

# Eco-Conscious Operations Management: Strategies for Sustainable Business Practices

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**Abstract**

Sustainable operations management (OM) has been of increasing interest to businesses and governments in recent years. This paper considers how operations practice and research has responded to demands to address sustainability. In this paper, we consider how the field of sustainable OM is developing, and has responded to recent business trends. We consider how the research published in the *International Journal of Operations and Production Management* has evolved since the last sustainability special issue published in 2001. Of the total number of articles published in IJOPM since 2001, only 3.3% have investigated some aspect of sustainable OM. Of these sustainable OM articles, 64% are environmental articles, and there is an emerging trend for social articles, or articles that address the triple bottom line. We distinguish between studies that focus on internal operations, and articles that explore sustainability between organisations in supply chains. We briefly describe each paper in the special issue, and give an overview of how the papers address different aspects of sustainability. This paper analyzes articles in IJOPM, and it would be interesting to investigate whether similar trends are identifiable in other OM journals. This paper provides a useful overview of sustainable OM for practitioners, identifying sustainability research within and between organisations, and shows how the nature of sustainable OM research has changed in recent years. This paper highlights the recent trend in articles that address social issues in OM, such as employee well-being, health and safety, and the triple bottom line of sustainability. This is the first special issue on sustainable OM in 13 years in IJOPM. We conclude with thoughts about future research directions, and expect the proportion of sustainable OM papers to increase in years to come.

**Keywords—** Sustainability, social responsibility, environmental stewardship, triple bottom line approach, operations management, and supply chain management.

**Introduction**

Organizations are increasingly focused on integrating corporate social responsibility (CSR) and sustainability into their operations management (OM) practices. There is a growing demand for OM research and practices to address sustainability issues, driven by factors such as climate change, environmental concerns, and the welfare of workers and communities. We define sustainable OM as the pursuit of social, economic, and environmental goals—often referred to as the triple bottom line (TBL)—within a company's operations and its broader operational connections, including the supply chain and surrounding communities. Various elements of OM can be examined through a sustainability lens, including product and eco-design, the implementation of environmental and social standards, process enhancements, lean operations, procurement, supply chain management (SCM), logistics (including recycling and closed-loop systems), performance evaluation, and risk management. Given the increasing significance and prevalence of sustainability issues in OM, a dedicated special issue addressing these topics is timely. This necessity for contemporary discourse is the impetus for this special issue in the *International Journal of Operations and Production Management* (IJOPM). In this introduction, we will first outline the evolution of the sustainable OM field, particularly since the last IJOPM special issue published over a decade ago in 2001. This overview will encompass both general literature and specific contributions from IJOPM. We will then introduce the special issue by summarizing the selected articles included. Finally, we will offer insights into future research directions and conclude this introduction to the special issue.

***The evolution of the sustainable operations management field.***

*The field of sustainable operations management (OM) has experienced significant growth over the past two decades, driven by various changes in both business practices and societal expectations. In the 1990s, the emphasis was primarily on resource productivity, highlighting the urgent need to minimize resource consumption and enhance efficiency. Concerns were raised about the sustainability of current consumption rates, suggesting that maintaining such levels would require resources equivalent to more than three planets (Weizsacker et al. 1997). This focus on resource productivity was linked to the desire for companies to be environmentally responsible while also gaining a competitive edge through improved environmental performance (Porter and Van de Linde 1995).*

*Interest in environmental performance has persisted, with an emphasis on developing green products and processes, minimizing waste and CO2 emissions, and implementing recycling and closed-loop supply chains. Concurrently, there has been a more comprehensive exploration of social and humanitarian issues within operations, complementing the environmental research. This includes a growing focus on corporate social responsibility (CSR) practices, as evidenced by voluntary initiatives like the Global Reporting Initiative. Additionally, there has been increased research into health, safety, and employee welfare, particularly within global supply chains, alongside the establishment of standards and codes of conduct among firms. The ethical sourcing of products has gained traction, reflecting consumer demand for transparency, while the (un)ethical purchasing behaviors of organizational buyers have also been scrutinized. Furthermore, the behavioral and psychological dimensions of operations management have received attention (Croson et al. 2013).*

*Humanitarian logistics has emerged as a vital area of research, particularly concerning the distribution of products to communities in crisis situations. Recent studies have aimed to investigate the interplay of social, economic, and environmental factors, facilitating an analysis of the triple bottom line of sustainability. However, the last decade has been marked by a global recession, partly attributed to questionable ethical practices in the banking sector. The rise of social media has amplified instances of corporate misconduct (Amaeshi et al. 2008), providing consumers with a platform to voice their concerns and pressuring companies to respond. This context has led to an increase in research focused on risk management within sustainable operations management and supply chain management (SCM).*

Previous literature reviews indicated that sustainability research often lacked a theoretical foundation (Seuring and Müller 2008, Carter and Rogers 2008). Some studies have sought to address this gap through theory development or testing, utilizing established theories to explore sustainability issues (Sarkis et al. 2011). For instance, the resource-based view of the firm (Barney 1991) has been applied to sustainable supply chain management (Shi et al. 2012, Paulraj 2011), while transaction cost economics (Williamson 1985) has provided insights into remanufacturing practices (Martin et al. 2010). Additionally, recent research has aimed to create conceptual frameworks to better understand sustainable operations management and SCM (Carter and Easton 2011).

### **Recent Trends in Sustainability Literature in OM: An IJOPM Perspective**

Recent trends in sustainability-focused articles within the IJOPM can be discerned. The last special issue dedicated to sustainability appeared in 2001 (Wilkinson et al. 2001), under the title "The Sustainability Debate." This issue featured an article examining the connections between ISO 9000 systems, Total Quality Management (TQM), and ISO 14001 (Daily and Huang 2001). Other contributions discussed corporate frameworks for sustainability (Griffiths and Petrick 2001) and the relationship between environmental performance and operational performance (Jiménez and Lorente 2001). The final two papers addressed strategies for reducing greenhouse gas emissions, including one study on product and process innovation in consumer automotive transport (Byrne and Polonsky 2001) and another that investigated the impact of the Kyoto Protocol on commercial incentives and process innovation (Hill 2001).

It is important to note that this earlier special issue, along with another from the previous year (Angell 2000), was predominantly centered on environmental concerns. While the introduction acknowledged economic, social, and human sustainability issues (Wilkinson et al. 2001), these were discussed primarily at the organizational level rather than across supply chains. For instance:

"To achieve genuine corporate sustainability, an organization must recognize, value, and promote the capabilities of its workforce. Thus, for human resource sustainability to be realized, HR policies and practices must be integrated to ensure sustained business performance and positive employee outcomes in terms of equity, development, and well-being"

The researchers whose work was published in the special issues of 2000 and 2001 were among the pioneers in the field of sustainable operations management (OM), advancing research on environmental OM issues. Since then, the nature of sustainability articles in *IJOPM* has evolved. While environmental research remains robust, there is an increasing focus on social sustainability concerns and the triple bottom line (TBL) approach to sustainability. Additionally, the scope of research has expanded from organizational operations management to include the supply chain.

We now examine the articles published in *IJOPM* since the 2001 special issue on sustainability. We identified these articles using keywords such as green, environmental, social, ethical, economic, or sustainable. To ensure relevance, we excluded articles that only marginally addressed sustainability, such as those that used the term "sustainability" in different contexts (e.g., Bateman 2005, Bateman and David 2002). Between 2002 and 2014, 28 articles were identified, categorized in Table 1 based on their environmental or social focus, with some also considering economic outcomes. A final category groups studies that examine two or more TBL dimensions. The number of articles published each year is illustrated in Figure 1, broken down by social, economic, environmental, and TBL topics.

Since 2001, only 3.3% of the *IJOPM* articles have focused on sustainability. Of those, the majority (64%) address environmental issues. Social issues in OM have seen an uptick since 2010, but economic sustainability research remains scarce and typically explores the relationship between environmental OM or supply chain management (SCM) and firm performance. There is a noticeable gap in studies that investigate the economic aspects of sustainability from both firm and supply chain perspectives. Further research is needed to explore how economic, social, and environmental values are distributed throughout the sustainable supply chain and to evaluate who benefits from and bears the costs of sustainability initiatives.

Research on internal operations has explored topics such as human factors, environmental production, environmental management systems (EMS), and their impact on environmental, financial, and TBL performance. On the other hand, inter-firm research has looked at socially responsible and values-based SCM, as well as ethical issues between buyers and suppliers. Numerous studies have examined the impact of environmental SCM on performance. Triple bottom line studies have delved into sustainable procurement in the public sector, and within the current special issue, there is a growing body of work on sustainable SCM that incorporates the TBL framework.

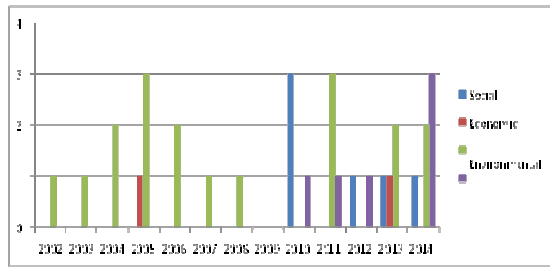


Fig. 1. : Papers published in IJOPM since 2001, focusing on social, economic, environmental and triple bottom line issues

### Papers in the Current Special Issue: A Brief Overview

In *The Diffusion of Environmental Management Systems and Its Effect on Environmental Management Practices*, Daniel Prajogo, Ailie Tang, and Kee-Hung Lai surveyed 286 companies in Australia to examine how environmental management systems (EMS) spread across organizational functions such as production, procurement, sales, logistics, and R&D. Their findings suggest that EMS diffusion positively impacts green products, processes, and supply chain management (SCM). Furthermore, the greater the extent of EMS diffusion, the more embedded environmental management practices become in organizational routines.

In *The Impact of Environmental Supply Chain Sustainability Programs on Shareholder Wealth*, Boyana Petkova and Lammertjan Dam analyzed environmental supply chain sustainability programs and their effect on stock prices following a firm's commitment to such programs. They conducted an event study on 66 companies that joined the Carbon Disclosure Project. Surprisingly, their results revealed that the market responded negatively to these announcements, with industries under consumer pressure being less likely to make such declarations.

In *Social Sustainability in Developing Country Suppliers: An Exploratory Study in the Ready-Made Garments Industry of Bangladesh*, Mark Stevenson, Fahian Huq, and Marta Zorzini examined four case studies in Bangladesh to explore why suppliers in developing countries adopt socially sustainable practices. They found that higher labor retention motivated companies to implement social standards, and more open dialogue between buyers and suppliers facilitated the implementation process.

In *Supply Chain Collaboration and Sustainability: A Profile Deviation Analysis*, Constantin Blome, Anthony Paulraj, and Kai Schuetz surveyed 259 German companies to investigate sustainable supply chain collaboration. They developed an ideal profile based on eight sustainability indicators from top-performing firms. Their analysis revealed that firms lacked the internal capabilities necessary to leverage sustainability collaboration with suppliers and customers, hindering improvements in overall firm performance.

In *Sustainable Supply Chains: A Framework for Environmental Scanning Practices*, Nathalie Fabbe-Costes, Christine Roussat, Margaret Taylor, and Andrew Taylor explored environmental scanning practices in sustainable SCM through 45 interviews and a focus group. Their study found that scanning occurs at multiple levels, from societal to organizational levels, and is influenced by factors such as geography, industry activities, and time frames. They emphasize the need for a multi-level framework to guide these scanning activities.

Finally, in *Reputational Risks and Sustainable Supply Chain Management: Decision Making under Bounded Rationality*, Jens Roehrich, Johanne Grosvold, and Stefan Hoejmose investigate how managers approach sustainable supply chain management (SSCM) to protect their company's reputation. Due to bounded rationality—limited decision-making capacity—managers weigh the cost of implementing SSCM against the risk of exposure. This can lead to sub-optimal decisions regarding engagement in socially and environmentally responsible SCM practices. Collaboration with suppliers is seen as a way to distribute the costs of sustainable SCM more evenly.

### Final Thoughts

Over the past 20 years, the pioneers of sustainable operations management (OM) have made remarkable strides in advancing the field. The volume of research on various sustainability topics has grown significantly in recent years, and our understanding of sustainable OM has become both broader and more nuanced. Milton Friedman (1970) once argued that "the business of business is business," asserting that an organization's primary focus should be on profit rather than corporate social responsibility (CSR) or sustainability. However, many CEOs have indicated that sustainability concerns are increasingly prominent on their agendas (Anonymous, 2010). Despite this shift, much of sustainable OM research still seems to align with the profit-driven model, linking sustainability efforts with organizational and financial performance. The question remains: are sustainability initiatives valuable only when they lead to profit or competitive advantage? Or can responsible business practices be worthwhile on their own, regardless of their financial impact? Growing societal concerns over the influence of multinational corporations and their focus on profit at the expense of sustainability are gaining momentum. This trend shows no signs of

waning, and we may soon see studies that are less focused on shareholder value and more centered on stakeholder values (Freeman, 1984).

As co-editors, we have had the privilege of reviewing fifty-eight manuscripts covering a wide range of sustainability topics for this special issue. While many interesting papers were submitted, only six made it to publication. The number of high-quality submissions is promising, and we are confident that many of these works, though not included in this issue, will contribute meaningfully to the sustainability literature. We wish the authors continued success with their ongoing research and look forward to their future contributions to the field. We also extend our sincere gratitude to the reviewers who dedicated their time to evaluating the manuscripts for this special issue.

The operations management (OM) discipline is well-positioned to lead other business fields in sustainability research and practice. This special issue reaffirms OM's leadership role in the sustainability space. We are excited to see what the next wave of sustainable OM research will bring and look forward to its publication in *IJOPM*.

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