyond individual responsibilities to achieve team goals Listen proactively to others, encourage collaboration, and help build consensus among team members Give credit to members of the team for their contributions 	<ul style="list-style-type: none"> Collaborate with partners in the value chain to achieve beneficial working relationships and positive outcomes Provide constructive feedback and assistance to others in addressing issues or conflicts Seize opportunities to team with others to achieve positive results Encourage an integrated approach to performance management, and discourage functional silos Collaborate on innovative products, services, and/or processes that will help the organization succeed 	<ul style="list-style-type: none"> Consider the importance of corporate culture when assessing opportunities to enter into partnerships with other organizations Serve as a role model in thinking outside the silo/business area to identify opportunities for innovation

If you're thinking of doing this in your class, here are some caveats. This was a small class. I only had 15 students in the course. While there was racial and ethnic diversity, there was no gender diversity—all the students were male. I'm not sure if that contributed to the camaraderie and comfort with feedback, but it's possible. A final thing that helped was that the best-performing student went first and set really high standards for presentations. I hope you'll consider adding instantaneous feedback to your course. If you do, please contact me and let me know the result.

COLE

As I prepare my students to be transformational leaders, I utilize a variety of IMA resources to help strengthen their technical and interpersonal competencies. I would like to share a few ways that I use IMA resources to reinforce the competencies of the Reporting & Control, Technology & Analytics, and Professional Values & Ethics domains in my cost accounting, intermediate accounting, accounting information systems, and tax classes.

Financial recordkeeping and preparation: The Pathway Commission emphasizes that the accounting process isn't black and white and requires a great deal of critical thinking. What happens when you're faced with ambiguous or unique situations that require complex interpretations of accounting standards? How do you handle the pressure from a boss or colleague to report information that doesn't appear to align with accounting principles when the guidance isn't definitive? How does the constantly evolving business landscape impact what information is needed and how it's communicated? To give students experience in critical thinking about reporting and control, I use *IECJ* cases, *Strategic Finance* articles, and *Count Me In* podcasts. *IECJ* ethics case studies, such as "Principal or Agent? A Case of Managerial Judgment in Reporting Revenue" and "Disclosure Strategy: A Case of Ethics in Financial Reporting" (March 2022), help prepare students for situations they may encounter as new professionals.

Using the *IMA Statement of Ethical Professional Practice* with these cases helps expand students' analytical and ethical mindsets. *Strategic Finance* articles like [The Importance of Transparency](#) reinforce the competencies needed to meet the expectations of various stakeholders. IMA *Count Me In* podcasts, such as [Serving as a Co-pilot for the Business Transformation Journey](#), allow students to hear directly from business leaders on current opportunities and challenges. These articles and podcasts provide rich, relevant content for student engagement and class discussions. The incorporation of IMA case studies, articles, and podcasts not only fosters the skills needed to record, analyze, and communicate financial information but also promotes a better understanding of management accountants' roles and responsibilities in facilitating and/or influencing decisions within and about their organizations.

Cost accounting: Organizations are navigating through a myriad of challenges, such as inflation, supply chain constraints, and changing consumer preferences. Responding to such challenges in a cost-effective but also ethical way is a key consideration for future decision makers. The *Strategic Finance* article [CFOs Prepare for 2023](#) noted that "CFOs will need to adjust their teams' and organizations' tactics and strategy in response to such challenges, making difficult choices and seeking opportunities for increased efficiency, innovation, and growth despite various hurdles." To be effective team members, our students will be more than conveyors of information; they'll be strategic business partners. Other *Strategic Finance* articles, such as [Becoming a Trusted Business Partner](#) and [Design Thinking for Innovation](#), and *Count Me In* podcasts, such as [Financial Transformation at Discover](#), highlight the importance of going beyond providing decision-supporting information to driving value within their organizations.

Additionally, I use older *IECJ* cases in new ways to help students develop their business acumen. After completing the "Cat & Joe's Pig Rig: Should We Stay, or Should We Go?" (September 2014) case, students leveraged cost-volume-profit analysis to assist a local food truck owner. Applying the process covered in "Using the Balanced Scorecard to Assess and Enhance Magna PC's Performance" case (June 2020), students worked with companies to develop balanced scorecards.

Students utilized the [IMA Statement of Ethical Professional Practice](#) and “Sunk Costs: What Costs Do You Sea?” case (September 2014) to understand the importance of employing ethical decision making.

Tax compliance and planning: Incorporating IMA articles and case studies into tax courses illustrates the significant role tax planning and strategy activities play in many management-related decisions. *IECJ* case studies, such as “Golden State Elixirs: Should We Obtain a Canna-Business License?” (September 2019), demonstrate the interdependent relationship between tax and management accounting by exploring the legal, regulatory, and financial aspects of business decisions. *Strategic Finance* articles, such as [Taxation of Gig Income](#) and [Tax Year 2022 Filing Issues](#) enhance class discussions by adding relevance to individual and business taxation concepts.

Integrated reporting: In *Strategic Finance*, Kristine M. Brands and Mark Holtzblatt highlighted the need to “integrate ESG [environmental, social, and governance] accounting into [the] curriculum to equip today’s accounting students with the skills to face climate change challenges,” aid organization in the reporting of “nonfinancial risks and opportunities,” and provide decision-supporting information to “address innovation, risk management, and resource allocation decisions” ([ESG in the Accounting Curriculum](#)). IMA provides a wide variety of cases, articles, and podcasts to support the integration of ESG concepts. My students really enjoyed learning how to balance the demands of people, profit, and planet using “Coffee Supply Chains’ Sustainable Impact: A Case Study” (*IECJ*, June 2022). Based on a real project from global nonprofit [Enactus](#), this case shows how students can make a difference. Podcasts, such as [Bringing Sustainable Practices to the Food Industry](#) and [A Guide to Reducing a Carbon Footprint](#) provide additional examples to aid students in the evaluation of case alternatives. This case also incorporates a variety of resources, including the Sustainability Accounting Standards Board guidance and Greenhouse Gas Protocol tools. Additionally, articles, such as [The Ethics of ESG](#), encourage students to consider the factors that influence ESG initiatives and the ethical implications of ESG reporting.

Technology and analytics: With technology blurring the lines between functional domains, accounting and finance professionals must constantly adapt to remain relevant in a silo-less, data-driven environment. Loreal Jiles wrote in *Strategic Finance* that professionals must continuously develop the competencies necessary to “be well-positioned to play leading roles in finance transformations, deliver greater strategic decision support through higher value-added tasks, and occupy those roles that will be created or transformed by technology advances” ([Embrace Tech, Upskill for Career Success](#)).

IMA articles, research papers, and podcasts present the latest news on emerging and disruptive technologies. IMA case studies allow students to examine the impact of these changes on risk management, internal controls, information systems, and business processes. An updated version of “Pelarsen Windows: Humans v. Robots” (*IECJ*, September 2008) was used to discuss the latest developments in robotics and AI and examine the social and political implication of automation at companies like McDonald’s and General Motors. One IMA resource that truly stands out with my students is the free online training. My university paid for IMA student memberships for our accounting students. As part of their memberships, students had access to two online courses: the [IMA Data Analytics & Visualization Fundamentals Certificate®](#) and IMA’s [RPA \(Robotic Process Automation\) Series](#). Students receive digital badges that they can share on LinkedIn and other social networking platforms in addition to increasing their digital acumen and enhancing their technical skills.

ZAHLLER

I teach intermediate-level cost accounting at Appalachian State University. The course is required for accounting majors and minors and is an elective for other programs (including nonbusiness programs). As a required course, the content is largely predetermined by the range of topics and the assurance of learning goals and measures that we, as a department, have selected. We cover the same basic cost accounting topics that are covered at every institution (with minor

differences, such as the decision regarding whether to cover process costing or not): topics that are well supported by published textbooks and their online homework systems.

Because these topics are well covered in available materials, I use IMA resources to enrich and enhance the course. I am somewhat constrained by which resources are free for members and academics, as we don't require students in this course to purchase an IMA student membership (students in my Advanced Management Accounting class, which intensively uses a variety of IMA materials, are required to do so). During the COVID-19 pandemic, while classes were online, I made many of these enrichment activities mandatory to substitute for in-class discussion and exposure to industry speakers that were missing in that period of isolation.

I use threads to provide extra-credit opportunities for students. At the beginning of each semester, I determine three to four enrichment threads around which to build an extra-credit assignment, and I review the podcast library for recent episodes. In the past few semesters, extra-credit threads that I've had students write about have included sustainability, emerging trends, career development, professionalism and ethics, and the role of technology. These threads may represent each of the six domains of the IMA Management Accounting Competency Framework and often focus specifically on areas such as ethics and leadership that are missing in textbooks. Each thread will have a group of three to five specific podcasts; if there are many recent podcasts on that topic, I may list them all and allow the students to make their own selection. Students are required to listen to the group of podcasts and then to write around 350 to 400 words on what they learned or found interesting.

The essays are informal in nature, but I require that they're proofread and grammatically correct; I deduct for multiple errors of grammar, punctuation, or spelling. I specifically state that I don't want a "book report"—I can listen to the podcasts myself—but instead I want to see that the students are making connections or applying the topic to their own situations. I have had some outstanding essays from students who never said a word in class but who clearly were thinking deeply about the podcasts and drawing relevant parallels to their own careers, education, or life experiences.

I make sure that I keep the rubric simple (see Table 1). The goal is to encourage interest. I prefer to have the student enter the response directly into the assignment link in my learning management system, which also gives me a space to write general comments, words of encouragement, or suggestions for following up on a new interest. My goal in these assignments is to introduce students to the broad range of issues, opportunities, and careers in accounting. There are so many more options than just audit and tax. Our students get the "how" of accounting from their textbook and lectures. The podcast assignments are designed to provide the "why" and to provide the context of how those chapters apply to real-world situations and organizations.

The primary content for these extra-credit threads is the *Count Me In* podcast. It has interviews with a variety of engaging speakers, and the topics are timely and interesting, and can range from

TABLE 1: SAMPLE GRADING RUBRIC FOR PODCAST EXTRA CREDIT ASSIGNMENT

Excellent essay showing real insight/thought; well-written and edited	5 points
"Book report" or summary of topics for each podcast; adequately written	2 points
Summary of topics and/or poorly written and edited	1 point
Poor understanding/summary; may not have listened to all/any of the podcasts	0 points
Note: For students with English as a second language, I grade on an improvement basis to encourage writing practice.	

career advice to the advanced discussion of emerging trends in accounting. The podcast meets disability access requirements with an available transcript, can be accessed on a variety of podcast platforms, doesn't require a membership to access, and has links that can be embedded in your class website. I do screen for podcasts that are of interest to students and entry-level accountants, as some are more technical or more applicable to midcareer or later accountants. I consider TED Talks as well. They frequently have good shows on career development and ethics, for example.

It can be hard to find good accounting content for emerging professionals. If you do decide to use a combination of resources, bear in mind that you need to ensure that there's an easily accessible transcript for students with hearing difficulties. Students will listen to podcasts as they travel or move between classes; it's harder to do that with videos, and mixing audio and video resources may feel disjointed to them. I want to enrich my students' understanding of what accounting is and to engage their curiosity. And if I can get them in the habit of independent professional learning, that's even better.

We hope that these ideas inspire you to add new materials and assignments to your courses for the upcoming year. We find that podcasts, cases, and articles are great ways to push students beyond the textbook material, keep them and us up to date, allow for creativity, stress the importance of analytics and ethics, and cover the competencies. If you've got great ideas, don't hesitate to contact us.

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Developing an Advanced Management Accounting Course

An experienced professor updates her cost accounting and advanced accounting coursework curriculum annually with IMA resources.

By Kimberly A. Zahller, Ph.D., CMA

One of the great benefits of being an academic member of IMA[®] (Institute of Management Accountants) is access to a wide range of educational materials. In [Innovation in Teaching IMA Management Accounting Competencies](#), I discuss my use of IMA materials to supplement and enrich an undergraduate cost accounting class, where the course content is largely standardized across institutions and well supported by textbooks and publishers' materials. But these materials are invaluable in constructing and teaching an advanced course in management accounting, and, in fact, I consider them to be a key element of the course.

In many institutions of higher learning, cost accounting is the only course offered beyond the introductory survey of accounting (often referred to as "principles" courses). Historically, cost has been an intermediate-level, required course in an accounting program. Recently, however, following changes to the CPA (Certified Public Accountant) exam structure and content, some

institutions are either making cost an elective or eliminating it from the program entirely. This is a dangerous trend for the profession and industry in general. As I ask my students: How are you going to audit what you don't understand?

For most institutions, if they have an advanced course in management accounting, it's usually as part of a graduate program in accounting and a review of the same material covered at the undergraduate level, perhaps with a more strategic focus or using case studies. Unfortunately, this also means that a considerable amount of management accounting material is never addressed; most cost accounting courses can only cover approximately half of the material in the text in a semester. While any advanced management accounting class could continue with the remaining chapters in the text, I've found this strategy isn't sufficient to cover the topics in the IMA Management Accounting Competency Framework. Additionally, textbook chapters that do cover some of the more advanced topics don't provide sufficient depth or detail (to be fair, it's difficult to construct meaningful exercises for these topics, especially ones that can be automatically graded by an online homework system).

THE BACKGROUND

I'm fortunate to teach at a university that supports management accounting education. While Appalachian State University has a well-respected, strong program in the traditional fields of audit and tax, the department recognized that there were good students who weren't interested in those fields. We also recognized that, in an era of decreasing enrollments in university accounting programs, emphasizing the many and diverse opportunities, careers, and industries in which accountants work helps with our recruiting and retention goals.

When we decided to add an advanced cost accounting course as an elective, I started with the chapters in the text I hadn't covered in cost accounting. Over the course of the semester, I became increasingly dissatisfied with the extent to which important topics were covered (or even if they were covered). While searching for supplementary materials, I began using some IMA white papers and special reports to add context or examples of real-world applications. But the major development of the advanced course didn't begin until the management accounting class in the master of accountancy program became an elective rather than a required course during a program redesign.

Although we want to encourage and support students with an interest in a career in management accounting, the realities of university budgets preclude offering courses with low enrollment. We solved that problem by creating a dual-listed advanced management accounting course open to both upper-level undergraduates and graduate students. This has worked especially well with our accelerated admission program to the master of accountancy program, as undergraduates admitted to this program may take the course as an undergraduate and elect to have it count for the graduate program. The course is offered once a year, in the spring semester, and the enrollment usually is split evenly between graduate and undergraduate students. The initial undergraduate class was offered in fall 2019; the first dual-listed course was first offered in spring 2021.

When COVID-19 hit in spring 2020 and we were all sent home, I was one of the faculty members selected for a new university program in online education design and delivery. I took advantage of that program, the enforced time at home, and the coincidental 2020 revision to the CMA[®] (Certified Management Accountant) exam to completely update and redesign both the undergraduate cost accounting class and the new advanced management accounting class. As I aligned the courses with the new CMA exam and the Competency Framework, it became increasingly apparent that I didn't have the necessary materials to support the advanced class. I had recently adopted a new textbook that did an outstanding job with the cost topics and that covered about half of the advanced topics.

I also wanted to be able to address issues of professionalism and soft skills (including professional ethics) in the graduate class. As I searched for online resources that spring and

summer, I kept coming back to IMA publications. As an IMA member, I was aware of (and personally used) IMA podcasts, webinars, and online courses. When I found an archived webinar on leadership skills that matched one of the professionalism modules I was building, I contacted Lisa Beaudoin, whom I knew from other IMA activities, and asked her whom I could talk to about getting permission to use this one link for my (non-IMA member) students. I was met with an overwhelmingly generous response from IMA, whose staff enthusiastically explored ways to partner in developing this course.

THE NUTS AND BOLTS OF THE COURSE

When designing an advanced course, it's very helpful to start with IMA's Management Accounting Competency Framework and the list of topics for the CMA exam (see Figure 1). Ideally, an advanced course should only revisit topics from cost accounting if a more "advanced" subtopic was deleted (for example, transfer costing, First In, First Out process costing, learning curve analysis, and activity-based management, specifically of customers and suppliers). Identify any topics that are covered elsewhere, such as accounting information systems or financial accounting classes, classes in the finance department, etc., and you'll find that the topics you're left with are distributed between quantitatively driven topics and more qualitatively driven topics and professional skills.

FIGURE 1: IMA MANAGEMENT ACCOUNTING COMPETENCY FRAMEWORK



I've found that the list of topics doesn't readily lend itself to the flow of progressive skills that we normally use to teach cost accounting. Instead, I use a module system that emphasizes common themes across the entire course, such as global business, sustainability, data analytics, ethics, risk, etc. I may vary the order and content of these modules every semester as I try to balance reading loads, due dates for large or difficult assignments, and the schedules of speakers invited to either the class or meetings of our IMA student chapter.

I use a modified seminar format for the class; many of the topics don't lend themselves to homework assignments and quick calculations, so students are expected to come to class prepared to discuss our module topic. Interestingly, I have found that accounting students are very worried about this concept and my most typical "accountants" are initially very stressed without specific, predictable calculations and answers. But as the course moves on (and with the judicious timing of more qualitative topics), they begin to relax, to increase their ability to truly apply and synthesize topics, and to develop a professional curiosity. Class assessments are driven by discussions and IMA online materials (see the next section); each module has an online assessment based on retired CMA questions. A dual-listed course is usually required to have significantly more (or more difficult) assignments for the graduate students; I use a combination of more IMA online courses and either a research paper or a team presentation on a research topic. I've found the latter approach more useful, as it supports teamwork and presentation and writing skills, and allows for a manageable grading load at the end of the semester. The course has a single final exam in two parts: Part one consists of retired CMA questions on topics we've covered, and part two is a reflective essay on the common themes of the course.

INCORPORATING IMA MATERIALS

I group IMA materials into three categories: written materials, online materials, and other materials. Written materials are available for free download and use, but the online courses are only available to IMA members. Consequently, advanced management accounting students are required to purchase an IMA student membership. Currently, and taking advantage of the price IMA offers students at the beginning of every semester, that's \$25, a cost well below any additional text or workbook I could find. Many students in this class also already have memberships through our student chapter or the CMA Scholarship, so they don't need to purchase additional access. (See Table 1 for an example of a module that incorporates textbook and publisher materials, IMA written materials, IMA online materials, an outside IMA speaker, and a GLEIM assessment.)

TABLE 1: EXAMPLE OF MODULE

	TOPIC	DUE DATES	Student IMA Speakers for this Week
Class Date: February 7 and 9	The Management Accountant and Financial Planning and Analysis		Chad DesMarteau, FP&A
Preparation	Text: Chapter 10, "Responsibility Accounting and Performance Assessment" <ul style="list-style-type: none"> ● <i>Key Principles of Effective Financial Planning and Analysis</i> ● <i>Delivering Business Values: The Role of FP&A in Execution</i> ● <i>Overcoming FP&A's Biggest Challenge: Predicting the Future</i> ● Strategic Finance, November 2017, 12 Principles of Best Practice FP&A ● Strategic Finance, October 2020, <i>Maximizing FP&A Assets</i> 		
Assignments: Everyone	Adaptive Study Plan, Chapter 10 (CengageNow) GLEIM Assessment: Financial Statements Basics	Feb 13, 11:55 p.m.	
Assignments: Grad Students	IMA Online Courses <ul style="list-style-type: none"> ● <i>Predicting the Future: Anything Can Be Modeled</i> ● <i>Revenue Management: Methods to Drive the Top Line</i> 	Feb 13, 11:55 p.m.	

Written materials. IMA produces a range of well-written materials that can be used to supplement or extend textbook discussions; these are the solutions for the critical topics not covered in the textbook. I use a combination of these materials for each module and try to balance the more extensive readings with shorter articles so I don't overwhelm my students. I recommend reviewing your selections each time you offer the course; IMA is currently working to update and rewrite many of these materials, so availability may change. All these materials can be provided to the student via a link. I collect all readings together under each module on my class website. I strongly recommend that you test the links each semester just before the course begins, as changes to the IMA website and platform occasionally break old links. IMA's written materials can be categorized as follows:

- **Substantive readings.** These are the larger readings that I use to cover topics that are missing from the textbook or to supplement very basic textbook discussions. Often around 30 to 40 pages, the readings are written at the professional level and are free from the statistical tests that often make academic writing difficult for students. Topics can be searched on the IMA website and may be C-suite reports, Statements on Management Accounting, or white papers.
- **Supplemental readings.** The majority of these are articles from *Strategic Finance* and provide up-to-the-minute information on current contexts, challenges, and emerging issues. Be aware that Strategic Finance readings can range from topical columns to longer feature articles, and remember to balance the amount of reading you're assigning each week. Every semester I specifically look for new Strategic Finance articles to add to the modules, deleting some of the older ones, and I keep a file of interesting articles throughout the year. Occasionally, I will find an article in *Management Accounting Quarterly* (MAQ) that provides a more analytical approach to a topic. I find that MAQ isn't too much of a challenge for students and gives them insights into emerging issues and theoretical debates.
- **Case studies:** While this isn't a case study-driven course, I do try to incorporate two to three cases each semester. *The IMA Educational Case Journal (IECJ[®])* is an invaluable resource. The cases are shorter and often have a strong qualitative, ethical, or strategic component, lending themselves well to classroom discussions as well as practice in the application of specific skills. Classic cases are being updated, and new cases covering emerging issues are constantly being added. There is a downloadable, searchable database available on the IMA website including former cases used in the annual IMA Student Case Competition.

Online materials. The online materials produced by IMA are varied and excellent. IMA has a rotating library of courses free to members, and there are additional courses that are specifically made free to student members. These selections can change, so please verify your selected assignments before the beginning of the semester. Online courses are also compliant with the Americans with Disabilities Act (ADA) and have available transcripts for students with hearing difficulties.

- **Online courses:** Topics range from professional skills to advanced and emerging topics. Most courses are well designed and very well produced, with embedded knowledge check quizzes and a final assessment. A significant benefit to the instructor is that these courses are automatically graded. The student receives a continuing professional education (CPE) certificate of completion when they successfully pass the final assessment; I have them post that certificate to the website assignment link and grade these assignments as pass/fail. I use a wide range of online professional skills courses in modules on professionalism and ethics and assign others throughout the course for the graduate students. Several of the courses are also used to enrich and expand study of course topics, such as sustainability, strategy, profitability and pricing, robotic process automation (RPA), risk, and International Financial Reporting Standards (IFRS). IMA currently offers the entire RPA Series free to students and the online certificate program in data analytics and visualization fundamentals (again, please verify each semester as selections can change). I would recommend that you at least skim the online course

to be sure it isn't based on a reading you have already assigned; choose one or the other, but don't assign both. (See Table 2 for examples used in my spring 2023 class.)

- **Ethics courses:** The IMA online catalog includes a series of ethics courses. Members have access to all ethics courses for free. I select a different course every year as part of our ethics module and take the course with the students as part of my behavioral CPE, which has led to some interesting discussions. These cases provide a combination of instruction, situational application, and assessment (the written version of the case can also be found in *IECJ*). I don't use the facilitator-led format; by taking the course individually, students are each fully involved and obtain a certificate of completion.
- **Webinars:** I have found that most webinars aren't well adapted to students (instead, they are geared to midlevel professionals with experience in implementing the topics). But IMA does have a searchable webinar archive, and I've found relevant topics under leadership or professional ethics and values. Student members will also receive notifications of all upcoming webinars. Participation in live webinars produce a CPE certificate that can be used to award credit; archived webinars don't.

TABLE 2: EXAMPLES OF ONLINE COURSES USED IN SPRING 2023

Online Course	Class Module	Audience
Time Management	Professional Skills	Undergraduate/graduate
Leadership Foundations for Management Accountants	Professional Skills	Graduate
Strategic Analysis for Management Accountants and CFOs	Strategic Analysis and Management	Graduate
U.S. GAAP vs. IFRS: Liabilities and Related Special Topics	Global Environment	Graduate
U.S. GAAP vs IFRS: Nonfinancial Assets		
COSO Enterprise Risk Management: Essential to Organizational Success	Risk Assessment and Management	Undergraduate/graduate
COSO Enterprise Risk Management Certificate: Online Self-Study		
Predicting the Future: Anything Can Be Modeled	Financial Planning and Analysis	Graduate
IMA Ethics Series: The Power of Trust	Ethical Professional Practice	Undergraduate/graduate
Driving Strategic Management with the Profitability Analytics Framework	Pricing and Profitability Analysis	Graduate
IMA's RPA Series	Transformational Technology	Undergraduate/graduate
IMA Data Analytics & Visualization Fundamentals Certificate®	Transformational Technology	Graduate (available as extra credit to undergraduate students)

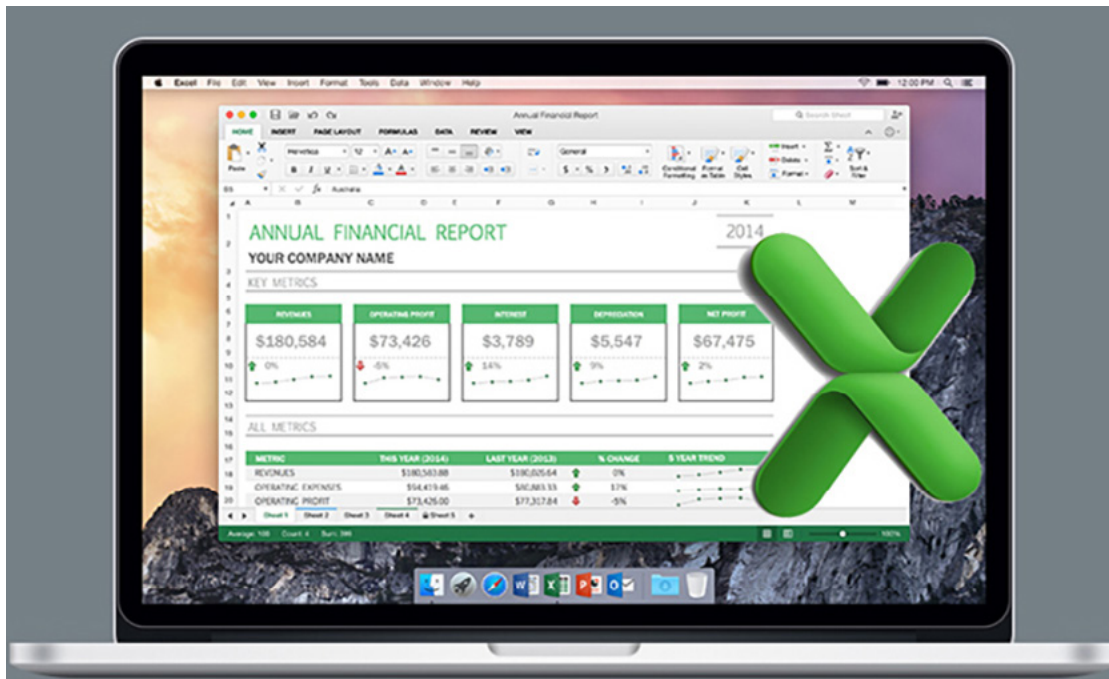
Other materials. There are other materials, produced by IMA and its partners, that I've also used as part of the course. GLEIM has been instrumental in building assessments for each module and for the topic assessment in the final exam. I use large pools of questions for each module topic and allow multiple retakes to assist students in preparing for certification exams. A few modules aren't represented on the exam, and for those I assign review assessments on topics such as costing methodologies or financial statement basics.

The IMA podcast, *Count Me In*, is also a useful adjunct to teaching. When I use these materials, I search the archive for a set of podcasts on a common theme and assign a reflective essay integrating the individual podcasts or applying them to the current module. The podcasts are accessible on a variety of platforms, are ADA-compliant with transcripts available, don't require a membership, and have relevant, interesting speakers; these are also a useful way to start students on the habit of following trends and topics in the profession.

If you have a student chapter, take advantage of this and coordinate speakers and modules (if you don't have a student chapter, consider starting one). Your local chapter is also a good source for identifying speakers and opportunities for plant tours. IMA also produces a young professionals panel (live on Zoom) each semester, which is a great resource.

I hope that these ideas will enable you to develop or make a case for including an advanced management accounting course in your program. The availability of these resources makes the instructor's job much easier; the automatic grading on the online courses alone makes possible so many more options in teaching professional skills. Make use of the resources available to you as an instructor. IMA has two business development managers dedicated to helping academic members and supporting educational resources: Tyler Skelton and Mary Patterson. They are extremely helpful and can provide resources, suggestions, contacts, and troubleshooting. Sign up for the Faculty Friday webinars and newsletters if you aren't already receiving them. If you attend the annual IMA Accounting & Finance Conference, be sure to attend the academic luncheon. And, if you aren't already a CMA, consider pursuing the certification with IMA's free program for academics. I'm also always willing to chat about my experience in developing this course and incorporating IMA materials.

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Modeling Risk Scenarios Using BASE

The BASE function helps to generate all possible combinations of several input variables to model future outcomes.

By Bill Jelen

While Excel is often used in accounting to report past results, it can also be used to model future outcomes. When building a model to predict the next quarter's sales, you might want to create hundreds of scenarios and model all of them to figure out the best possible outcome, the worst possible outcome, and the median outcome.

One of the steps in building this model is to generate a list of all possible scenarios. Let's say that your model relies on three events, and each event could have three possible outcomes: low, mid, and high. With three events and three outcomes, there would be 27 scenarios to model, from "low-low-low" to "high-high-high."

For me, generating the list of all possible scenarios takes a lot of thought. In the past, I've used a combination of nonintuitive formulas to make column E loop through low, mid, and high. Then an IF statement in column D decides if the next row should be the same as the row above or jump to

the next level. A similar formula in column C uses “low” for nine rows, then “mid” for nine rows, and so on.

Any time I go through these convoluted steps on my YouTube channel, an astute viewer named Kyle reminds me that I can easily create the combinations in Excel using the BASE function. The goal of this article is to show you how to easily generate all combinations of several input values in order to create a list of all scenarios.

Mentally, I classify the BASE function as a function mostly of interest to mathematicians or electrical engineers. It’s a function that helps you when converting a decimal number to another base numbering system.

NUMBER SYSTEMS IN EXCEL

Historically, Excel was designed to easily convert between decimal, binary, octal, and hexadecimal numbering systems. If you wanted to convert from decimal to binary, you would use =DEC2BIN. If you needed to go from octal to hexadecimal, you would use =OCT2HEX. A total of 12 functions handled the conversion between binary, octal, decimal, and hexadecimal.

Excel 2013 introduced two new functions: The BASE function would convert any decimal number to any numbering system from base 2 to base 36, and the DECIMAL function would convert a number in an alternate numbering system back to decimal.

	A	B	C	D	E
1	12 Legacy Functions for Changing Number Systems				
2					
3	Decimal	Binary	Octal	Hex	
4		22 10110	26	16	
5		63 111111	77	3F	
6		=DEC2BIN(A5)	=DEC2OCT(A5)	=DEC2HEX(A5)	
7					
8					
9	From	Binary	Octal	Decimal	Hexadecimal
10	Binary		=Bin2Oct	=Bin2Dec	=Bin2Hex
11	Octal	=Oct2Bin		=Oct2Dec	=Oct2Hex
12	Decimal	=Dec2Bin	=Dec2Oct		=Dec2Hex
13	Hexadecimal	=Hex2Bin	=Hex2Oct	=Hex2Dec	
14					

cartoon did a great job of introducing base 12 to a generation, in practical terms, we don’t have mystery digits on a keyboard, so base 12 uses the digits 0 to 9 as well as the letters A and B.

Column D shows the digits used in base 2 through base 36 in Excel.

GENERATING ALL COMBINATIONS USING BASE

The first step is to figure out how many scenarios you need to model. Say that you had four input cells with three combinations each. To figure out how many scenarios you need to model, you would calculate 3 raised to the fourth power. In Excel, this is =3^4 and calculates as 81 possible

	A	B	C	D	E	F
1		3	events			
2		3	outcomes each			
3		27	Number of Scenarios			
4						
5		Combinations	1	2	3	Scenario
6		111	low	low	low	low-low-low
7		112	low	low	mid	low-low-mid
8		113	low	low	high	low-low-high
9		121	low	mid	low	low-mid-low
10		122	low	mid	mid	low-mid-mid
11		123	low	mid	high	low-mid-high
12		131	low	high	low	low-high-low
13		132	low	high	mid	low-high-mid
14		133	low	high	high	low-high-high
15		211	mid	low	low	mid-low-low
16		212	mid	low	mid	mid-low-mid
17		213	mid	low	high	mid-low-high
18		221	mid	mid	low	mid-mid-low
19		222	mid	mid	mid	mid-mid-mid
20		223	mid	mid	high	mid-mid-high
21		231	mid	high	low	mid-high-low
22		232	mid	high	mid	mid-high-mid
23		233	mid	high	high	mid-high-high
24		311	high	low	low	high-low-low
25		312	high	low	mid	high-low-mid
26		313	high	low	high	high-low-high
27		321	high	mid	low	high-mid-low
28		322	high	mid	mid	high-mid-mid
29		323	high	mid	high	high-mid-high
30		331	high	high	low	high-high-low
31		332	high	high	mid	high-high-mid
32		333	high	high	high	high-high-high
33						

The syntax for BASE is =BASE(number, radix, [min_length]). In this context, “radix” tells you the base of the numbering system. If you were using numbers in base 12, the radix would be 12. The optional argument for minimum length specifies that you might always want eight binary digits in the result.

If you’re of a certain age, you might remember the three-minute Saturday morning Schoolhouse Rock! episode where your “cousin on another planet” had 12 toes and would count seven, eight, nine, dek, el, doh. While that inventive

scenarios. Below is a simple spreadsheet where you enter the number of input cells and the number of alternatives for each cell. The formula in B3 is =B2^B1.

The second step is to generate a list of numbers with one number in each row. But instead of numbering the scenarios from 1 to 81, it's better to number them from 0 to 80. The new SEQUENCE function generates a sequence of numbers. =SEQUENCE(81) generates the numbers from 1 to 81. To have the list of numbers start at a number other than 1, specify the starting number as an optional third argument: =SEQUENCE(81,,0).

Below, a simpler model with three events and two outcomes each needs only eight numbers. The formula =SEQUENCE(B3,,0) in cell A6 generates the numbers 0 to 7.

Note that the SEQUENCE function is new and only available in Office 2021 or Microsoft 365. If you're still using Excel 2019 or newer, you would replace the one formula in A6 with a zero and then a series of formulas starting with =A7+1 in cell A8 and copied down.

The BASE function is used in the third step. You want to convert the decimal numbers in column A to the list of possible scenarios. With two outcomes for three input cells, you would specify a radix of 2 and a minimum length of 3.

If you have the SEQUENCE function in A6, you can simply specify A6# as the number, and one formula =BASE(A6#,B2,B1) would generate all of the scenarios.

C16		=BASE(A16,B16)		A	B	C	D	E	F	G
1	=BASE(number,radix,[min_length])									
2										
3	Converts any decimal number to any number system from Base 2 to Base 36									
4										
5	Decimal	Radix	Result	Contains						
6	123789	2	11110001110001101	0-1						
7	123456	3	20021100110	0-2						
8	123456	4	132021000	0-3						
9	123456	5	12422311	0-4						
10	123456	6	2351320	0-5						
11	123456	7	1022634	0-6						
12	123456	8	361100	0-7						
13	123456	9	207313	0-8						
14	123456	10	123456	0-9						
15	194875	11	12345A	0-9,A-A						
16	1653395	12	6789AB	0-9,A-B						
17	435848	13	1234CA	0-9,A-C						
18	123456	14	32DC4	0-9,A-D						
19	871844	15	1234CE	0-9,A-E						
20	16716350	16	FF123E	0-9,A-F						
32	594638	28	R2D2	0-9,A-R						
33	123456	29	51N3	0-9,A-S						
34	123456	30	4H56	0-9,A-T						
35	123875	31	44RU	0-9,A-U						
36	123456	32	30I0	0-9,A-V						
37	123456	33	3EC3	0-9,A-W						
38	123456	34	34R2	0-9,A-X						
39	123456	35	2URB	0-9,A-Y						
40	1679615	36	ZZZZ	0-9,A-Z						

B3		=B2^B1		A	B	C	D
1		4	events				
2		3	outcomes each				
3		81	Number of Scenarios				
4							

A6		=SEQUENCE(B3,,0)		A	B	C	D	E
1		3	events					
2		2	outcomes each					
3		8	Number of Scenarios					
4								
5								
6		0						
7		1						
8		2						
9		3						
10		4						
11		5						
12		6						
13		7						
14								

If you're using Excel 2019 or older, use `=BASE(A6,B2,B1)` in B6 and copy down to all of the rows.

OPTIONALLY ADDING 1 TO EACH DIGIT OF THE RESULT

In the original risk model, the three possible outcomes were named “low,” “mid,” and “high.” The BASE function is using 0 for low, 1 for medium, and 2 for high. Personally, I prefer my lists to be numbers 1, 2, and 3 instead of 0, 1, and 2.

Below, a `REPT(1,` formula in B4 generates a number with a series of the digit 1. When you add this “111” to the formula in B6, you've generated every possible combination of 1, 2, and 3.

	A	B	C	D	E	F
1		3	events			
2		2	outcomes each			
3		8	Number of Scenarios			
4						
5						
6		0000				
7		1001				
8		2010				
9		3011				
10		4100				
11		5101				
12		6110				
13		7111				
14						

COMBINING FORMULAS

In the previous examples, the SEQUENCE function is shown separately in A6 so you can visualize how the scenarios start at 0 and increase by 1. In the final model, you could embed the SEQUENCE logic directly into the B6 formula: `=BASE(SEQUENCE(B3,,0),B2,B1)+B4`.

The REPT function in B4 could also move directly into the B6 formula: `=BASE(SEQUENCE(B3,,0),B2,B1)+REPT(1,B1)`.

	A	B	C	D	E
1		3	events		
2		2	outcomes each		
3		8	Number of Scenarios		
4		111	Add 1 to each position		
5					
6	0	111	<code>=BASE(A6#,B2,B1)+B4</code>		
7	1	112			
8	2	121			
9	3	122			
10	4	211			
11	5	212			
12	6	221			
13	7	222			
14					

Finally, the calculation for the number of scenarios could move from B3 and be included as the first argument of the SEQUENCE function: `=BASE(SEQUENCE(B2^B1,,0),B2,B1)+REPT(1,B1)`.

The final model here uses two input cells and one formula. Below, the formula in B6 generates all 625 possible scenarios of four events with five outcomes each.

YOUR LOGIC WILL VARY

Now that you have the list of all possible scenario combinations, you would use any combination

of LEFT, MID, RIGHT, CHOOSE, IF, and INDEX to perform calculations. The model shown below multiplies prior-year revenue by five different factors depending on the scenario. Descriptive statistics in cells E5:F9 describe possible outcomes.

B6		=BASE(SEQUENCE(B3,,0),B2,B1)+REPT(1,B1)					
	A	B	C	D	E	F	G
1		4	events				
2		5	outcomes each				
3		625	Number of Scenarios				
4							
5		Scenarios					
6		1111	=BASE(SEQUENCE(B3,,0),B2,B1)+REPT(1,B1)				
7		1112					
8		1113					
9		1114					
10		1115					
11		1121					
12		1122					
13		1123					
14		1124					
15		1125					
16		1131					
17		1132					

While your final model will use other logic, the main point is using the somewhat obscure BASE function to generate all possible combinations of several input variables.

C6		=123456														
		*INDEX(I11:I15,LEFT(B6#,1)+0) *INDEX(J11:J15,MID(B6#,2,1)+0) *INDEX(K11:K15,MID(B6#,3,1)+0) *INDEX(L11:L15,MID(B6#,4,1)+0) *INDEX(M11:M15,RIGHT(B6#,1)+0)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		4	events													
2		5	outcomes each													
3																
4																
5		Scenario	Projected Sales		Worst	\$87,999										
6		1111	\$87,999		1st Quartile	\$118,955										
7		1112	\$89,759		Median	\$131,755										
8		1113	\$91,519		3rd Quartile	\$144,332										
9		1114	\$97,943		Best	\$188,424										
10		1115	\$114,047													
11		1121	\$87,999	F5:	=MIN(C6#)		1	80%	90%	99%	100%	100%				
12		1122	\$89,759	F6:	=QUARTILE.INC(C6#,1)		2	98%	95%	99%	102%	100%				
13		1123	\$91,519	F7:	=MEDIAN(C6#)		3	102%	100%	100%	104%	100%				
14		1124	\$97,943	F8:	=QUARTILE.INC(C6#,3)		4	104%	105%	101%	106%	105%				
15		1125	\$114,047	F9:	=MAX(C6#)		5	106%	110%	101%	108%	120%				
16		1131	\$88,888													
17		1132	\$90,666													
18		1133	\$92,444													
19		1134	\$98,933													
20		1135	\$115,100													

Bill Jelen is the host of MrExcel.com and the author of 67 books about Excel. He helped create IMA's Excel courses on data analytics and the IMA Excel 365: Tips in Ten series of microlearning courses. Send questions for future articles to IMA@MrExcel.com.



Data Democratization for Value Creation

Despite the risks and challenges, data democratization has the potential to unleash the full power of company data.

By Kristine M. Brands, CMA

According to Statista, a leading provider of market and consumer data, the four C's of global data—created, copied, captured, and consumed—are expected to almost triple between 2022 and 2025 from 67 to 181 zettabytes (ZB). One ZB equals one billion terabytes (TB). Your organization is likely contributing to this statistic, as companies everywhere are experiencing rapid growth in the four C's of data. The question is whether they'll be able to manage and leverage the opportunities the data offers.

Unlocking the power of this data requires getting the data into the hands of users. For companies, that means adopting a data democratization strategy. This column explores the meaning of data democratization, its pros and cons, and how management accountants can help their organizations create value by implementing a data democratization strategy.

Historically, an organization's IT department and computer specialists controlled access to its

data by serving as gatekeepers monitoring and limiting data access then distributing it to users by request or preconfigured access. Data democratization removes this roadblock by opening direct data access to users and eliminating the IT intermediary. In other words, it means an organization's data is available to everyone without the IT department's involvement. A self-service data access model gets data into the hands of users faster and provides them with the data they need. Users don't have to jump through hoops, possess tech skills, or rely on data scientists or programmers to access data. Citizen data access trumps technical training access. Access becomes transparent, fast, and easy; users are no longer dependent on the IT department or an AI computer.

PROS AND CONS

The clear advantage for data democratization is getting the data into the hands of the decision makers. This creates a competitive advantage because more employees will be able to access the data to provide better insight into decision making. As users become more educated about their data and how they can use it, they can become proactive about data needs and define new data sources instead of being limited by traditional data sources. Nontechnical users who might have previously been shut out of decision making can bring their minds and experience to the decision-making table. And the opportunity for cross-functional data sharing soars.

Disadvantages include data integrity challenges because the three V's of Big Data—volume, variety, and velocity—may be affected. Data must be managed, cleansed, controlled, and organized. Otherwise, data could be misinterpreted, leading to flawed decision making. The risk of garbage-in, garbage-out is magnified with bad data. There will also be a learning curve because traditional users who may have suffered from data fatigue caused by hassles and frustration in previously accessing data may now need to relearn how to access and trust newfound data freedom.

Security risk is critical because opening the data floodgates could lead to unauthorized data use and sharing. Data democratization doesn't mean unlimited open data access; it means controlled data access that won't compromise the organization.

IMPLEMENTATION STEPS

Implementing data democratization must be a deliberate, strategic process to balance leveraging and safeguarding data. A 10-step plan could include:

- 1.** Hiring a chief data officer (CDO) to develop and manage data strategy, to create a data architecture plan, and to oversee analysis and business intelligence applications. Smaller organizations can define the function and assign the responsibility to the CFO's or controller's department or engage a consultant.
- 2.** Performing a data audit to identify data sources (internal and external), current use and users, authorized use by source and user, and security level by source and user. Prepare a data source dictionary to document the findings. The document becomes the foundation of the organization's data democratization policies and procedures. Users should be an integral part of the process to ensure the audit is a baseline of data requirements and usage. It can also be used to perform a gap analysis to identify future data needs.
- 3.** Establishing data governance policies and procedures. Without clear data access policies, data democratization could cause more harm than good by risking unauthorized data access or confidential data disclosure. Strong data governance, data security, and internal controls must be spelled out to safeguard data. Include limitations on data use and sharing to protect data assets. Strictly enforce violations and punish violators.
- 4.** Selecting and deploying a data platform and tools for data access and sharing. The sophistication of both depends on the organization's budget. Smaller organizations might set up a desktop data server or explore external hosting services, while larger organizations could create a data lake or store data in the cloud. If the organization lacks technical talent, enlist a consultant.

5. Converting data from the data platform into user-friendly formats so it's ready for immediate analysis. Access to data that's extracted in a technical format defeats the purpose of data democratization and perpetuates frustration users experienced under an IT-controlled environment.

6. Performing an ongoing data quality review to eliminate duplicate data, verify data integrity, and correct errors. Nothing undermines the value of data more than multiple versions or errors. Automate the process to take advantage of data rules and data quality standards goals.

7. Providing data analysis using a dashboard visualization tool like Power BI, Tableau, QlikView, or Google Charts. Address performance considerations to ensure users aren't left hanging as they wait for information to load.

8. Developing training programs to educate users about data sources, organizational needs and opportunities, how to use data retrieval tools, and how to analyze and interpret data by upskilling the staff. While all are important, teaching the team how to interpret data is the key to creating value.

9. Fostering a data-focused culture to empower users. Raise the organization's data literacy level and encourage cross-functional collaboration.

10. Balancing data democratization with protecting data assets. Follow the pulse of the technology explosion to identify how to safeguard data and to confirm the intent of how it's used.

The key to data democratization is data literacy. If users don't understand their data, its power goes unharnessed. As Jonathan Rosenberg, Google's former senior vice president of products, says, "The democratization of data means that those who can analyze it well will win," leading to value creation. And as management accountants know, the numbers don't lie.

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Helping Students Find Their Passion

While teaching methods may have changed over the years, one thing has remained the same: the joy of watching students blossom.

By Dell Ann Janney, DMgt

During the past 30 years, I've had the opportunity to work with so many incredible students and help them find their passion. Watching a sometimes shy and uncertain freshman blossom into a confident college senior with direction in their career is a huge reward for an educator.

Teaching has evolved and changed so much over the years. When I first began my work as an accounting professor, I used an overhead projector and slide transparencies to demonstrate problems. During those early years, grading was completely manual, and, of course, email was barely in existence. Today, I use online resources, conduct Zoom meetings with alumni experts in the field, and give assignments that are algorithmic and provide automatic feedback. Students have access to new tools too: They use powerful learning management systems and e-books that they access online.

Although most of these online resources are incredible, I still find myself having to occasionally remind my students to take notes. With so much information at their fingertips, some students are tempted to “Google it” rather than write things down.

While e-books are certainly much more environmentally friendly, many of my alumni are taken aback when I tell them that students no longer buy hardback books. Recently, an alumna who’s the director of financial services at a nearby hospital shared with me that she still regularly references her intermediate accounting textbook. Certainly, the electronic versions of such classic texts do have their flaws!

MY EVOLUTION WITH IMA

My involvement with IMA® has evolved over the years as well. In the early 2000s, one of my students asked if I would write a letter of recommendation in support of his IMA scholarship application. To my delight, my student was awarded the IMA Memorial Education Fund scholarship, and together we traveled to the IMA Annual Conference for him to receive the award.

It was at that conference where I met so many outstanding professionals who were thrilled to meet my students and me. Following that experience, my students and I decided to start an IMA student chapter at Culver-Stockton College. Over the years, I’ve traveled with students to other conferences all over the United States. And my students have benefited through IMA scholarships and IMA’s extensive global network.

LEADERSHIP ROLES

Attending that initial conference also inspired me to become involved in my local IMA chapter, the Quincy Area Chapter, where I served in numerous positions, including president. I’ve also been a director on the Heartland Council and chaired the former IMA Committee on Students.

Over the years, I’ve also encouraged my students to serve in leadership roles in the Quincy Area Chapter (one year, two of my students served as co-presidents). In discussing with my students the benefits of IMA involvement, I quickly realized how beneficial it was for them to join this professional organization. As a result, I created a course titled Professional Development that focuses on involvement in the IMA student chapter events, learning about the CMA® (Certified Management Accountant), developing their résumé and LinkedIn profile, and networking.

While teaching has changed considerably over the years, the reward of helping students discover their passion has remained constant. IMA provides valuable resources, certification, programs, and an incredible network of professionals that help students find success. I’m proud to be part of an organization that makes such an impact on students’ lives.

Interested in starting an IMA student chapter on your campus?

Read more about it [here](#).

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