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The New Management Accounting Ecosystem: A Retrospective View and Path to the Future

2023

In this paper we argue that management accounting research should seek to expand to examine the broader ecosystem of information sources that influence organizational performance. We introduce the concept of the management accounting ecosystem as a means of linking discrete management accounting research topics to the broader environment in which organizations operate. By doing this, we can better bridge the gap between management accounting research and management accounting practice. Our goal is to encourage more cross-disciplinary research that provides a better understanding of the ecosystem in which management accounting practitioners operate. We encourage researchers to submit studies to "Advances in Management Accounting" that evaluate the effectiveness of new management accounting information sources and the techniques used to analyze them in the broader ecosystem to enhance the effectiveness of management accounting practices. By exploring the wider information sources within the management accounting ecosystem, future management accounting research can become more innovative and better address the decision-making needs of organizational members.

Keywords: management accounting ecosystem; practice-academic gap; IMA Competency Framework; cross-disciplinary; information; technology

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THE NEW MANAGEMENT ACCOUNTING ECOSYSTEM: A RETROSPECTIVE VIEW AND PATH TO THE FUTURE

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ABSTRACT

In this paper we argue that management accounting research should seek to expand to examine the broader ecosystem of information sources that influence organizational performance. We introduce the concept of the management accounting ecosystem as a means of linking discrete management accounting research topics to the broader environment in which organizations operate. By doing this, we can better bridge the gap between management accounting research and management accounting practice. Our goal is to encourage more cross-disciplinary research that provides a better understanding of the ecosystem in which management accounting practitioners operate. We encourage researchers to submit studies to “Advances in Management Accounting” that evaluate the effectiveness of new management accounting information sources and the techniques used to analyze them in the broader ecosystem to enhance the effectiveness of management accounting practices. By exploring the wider information sources within the management accounting ecosystem, future management accounting research can become more innovative and better address the decision-making needs of organizational members.

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INTRODUCTION

Management accounting aims to quantify, assess and communicate financial and non-financial data to assist organization members in making informed decisions that align with the objectives of their organization (Horngren, Datar, and Rajan, 2012). As most of our economy's activity occurs within organizations, our aim as management accounting researchers should be to understand how organizations can better "coordinate complex activities" (Simon, 2000, p. 751). It has been suggested that "management accounting and control systems are so important and ubiquitous today that if accountants and information people wrapped up their systems and took them home, the whole process of producing society's material goods and services along with the governance of social order would grind to a standstill" (Macintosh, 1994, p.1). Even though this quote is now almost three decades old, it remains just as relevant today as when it was made.

Historically, management accounting practice has focused on utilizing various techniques and analytical tools to aid organizations in planning, controlling, and enhancing their operational processes and financial performance. As industries have evolved, so too have the techniques and tools employed. Improvements in cost allocation, budgeting, and profit analysis have enhanced the effectiveness of internal decision-making. However, due to technological limitations, most of these improvements have focused on the data available within the organization, despite the knowledge that organizations operate in a broader "marketplace." Management accounting practitioners can now provide a more comprehensive understanding of organizational performance by systematically considering the broader ecosystem in which organizations operate and utilizing appropriate data and analysis. With the rapid pace of changes in the use of information technology in organizations (Sprakman, O'Grady, Askarany, and Akroyd, 2015), research is needed to support how firms can further advance how they use technology in their management accounting practices (Granlund, 2011).

This paper introduces the concept of the management accounting ecosystem as a means of linking discrete, traditional management accounting research topics to the broader environment in which practitioners operate. A management accounting ecosystem can be thought of as the interdependency among entities in a complex network bound together to provide shared value to organizations and society. The management accounting ecosystem is a complex (and self-organized) network that includes an information source layer, an information technology layer (including computer science, statistics, math, machine learning, artificial intelligence, etc.) through which data and information move into the management accounting system where it is transformed into knowledge that is useful for decision-making. In essence, this ecosystem is how data and information sourcing, access and flows are interconnected and enable efficient and effective communication between information sources and the management accounting system to help organization members make better decisions. While we do not purport to describe an overarching information management model in organizations, we strive to understand better the structural and functional information environment in which management accountants can help organizations create shared value. Thus, we view the management accounting ecosystem as a unifying conceptual model that illustrates the multi-disciplinary nature of management accounting practice that has always been, but also needs management accounting researchers to examine.

Organizations have always functioned within an ecosystem of competitors, partners, employees, and external market forces. However, a systematic consideration of the broader ecosystem using appropriate data and analysis has been limited. Accordingly, the conceptualization of a management

accounting ecosystem recognizes the need for management accountants to use data from within the organizations they serve as well as from external sources.

Understanding what management accountants do in practice can help us bridge the gap between traditional management accounting research and the broader ecosystem where organizations now operate. This will enable us to connect traditional management accounting research topics with external factors influencing organizational performance. We aim to reduce the practice-academic gap and ensure that future research is relevant and accessible to a broader audience, including those from marketing, supply chain logistics, sociology, strategy, organization behavior and psychology disciplines. By doing so, we hope to foster cross-disciplinary research that provides a more comprehensive understanding of the broader ecosystem in which management accounting operates.

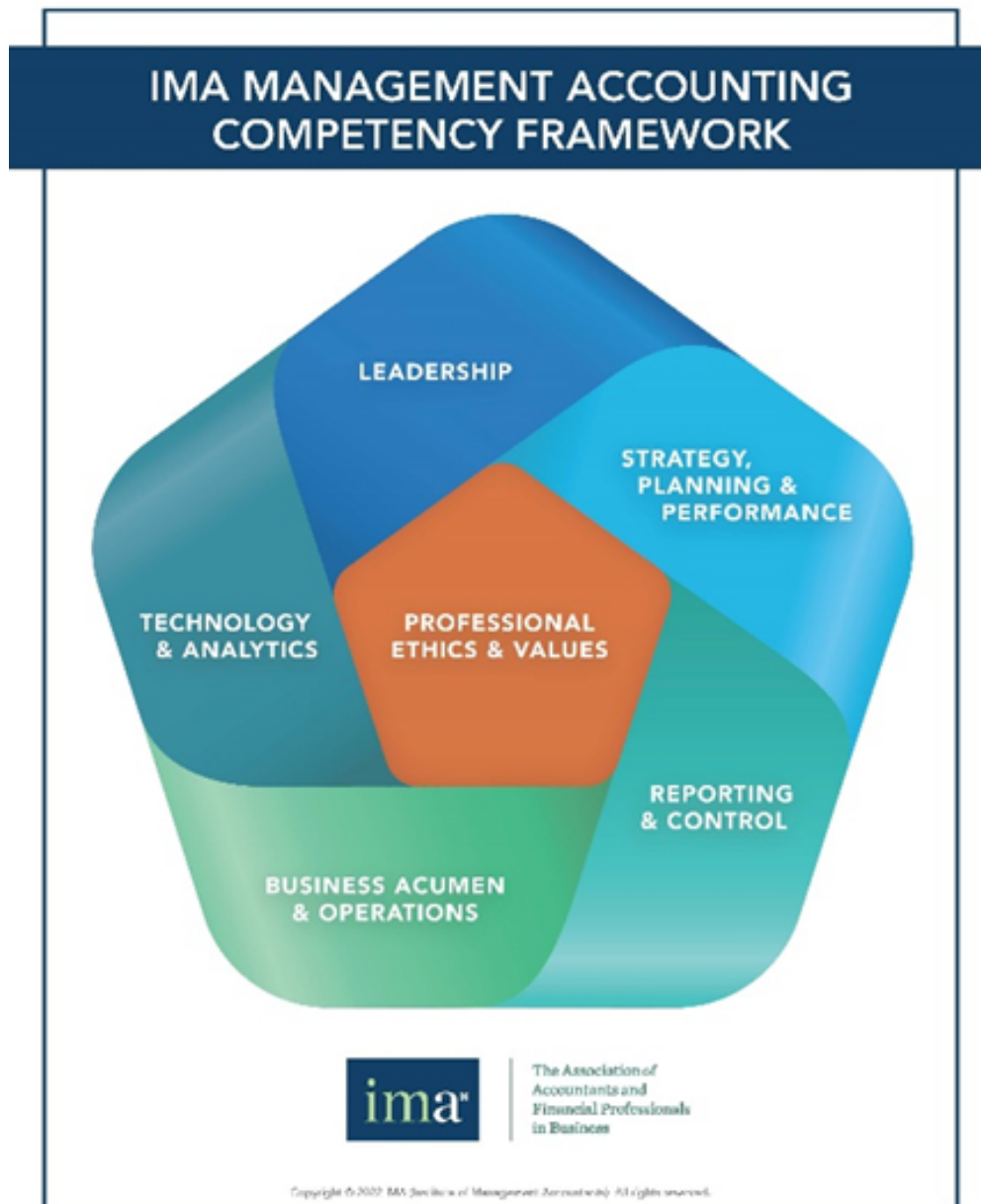
As information technology rapidly transforms the business landscape, it has been argued that management accounting practitioners and researchers should leverage the opportunities at the intersection of technology and management accounting (Granlund, 2011). Therefore, we encourage researchers to submit studies to *Advances in Management Accounting* that examine the impact of external factors on internal decision-making processes, evaluate the effectiveness of new management accounting techniques in the broader management accounting ecosystem, and utilize new technologies to enhance the efficiency of management accounting practices. This approach will ensure that future management accounting research is relevant and accessible to a broader audience, thereby reducing the practice-academic gap. By exploring the intersection of information sources and management accounting practice we can gain a more comprehensive understanding of how these fields can complement each other, leading to the development of more innovative and effective management accounting practices and more relevant research.

The rest of this paper is structured as follows. First, we present the IMA Competency Framework recently developed by the Institute of Management Accountants (IMA) along with the Data, Information, Knowledge, Wisdom (DIKW) Pyramid which we use to frame our discussion. We then provide a historical perspective on management accounting practice and an overview of what a management accounting system includes. Next, we introduce our new management accounting ecosystem, which serves as a first step toward identifying areas of interest to link management accounting practice with research. We then explore potential improvements to management accounting doctoral programs to overcome the practice-research gap and outline some areas for future research.

THE IMA COMPETENCY FRAMEWORK AND THE DIKW PYRAMID

The Institute of Management Accountants (IMA) developed a Management Accounting Competency Framework (2022) based on extensive research on the practices of management accounting professionals (see Figure 1). The framework consists of six broad domains linked to specific skills and tasks that practitioners need to master to succeed in their careers, whether as new graduates or in the future. The IMA Competency Framework is useful for identifying areas of importance for practitioners and can guide further academic research to better understand how available methods and procedures can lead to better decision-making within the broader ecosystem in which they and their firms operate.

Figure 1



(Source: IMA 2022 - Management Accounting Competency Framework. Used with permission)

The Planning and Analysis domain focuses on the ability to create and communicate strategic plans and performance metrics. Management accountants in this domain are expected to be able to understand business models, analyze financial statements, and use data analysis tools to forecast future performance. They must also be able to communicate complex financial information to non-financial stakeholders and work collaboratively with other departments to achieve organizational goals.

The Performance and Risk Management domain is concerned with evaluating performance and identifying risks. Management accountants in this domain must be able to identify key performance indicators (KPIs), develop budgets and forecasts, and use variance analysis to evaluate performance. They must also be able to identify risks and develop risk management strategies to mitigate them.

The Cost Management domain is focused on the ability to manage costs effectively. Management accountants in this domain must be able to design and implement cost systems, analyze cost behavior, and use cost data to make strategic decisions. They must also be able to evaluate the profitability of products and services, identify cost savings opportunities, and monitor costs to ensure that they are within budget.

The Internal Controls domain ensures that financial information is accurate and reliable. Management accountants in this domain must be able to design and implement internal controls, monitor compliance with regulations, and identify and mitigate risks. They must also be able to communicate the importance of internal controls to non-financial stakeholders and work collaboratively with other departments to ensure that controls are effective.

The IMA Competency Framework provides a comprehensive overview of the knowledge, skills, and abilities required to succeed as a management accountant. It emphasizes the importance of strategic thinking, effective communication, and collaboration with other departments. It also recognizes the importance of data analysis, risk management, and internal controls in ensuring that financial information is accurate and reliable.

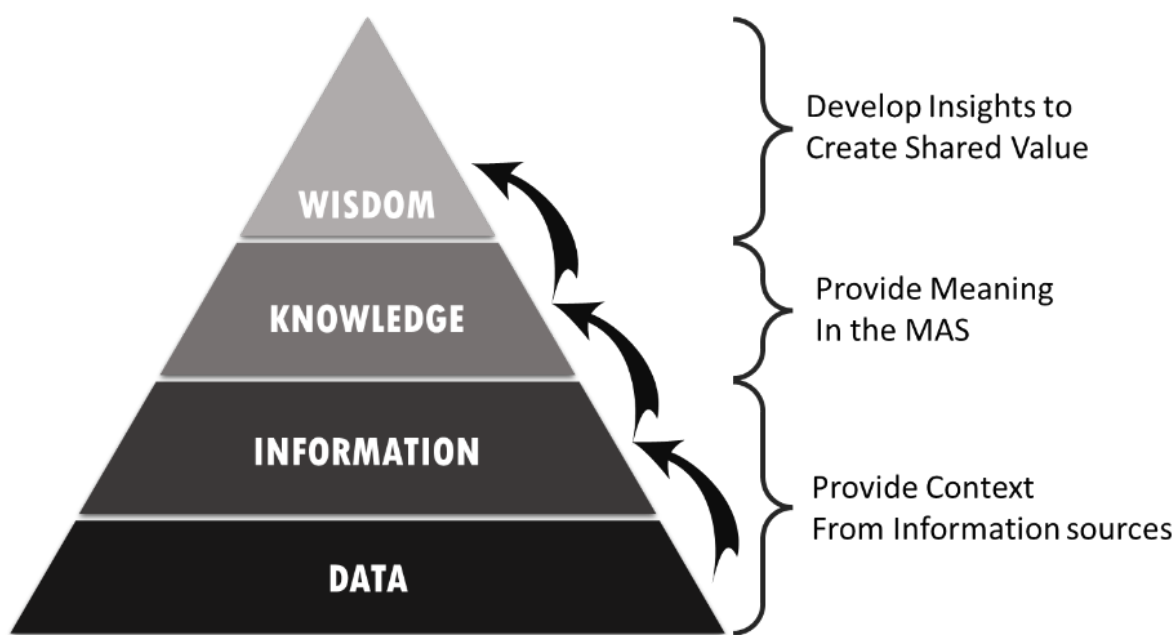
As an example of how this relates to management accounting research can be seen in the strategy, planning and performance domain. This domain includes the area of budgeting and forecasting, which has been the subject of many management accounting research endeavors. An expert practitioner in this area would, among other tasks “Lead collaborative forecasting efforts incorporating information from multiple internal and external expert sources and sophisticated modeling techniques” and “Design and lead the budget and financial planning process across multiple business units in a complex organization using advanced software tools” (IMA Management Accounting Competency Framework, p.14)

Researchers in this area could use external sources of information, such as big data and analytics, to better understand these areas, which may not have been feasible to utilize in prior eras of management accounting research. Additionally, researchers should consider the planning process that can span multiple business units and the use of advanced software and modeling techniques to inform how organization members make decisions. These factors should be key considerations in designing budgeting and forecasting research studies, as they involve the broader aspects of the management accounting ecosystem.

To make decisions, management accountants use a variety of data sources, some of which are created internally and some of which can only be obtained from partners external to their organization. Raw data that partners have created must first be given the appropriate context to become useful information that can be shared with our organization. Management accountants then apply various analytical tools and techniques to reveal underlying patterns in that external information so that this knowledge can then be combined with internal data to form actionable intelligence. Thus, organization members can use the knowledge and their experience to make better judgments and decisions to create shared value (Shields, 2018).

To apply the IMA framework and make it accessible to academics and practitioners, we need to understand how data flows. The IMA Competency Framework lays the foundation for management accountants to innovate and create new knowledge by addressing a broad set of essential core competencies. We posit that the IMA Competency Framework provides the foundation for understanding management accounting practice. But in order to examine how new information sources can be integrated into the management accounting ecosystem we need to understand how to convert data into knowledge and wisdom, which is captured in the DIKW pyramid (Data, Information, Knowledge, Wisdom). To do this we apply a theory of knowledge management to help understand how data moves from individual information sources into the management accounting system (Alavi and Leidner, 2001).

Figure 2: The DIKW Pyramid and the Management Accounting System (MAS)



(Source: Knowledge Commons – Revised by the Authors)

The DIKW pyramid is a hierarchical knowledge management model that explains how data can be transformed into knowledge and wisdom. According to this framework, data is the raw material collected from internal and external sources. This data is then transformed into information, which is organized and meaningfully structured. Information is then analyzed and interpreted to produce knowledge, which enables a deeper understanding of the information. Finally, wisdom is making good decisions based on knowledge and experience. The DIKW framework helps management accountants understand the steps required to convert data into actionable insights. By using this framework, management accountants can identify the types of data they need to collect, the tools they need to analyze it, and the processes they need to implement to ensure that knowledge and wisdom is generated and applied to enable shared value creation.

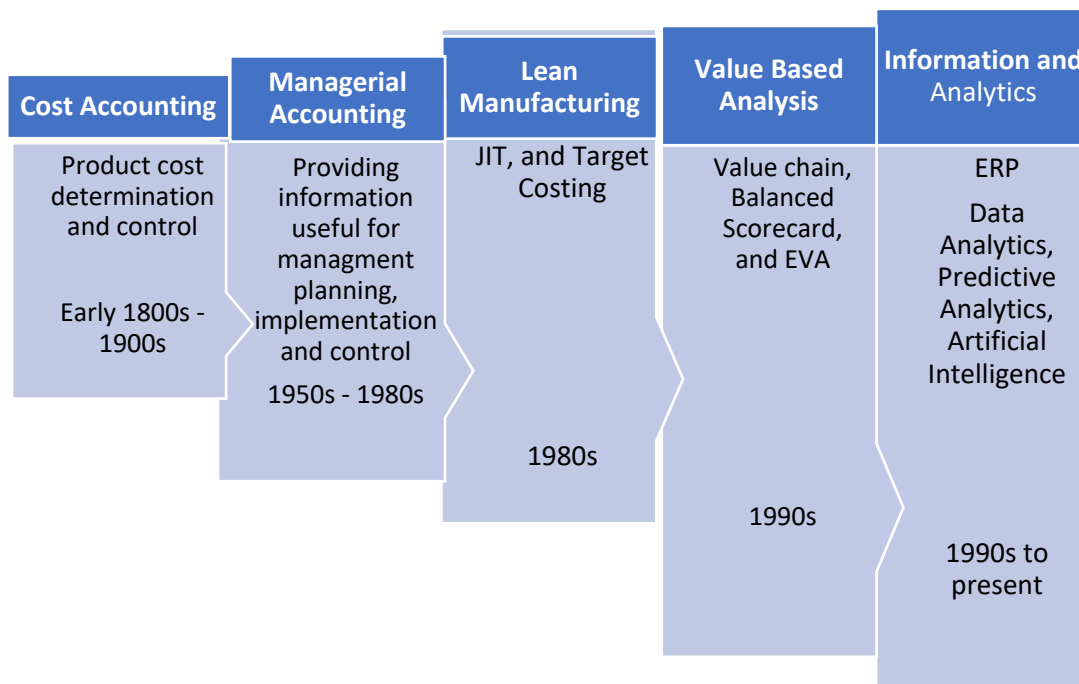
To bridge the practice-research gap, it is crucial to gain a comprehensive understanding of the practices of management accountants – what they do, who they do it to, why, where, when & how. The

IMA Competency Framework is a useful tool for achieving this goal. Using this framework, along with the DIKW pyramid, we can inform the development of a new management accounting ecosystem and identify relevant research questions that would interest practicing management accountants. Since the activities of management accountants are diverse, it is necessary to encourage cross-disciplinary research. The ecosystem in which management accounting operates relies on a broad range of information, and technology is crucial for analyzing that information. In this sense, management accountants are operating in a new "era" of information and technology, and we must leverage these resources to advance our understanding of their practices. The following section briefly discusses a historical perspective on management accounting.

THE HISTORY OF MANAGEMENT ACCOUNTING

Common descriptions of management accounting emphasize planning for the future, controlling present operations, and evaluating past actions taken. Management accounting is driven by the need for organizations to create and interpret information that informs strategies for achieving a competitive advantage, and actions that implement those strategies. It is important to understand the history and development of management accounting in order to gain insights into its current state and future direction. The following historical perspective on management accounting, in Figure 3, is not intended to be a comprehensive overview of the discipline's history, but rather aims to highlight some of the significant milestones over time and illustrate its adaptive nature.

Figure 3: A Brief History of Management Accounting



(Source: Authors)

Management accounting practices have evolved to meet the changing needs of decision makers. Management innovations have been a key driver of this evolution, and advances in operations and information technology have enabled such innovations. While it is difficult to define distinct eras in the history of management accounting, certain developments can be associated with particular times, companies, and individuals. The following illustration and subsequent discussion highlight some of these key developments.

Cost Accounting

Cost accounting became popularized during the Industrial Revolution, when the complexity of a company's operations necessitated the development of cost accounting systems to plan, control, and evaluate work processes (Swain 2021, Kamal 2015, Kaplan 1984). Hierarchical management structures required information to evaluate performance, and effective management accounting systems of this era allowed managers to evaluate operations that may be remote from them. The late 1800s and early 1900s saw the emergence of the scientific management movement, which emphasized the use of standard costs and the measurement and allocation of overhead costs to products.

DuPont (early 1900s, circa 1914) identified the need for a more sophisticated management accounting system because of its vertical integration of different companies. The diversity of businesses in their supply chain required a unifying management accounting system. The company is credited with the DuPont Return on Investment (ROI) decomposition technique derived from a simple concept that $ROI = \text{Investment turnover} \times \text{profit margin}$. The ROI analysis integrated cost management with asset management and allowed extensive key performance measures to be utilized.

Managerial Accounting

Managerial accounting is focused on providing information for management planning and control, primarily through methods such as responsibility accounting (Waweru 2010). Managerial accountants support management through management control systems, which facilitate decision analysis and responsibility accounting (Kamal 2015). An influential management movement that heavily influenced managerial accounting was Total Quality Management (TQM) that is thought to have originated in the 1950s with W. Edwards Deming teaching methods for statistical analysis and controlling quality to Japanese engineers and executives. TQM has become associated with a philosophy of a broad and systematic approach to managing organizational quality (<https://asq.org/quality-resources/total-quality-management/tqm-history>)

Lean Manufacturing

One of the most well-known examples of lean manufacturing is associated with the Toyota Motor Corporation. Toyota developed their Just-In-Time (JIT) process to make vehicles fastest and efficiently. It took Toyota 30 years to develop its methods to respond to challenges such as the lack of cash flow, land space, and natural resources. Many of these techniques spread in Japan during the 1970s and began to be adopted in the US in the 1980s (Wilson, 2021). In the late 1980s, JIT was rebranded as lean

manufacturing which included a broader supply chain focus. The supply chain struggles during the COVID-19 pandemic caused lean supply chains to struggle with the market's volatility. In the post-pandemic years, it remains to be seen how strong the influence of lean manufacturing will be.

Target costing is often seen as a cost management strategy used by companies to determine the maximum cost they can afford to produce a product or service while still earning a desired profit margin. But it has been shown to be a much broader organizational management tool (Kato 1993). It has been argued that "Target Costing is neither accounting nor costing, rather it is frequent and mutual communicative act and strategy that enables comprehensive profit planning and management" (Okano and Suzuki, 2007, p. 1121). Target costing is often combined with value engineering, which is the process of reducing the cost of a product or service while maintaining or improving its quality and functionality (Tani et al., 1994). By setting a target cost up front, companies can focus on designing and manufacturing products or services that meet customer needs while minimizing costs (Kato, 1993).

Value Based Analysis

Michael Porter introduced the value chain concept in his 1985 book, *Competitive Advantage: Creating and Sustaining Superior Performance*. The value chain is a tool that helps managers to analyze the key activities involved in delivering value to customers, enabling them to identify activities that do not add value to the process. Non-value added activities can be eliminated, and resources can be redirected to activities that add value.

The Balanced Scorecard framework, introduced by Kaplan and Norton (1992), translates an organization's strategy into a set of performance objectives that can be measured, monitored, and modified as necessary. The framework considers organizational performance from four interconnected perspectives: learning and growth, internal business processes, customer, and financial.

Another value-based method of analysis is Economic Value Added (EVA). This variant of residual income was developed and marketed by Stern Stewart & Co., a New York consulting firm, to encourage value-maximizing behavior in corporate managers.

Information and Analytics

Managers see technology and data analytics as transformational forces in their businesses, facilitating data collection, analysis, and actionable information to support decision-making (Ghasemaghaei, 2019). As management accounting is a discipline that supports decision-making, the link between information and analytics is natural. Furthermore, the integration of artificial intelligence into decision support technologies and operational processes has the potential to evolve the nature of management accounting further. Management accounting has adapted over time to suit the needs of organization members and will continue to change as operations become more complex and the sources of information become more diverse.

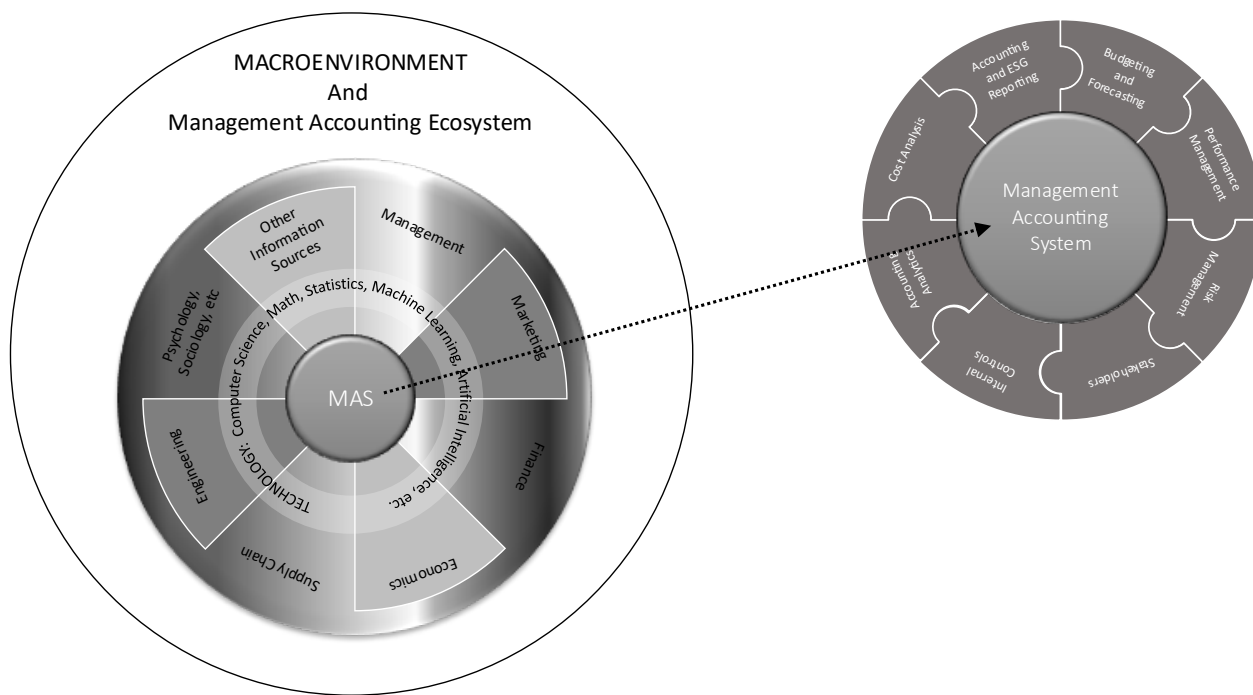
THE NEW MANAGEMENT ACCOUNTING ECOSYSTEM

As the evolution of management accounting practices described above indicates, organizational decisions have always been based on diverse information needs. Therefore, management accountants

must fully identify, understand and assess their information needs. As technology evolves and develops, the rise of new tools and technologies continues to drive a seemingly ever-changing information model. A natural ecosystem involves interactions between organisms and the environment for mutual benefit. Similarly, an information environment surrounding management accounting is analogous to a natural ecosystem where different species interact symbiotically as an individual community. This is why it is important to recognize that these technologies are not simply providing better and faster sets of information but are creating a new information environment that can be best conceptualized as a Management Accounting Ecosystem (see Figure 4).

In essence, we posit that each individual information source contains raw data that might be useful to management, and management accountants can help organize the information so that it can be properly used by management. However, those data elements must be first converted into information in the technology layer of the ecosystem. Information is then moved into the management accounting system where management accountants can interact with it to form knowledge that the decision-makers can use. The outcomes of those organizational decisions form wisdom that then begets shared value.

Figure 4: The New Management Accounting Ecosystem



(Source: Authors)

At the core of our management accounting ecosystem lies the management accounting system (which consists of the fundamental areas of management accounting in which information is processed). As it is essential to base management accounting decisions on data, this data must be timely, nonrepudiable, high quality, have integrity, and be reliable. This will help management accountants communicate clearly

to organizations members who make decisions to enable shared value creation. To this end, management accounting data must be combined with big data by utilizing each information source to show how technology can facilitate information flows.

Each information source in the management accounting ecosystem produces data useful if properly processed in the management accounting system. Once processed, this data is converted into information that can flow into the management accounting system. When management accounting expertise is applied to this information, useful knowledge is created. Within the management accounting ecosystem confines, management accountants must be more than technologically literate; they must have a functional understanding of how data can be processed into information and transformed into knowledge that organization members use to create shared value.

REDUCING THE PRACTICE-RESEARCH GAP

The gap between academic research and practice persists (see, for example, Ferry, et al., 2019; Mitchell, 2002; Tucker and Leach, 2017; Tucker and Lowe, 2014). To further address this problem, we offer some specific ideas on eliminating this gap. We posit that academic researchers, especially those still in their doctoral programs, should be familiar with the problems of practice and use that as a starting point for generating research ideas and projects. Thus, academics teaching doctoral seminars in management accounting should include articles from practice-oriented journals to encourage students to develop research projects that are based on the needs and interests of practitioners.

Many doctoral programs train students to understand and conduct rigorous scholarly research using sophisticated methodologies (i.e., well-designed experiments or surveys) and advanced statistical techniques. A primary way to accomplish this is to have students read a large number of scholarly articles, published in the top research journals. This is appropriate and necessary given the publishing requirements of most institutions. Conducting scholarly research suitable to (primarily) an academic audience is critical to their future success. However, we argue that it may lead to students generating their research ideas based on the potential for an incremental contribution to the academic literature, with the potential contribution to practice coming as an afterthought (or not at all). Thus, another “concrete” thing that academics that are teaching management accounting research seminars to doctoral students (or really any other area of accounting research) include practitioner articles to their reading lists.

For example, many doctoral students identify a particular academic article(s) that they are especially interested in, and then develop a project based on how to extend that article incrementally. Its impact on practice is not always a primary consideration, despite it being mentioned as a requirement for many journals. As an alternative, we posit that when identifying potential research topics, students interested in management accounting should first review the IMA Competency Framework and its associated tasks and procedures to identify specific areas that interest them. This ensures that their topic would be of interest to practitioners. Practitioner articles *and* academic articles should then be reviewed. Fruitful academic projects should then take that topic and explore what aspects of the broader management accounting ecosystem would impact that topic or task.

Management accounting researchers should start with topics highlighted in the IMA Competency Framework and then further develop their questions by considering the broader management accounting ecosystem outlined in this paper. As noted, practitioners do not operate in a vacuum; researchers have to consider the other parts of the organization and relevant contextual and environmental factors (i.e., the

ecosystem). Doing this will likely require the expertise of researchers in other areas such as marketing, economics, psychology, information systems, etc. Thus, we call for more cross-disciplinary research *and* research questions that are driven by the needs of practice. The underlying purpose of most projects should be how management accountants can help their organizations make better decisions related to the topic under study, again taking into account parts of the ecosystem that may have been previously ignored and not “considered related to accounting.”

Broadening management accounting research to consider the wider ecosystem in which practitioners operate likely requires the use of diverse sets of information from non-traditional sources. For example, elements of consumer psychology that can enhance product quality and streamline the production process or how innovations in highway engineering ultimately impact intermodal transport and the efficiency of delivering goods to customers. These new research projects may also make co-authors from non-accounting and/or non-business disciplines extremely helpful. For example, including faculty from engineering disciplines on projects related to manufacturing costs would likely generate practical insights that would not evolve from research teams made up of accounting scholars alone.

A casual glance at author teams from many management accounting research articles reveals the makeup to be mostly accounting scholars, with occasional collaborations with scholars from related disciplines such as finance and economics. We argue that going forward, management accounting researchers should actively consider and search for co-authors from relevant disciplines outside of accounting or closely related business fields. Ultimately, academics from a wide variety of disciplines will become familiar with accounting research and how accounting scholars can contribute to their research streams. This will further the progress of management accounting research by engaging audiences outside of the traditional accounting research domain. Although accounting research may rely on other disciplines, such as economics, sociology and psychology for theory or supporting findings, other disciplines rarely refer to accounting research for insights or support into their research.

We believe that management accounting has to become more interdisciplinary and inclusive. Our attempt to capture the management accounting ecosystem presently in place will provide an initial view that will help to reflect areas of research and practice in management accounting that may have traditionally been overlooked.

FUTURE MANAGEMENT ACCOUNTING RESEARCH

Future management accounting research should explicitly address topics identified by *practice* as being relevant. These topics can be identified broadly by considering the IMA Competency Framework. Once the management accounting topic of interest has been selected, research questions should be developed using the broader management accounting ecosystem developed in this paper. The increased availability of information, from sources both internal and external to organizations, makes the development of cross-disciplinary research more feasible than ever. By including cross-disciplinary areas highlighted by the ecosystem, such as marketing and supply-chain, management accounting research has the potential to become more relevant to a broader audience and have a greater impact.

Scholarly work focusing on the contribution to practice first, rather than the incremental contribution to academic research should be pursued and more highly valued. One could consider how a practitioner could use research to improve the performance of their organization or understand the “world” a bit better which may influence the decisions of other organization members. The need to

broaden future research areas as motivated by the management accounting ecosystem introduced by this paper suggests a broad array of topics for future research. Since the central purpose of this paper is to introduce the concept of the management accounting ecosystem, examples of future research topics in two areas will be used: information technology and human resources.

The connections between information technology and management accounting research are numerous. Some examples of research topics that encompass both disciplines include:

- The impact of artificial intelligence on data analytics.
- Can data analytics or artificial intelligence improve budgeting practice.
- The value added by organizations using their information technology resources.
- The value of data quality on the usability and quality of information produced.
- Frameworks of domain knowledge that can guide data analytics.
- How management accountants can be the keepers of information within an organization.
- The willingness of management accountants and managers to rely on and work with emerging technologies such as artificial intelligence.

Increasingly, people are being recognized as the most important assets in organizations. Some examples of how human resources and management accounting research intersect include:

- The economics of employee training and its effect on retention and productivity.
- Quantifying the value of human assets.
- The hidden costs of turnover.

We need more research that binds the ecosystem. That is, we need:

1. Research on the technology layer to help management accountants get the information necessary for decision making.
2. Research on how to get information from each information source to the management accounting system.
3. Research on human-computer interaction to facilitate information flows

As noted above, budgeting/forecasting has been identified as a topic that is of interest to practitioners in the IMA Competency Framework. In examining the management accounting ecosystem, a researcher may note the importance of using information from other sources. A research question may be how much human managers are willing to rely on budgets developed using artificial intelligence (i.e., that construct budgets based on firm specific data coupled with outside economic data) versus those developed by human personnel?

Potential members of the research team could include faculty from the areas of psychology and computer science. Practitioners could be consulted on what they think may be other factors of interest, such as what may make their personnel more or less likely to rely on the AI created budgets. We also agree with Granlund (2011) that we need to expand the theories used to examine the management accounting ecosystem beyond agency theory, transaction cost economics, contingency theory and social theories. While these theories provide “some valuable insights..., they seem to push research into questions and problems that are many times far from the everyday practice of accountants and other producers and users of especially non-standardized accounting information” (Granlund, 2011, p. 15). There is a need for a much wider range of theories that can enable us to better understand the multifaceted

connections that are contained within the management accounting ecosystem (see for example, Pfister et al., 2023).

CONCLUSION

Management accounting has long been a critical function in organizations, helping managers make informed decisions about operations and financial performance. However, as the business landscape has evolved, the traditional focus of management accounting on internal processes and data has become insufficient. Organizations operate within a broader ecosystem of competitors, partners, employees, and external market forces, and understanding and incorporating these factors into decision-making processes is essential to success.

To help bridge the gap between traditional management accounting and the broader ecosystem, we have presented a new framework: the management accounting ecosystem. This framework seeks to link discrete management accounting research topics to the broader environment in which practitioners operate. It aims to reduce the practice-academic gap and ensure that future research is relevant and accessible to a wider audience, including those from computer science, data analytics, supply chain, psychology, and marketing.

The management accounting ecosystem recognizes that organizations are not isolated entities but are part of a larger system of stakeholders and external factors. Thus, the framework takes into account the external environment, such as market competition, partner relationships, employee behavior, and market forces, and how they impact internal decision-making processes. By evaluating the effectiveness of new management accounting techniques in the broader ecosystem and utilizing new technologies to enhance the efficiency of management accounting practices, the ecosystem seeks to provide a more comprehensive understanding of organizational performance.

The information technology revolution has played a critical role in transforming the business landscape and has created new opportunities for management accounting practitioners and researchers. With the advent of new technologies, such as cloud computing, artificial intelligence, and machine learning, organizations have access to vast amounts of data and advanced analytics tools that were previously unavailable. This technology enables management accountants to analyze and interpret data in new ways, and to integrate it with external factors such as social media sentiment, environmental trends, and economic indicators. By incorporating this external data, management accountants can gain a deeper understanding of organizational performance and make more informed decisions.

To take advantage of these opportunities, management accounting practitioners and researchers need to collaborate and work across disciplines. Cross-disciplinary research is essential because the ecosystem in which management accounting operates relies on a broad range of information, and the use of technology to analyze that information is paramount. Researchers from diverse fields, such as computer science, data analytics, supply chain, psychology, and marketing, can provide valuable insights and perspectives on effectively integrating external data with internal management accounting practices.

The IMA Competency Framework serves as a useful tool for achieving the goals of the management accounting ecosystem. By using this framework, researchers can inform the development of the ecosystem model and identify relevant research questions. The IMA Competency Framework defines the core competencies that management accountants should possess, including planning and control, decision support, and analysis and interpretation of data. These competencies provide a

foundation for the ecosystem model and guide the development of new management accounting practices and techniques.

By framing management accounting as an ecosystem can enable us to create ““usable knowledge”, as opposed to academically self-referential knowledge” (Van der Stede, 2015, p. 173). “Thus, research *for practice* rather than research *as a practice*” as argued by Van der Stede (2015, p. 173, emphasis in the original). To do this, we need to “conduct properly executed academic studies on practice-relevant issues broadly conceived that yield potentially applicable insights” (Van der Stede, 2015, p. 173). The aim of the management accounting ecosystem is to show potential avenues for collecting data from different information sources that can be used to study important issues in practice in order to create shared value. To carry out this type of research management accounting academics need to be technologically literate, but also have a good understanding of how data is processed into information which can then be transformed into new knowledge about how shared value is created.

We believe that the management accounting ecosystem is a good start for bridging the gap between what has been traditionally considered management accounting research and the broader ecosystem in which organizations operate. By incorporating external factors such as market competition, partner relationships, employee behavior, and market forces and utilizing new technologies, we can conduct more impactful cross-disciplinary research. This will enable management accounting research to better understand organizational performance and better inform practice. As the business landscape continues to evolve, it is essential that management accounting practitioners and researchers embrace the opportunities presented by the ecosystem and work together to advance the field.

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