How can Contract (lifecycle) Management advance environmentally sustainable development in buyer-supplier relationships in transport logistics?

CHAPTER 8

How can Contract (lifecycle) Management advance environmentally sustainable development in buyer-supplier relationships in transport logistics?

Suvi Hirvonen-Ere and Anu Bask

Abstract:

The European Green Deal and its Fit for 55 package seek to decrease the greenhouse gas emissions by 55% by 2030, in comparison to the 1990 levels. Our research question is: can Contract Management aid in achieving this aim, and if so, how? We maintain that it can, and present both theoretical contributions and practical recommendations to facilitate the process towards achieving this goal. We shall consider the matter of environmentally sustainable supply chains from the viewpoint of buyer-supplier relationships, with particular focus on transport logistics. As the transport industry is the third biggest source of emissions in the European Union, any effort to lower them through the use of Contract Management could make a considerable contribution towards promoting sustainable development. Our findings amalgamate Contract Management with sustainable supplier and supply chain practices, offering direction on how to incorporate this combination in pre- and post-award phases during the entire contract lifecycle.

Keywords:

Contract (lifecycle) Management, sustainable contracts, sustainable development, sustainable supplier and supply chain management, transport logistics, European Green Deal.

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<a> 1 Introduction

On 11th December 2019, the European Parliament held an extraordinary plenary session to discuss the European Green Deal.[1] Subsequently, the Commission announced the European Green Deal comprising various actions, including the promotion of the green transition through the Fit for 55 package, with the objective of reducing the greenhouse gas emissions by 55% by 2030, compared to the 1990 levels.[2] Hence, we posit the following research question: Whether and how can Contract Management, inter alia, as private governance, contribute to achieving the aim of the European Green Deal and its Fit for 55 objectives throughout the entire business contract lifecycle? We contend that it can. We examine this extensive topic from the perspective of buyer-supplier relationships, particularly focusing on how to achieve environmentally sustainable supply chains in transport logistics. As the transport sector ranks as the third-largest emitter in the European Union,[3] reducing emissions through

[1] Gregor Erbach, 'European Green Deal' (EPRS, Plenary 11 December 2019) <www.europarl.europa.eu/RegData/etudes/ATAG/2019/644205/EPRS_ATA(2019)644205_EN.pdf> accessed 21 May 2023.

[2] European Commission, 'European Green Deal', <https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en> accessed 21 May 2023.

[3] European Environment Agency, 'Greenhouse Gas Emissions by Aggregated Sector' (19 December 2019) <www.eea.europa.eu/data-and-maps/daviz/ghg-emissions-by-aggregated-sector-5#tab-dashboard-02> accessed 6 November 2023.

the use of Contract Management could have a significant impact on advancing the goals of the European Green Deal and Fit for 55. Thus, employing Contract Management in this regard could prove beneficial in promoting the European Green Deal and achieving the Fit for 55 objectives.

Contract Management is a topic that has received little attention in relation to sustainable supplier and supply chain management, particularly from the lifecycle perspective. A recent survey indicates that organizations encounter challenges in enhancing their contract-handling methods.[4] Additionally, the level of maturity in Contract Management processes varies.[5] A vital component of the contracting process involves comprehending the other party's requirements and expectations to accomplish a mutually advantageous business outcome expeditiously. Consequently, it is important to understand the management of the entire contract lifecycle: effective collaboration between multiple internal departments and external entities is essential, particularly when novel objectives for sustainable development are established. This requires diverse skills and capabilities, mutual understanding, and communication between different stakeholders.

We aim to conceptualize Contract (lifecycle) Management and environmentally sustainable supplier and supply chain practices during the pre-award phase (before the contract is awarded), through the contract award, and the post-award phase (after the contract is awarded), covering the entire contract lifecycle. Theoretically, we contribute to the previous research on Contract Management by constructing a link to sustainable supplier and supply chain management and by proposing an environmental sustainability related framework for the contract lifecycle.

Therefore, our study builds upon literature on sustainability practices in sustainable supplier and supply chain management having the potential to support companies in their efforts towards sustainable development in buyer-supplier relationships in the transport logistics context. In addition, this study provides practical recommendations for implementing sustainable supplier and supply chain management practices. Furthermore, our aim is to propose methods for integrating environmental sustainability into Contract Management processes throughout the contract lifecycle.

Following this introduction, the chapter is organized as follows. Section 2 discusses theoretical underpinnings on contract lifecycle management as well as sustainable supplier and supply chain practice. Section 3 proposes a framework for Contract (lifecycle) Management for sustainable development during the entire contract lifecycle in both pre-award and post-award phases. It recommends practices that enhance environmental sustainability towards sustainable supplier management. Section 4 concludes the chapter, highlights the contributions to both theory and practice, and suggests directions for future research.

<a> 2 Theoretical underpinnings

[4] Tom Swallow, 'EY and Harvard Law discuss barriers in contract management' (*Supply Chain Digital*, 13 May 2021) <https://supplychaindigital.com/procurement/ey-and-harvard-law-discuss-barriers-contract-management> accessed 6 November 2023; John Knox, 'How does contracting complexity hide clear profitability?' (EY, full pdf report of the 2021 EY Law Survey, 'ey-contracting-report-june-2021%20(1).pdf', available at the end of the aforesaid article) <www.ey.com/en_fi/law/the-general-counsel-imperative-how-does-contracting-complexity-hide-clear-profitability> accessed 6 November 2023.

[5] Rene G Rendon, 'Benchmarking Contract Management Process Maturity in the US Navy' (2014) 22 Benchmarking: An International Journal 1481; Gregory A Garrett and Rene G Rendon, 'Contract Management Process Maturity: The Key for Organizational Survival' (2015) Contract Management 27 June 2015, <www.researchgate.net/publication/279199189_Contract_Management_Process_Maturity_The_Key_for_Organizational_Survival> accessed 30 August 2023.

Contract design is a predominant strategy to set contractual expectations when managing risk among supply chain partners.[6] The following literature review focuses on Contract Management during the contract lifecycle, and thereafter sustainable supplier management and sustainable supply chain management. Despite the importance of Contract Management, it remains a relatively under-researched field in academia.[7] Furthermore, the combination of Contract Management and lifecycle management is a rarely researched topic in connection with sustainable supplier and supply chain management. For these reasons, we also examine sustainability practices suggested in the literature.

Theoretically, this paper contributes to the previous research on Contract (lifecycle) Management by proposing a sustainability framework for buyer-supplier relationship management in the entire contract lifecycle in both phases – the pre-award (prior the contract award) and the post-award (after the contract award) phase. Instead of empirical research, we draw from sustainability practices found in the literature that have potential for companies' transition towards sustainable supply chains.

<b> 2.1 Contract Management during the contract lifecycle

Contract Management refers to the management and orchestrating of a company's business contracts and contracting activities through an organized, disciplined and mature process.[8] Contract Lifecycle Management (CLM) is a noteworthy term as it has transitioned from its original sole chronological meaning and now encompasses contract technology systems based on software and artificial intelligence (AI).[9] This development has been driven by commercial enterprises marketing and vending their software solutions to aid the managing of contracts during the chronological contract lifespan.[10] Thus, contract and lifecycle management refers to two dimensions. Firstly, it includes all contract management activities during the chronological timeframe that covers both the pre-award and the post-award phases before and after the contract award. Simply put, it refers to Contract Management throughout the whole contract lifecycle, instead of managing mainly the pre-award phase or post-award phase. Secondly, it is important to note that the term "Contract Lifecycle Management" is often narrowed from the above meaning by commercial software firms promoting their products and services: they define CLM as software or artificial intelligence-based technology solutions for documentation management and other contract administration processes to support Contract Management throughout the contract lifecycle.[11] In this chapter, our view builds upon the first

[6] Adam Eckerd and Amanda M. Girth, 'Designing the buyer–supplier contract for risk management: Assessing complexity and mission criticality' (2017) 53(3) Journal of Supply Chain Management 60.

[7] Lorenz Kähler, 'Contract Management Duties as a New Regulatory Device' (2013) 76(2) Law and Contemporary Problems 89.

[8] Suvi Hirvonen-Ere, 'Contract Management Modus Operandi in the Post-Enron World' (Doctoral dissertation, the University of Helsinki, Faculty of Law, Unigrafia, Helsinki 2021). Summary available online at <http://urn.fi/URN:ISBN:978-951-51-7371-3 > accessed 21 May 2023. For the purposes of this article, the view of Contract Management adapted here *passim* builds upon, to a certain extent, the first author's prior exploratory works, such as the aforesaid doctoral dissertation, and Suvi Hirvonen-Ere, 'The way of business contracts: How to promote (transport) sustainability and incentivize the green economy via Contract Management' in Ellen Eftestöl-Wilhemsson, Suvi Sankari and Anu Bask (eds), 'Sustainable and Efficient Transport. Incentives for Promoting a Green Transport Market' (Edward Elgar Publishing Ltd 2019). The summary of other perspectives and definitions of Contract Management are presented in Table 1 below.

[9] Kaitlyn Sommers, Lynne Phelan and Kerrie McDonald, 'Gartner Research, Gartner Magic Quadrant for Contract Life Cycle Management' (Gartner Research, 18 October 2023) <www.gartner.com/en/documents/4852531> accessed 11 November 2023. The Gartner research report classifies CLM solution providers in leaders, visionaries, challengers and niche players based on their abilities to execute and their completeness of vision.

[10] ibid.

[11] See one of the CLM solutions providers classified as "Leaders" in the Gartner 2023 research report 'Gartner Magic Quadrant for Contract Life Cycle Management', <www.agiloft.com/> accessed 11 November 2023 <www.icertis.com/research/ebooks/contract-lifecycle-management-101/?utm_source=google&utm_medium=paid-search&utm_campaign=2023_paid-search_google-

dimension, whilst acknowledging the importance of advanced contract technology. It is also important to note that as contract technology develops rapidly, future CLM systems are likely to support Contract Managers in a wider capacity than today.[12]

As there is no single way of operating Contract Management that would apply globally, there is no single definition that would cover every type of activity under the global contract management aegis. For the purposes of this chapter, Table 1 summarizes some of the different descriptions of Contract Management. Thus, the table is intended to show the gap that we are trying to narrow. However, the list is not exhaustive as there are several definitions and there is in practice neither unanimity on the definition of Contract Management nor a single approach.[13] This is due to a number of factors. Contract Management is not yet an established academic discipline or field of scientific research. It has been developed by contract practitioners. As companies are different, so is their Contract Management, and although attempts have been made to find a single solution,[14] a one and only definition may not even be a goal to aim for. An interesting finding arising from the literature is that most definitions and views do not mention sustainability. This is not surprising as it is due to the fact that both Contract Management and sustainable contracts are all relatively new topics, especially in the academic literature; not to mention the novelty of our combination comprising Contract Management and sustainable supplier and supply chain management.

Table 8.1 Summary of definitions on Contract Management

Author	Definition of Contract Management, briefed	Contract phase	Main content and gap
Keskitalo (2000)[15]	Contract management liability from the risk management perspective.	Not defined	Liability-oriented, risk management-oriented. The management view is mentioned. No sustainability focus.

ads&utm_content=ppc-paid-search-google-010123-sitelink-nonbrand&creative=657782815438&keyword=contract%20lifecycle%20management&matchtype=p&network=g&device=c&icid=701Ho000000SLgZIAW&utm_term=contract%20lifecycle%20management&gad_source=1&gclid=Cj0KCQiAmNeqBhD4ARIsADsYfTcZwPuNiKM5pjgj9dG9SV3iESoJqWKM5-vkvqoqaCXIefYXP19n6ZsaAsG_EALw_wcB> accessed 11 November 2023 stating that "Contract lifecycle management (CLM) is a relatively new software category experiencing explosive growth."

[12] For instance, see the CLM solution providers classified as "Visionaries" in the Gartner 2023 research report 'Gartner Magic Quadrant for Contract Life Cycle Management' research report. <https://contractpodai.com/?utm_source=google&utm_medium=cpc&utm_campaign=S00%20-%20Brand&utm_term=contractpodai&utm_content=646853369265&gclid=Cj0KCQiAmNeqBhD4ARIsADsYfTdnODoMQfGciNYzc2W5OSN_fOgKU_Kc7CoAQTO61NMuGLDqz-l3HZEaAggKEALw_wcB&matchtype=e&gad_source=1> accessed 11 November 2023, and <www.evisort.com/?utm_source=gmb&utm_medium=evisortgmb>accessed 11 November 2023.

[13] Kähler (n 7).

[14] Ralph Schuhmann and Bert Eichhorn, 'From Contract Management to Contractual Management' (2015) 11(1) European Review of Contract Law 1.

[15] Petri Keskitalo, 'From assumptions to risk management: An analysis of risk management for changing circumstances in commercial contracts, especially in the Nordic countries: The theory of contractual risk management and the default norms of risk allocation' (doctoral dissertation, Lakimiesliiton kustannus, Helsinki 2000), *passim*.

Aberdeen (2004)[16]	A process by which the systematic and efficient management of contract creation, execution and analysis is carried out in order to maximize operational and financial performance and minimize risk.	Contract creation and execution – pre- and post-award	Generic and cited definition. No sustainability focus.
Paris (2006)[17]	"Contract management is a perspective, discipline and systems approach which looks to actively manage the contracting process end-to-end for the benefit of the organization…Every relationship with a customer, supplier or employee is governed by some type of a contract, mutual understanding or legally imposed conditions. Contract Management is part of risk management, quality control and compliance programs. Our world is increasingly dominated by the information and service business model, and more and more business interactions are occurring in an electronic medium…Contract Management is one of a converging set of management themes defining the challenges of operating successfully in that world, including risk management, quality control and compliance…Contract Management is part of the more managed and transparent business environment that senior managers and investors are demanding, and quality control initiatives tend to require effective management of contracts." Management of contracting process, and part of quality control, risk management and compliance programmes.	Not defined	Intra-organization view, mainly administrative perspective. The management view is mentioned. No sustainability focus.
Keskitalo (2006)[18]	Contract management liability from the risk management perspective.	Not defined	Liability-oriented, risk management-oriented. Management mentioned.

[16] Aberdeen Group, 'Best Practices in Contract Management: Strategies for Optimizing Business Relationships' (2004), <www.aberdeen.com/summary/report/other/BPinCM_092904a.asp> accessed 7 October 2008.
[17] Carolyn E C Paris, 'Contract Management: Design Parameters and Challenges to Implementation' in Peter Wahlgren (ed) Scandinavian Studies in Law 49: A Proactive Approach (Stockholm Institute for Scandinavian Law 2006) <www.scandinavianlaw.se/pdf/49-10.pdf> accessed 10 August 2023, 196.
[18] Petri Keskitalo, 'Contracts + Risks + Management = Contractual Risk Management!' (2006) 2 Nordic Journal of Commercial Law, Issue 1, 3-9.

			No sustainability focus.
NC State University, SCRC (2011)[19]	"Contract management is a strategic management discipline employed by both buyers and sellers whose objectives are to manage customer and supplier expectations and relationships, control risk and cost, and contribute to organizational profitability/success."		Supply chain management focus. Management mentioned. No sustainability focus.
Borkovich (2011)[20]	Contract Management as a soft science, meaning focus on social and people skills, interaction and organizational culture compared to Kuhnian[21] "hard science".	Both pre- and post-award	Contract Management as a "soft" social science, mainly administrative perspective. No sustainability focus.
CIPS (2013)[22]	A process by which the systematic and efficient management of contract creation, execution and analysis is carried out in order to maximize operational and financial performance and minimize risk, citing Aberdeen's definition.	Both pre- and post-award	Procurement and supply oriented. No sustainability focus.
Kähler (2013)[23]	"Contract Management duties as a new regulatory device." Of particular interest is Kähler's finding that "Contract Management has in recent years developed into a major business phenomenon, yet the contract law scholarship has hardly noticed this development" as well as his note that there is no uniform Contract Management practice.	Not defined	Regulatory and device view. An important early academic Contract Management article. No sustainability focus.
IACCM (now WorldCC) 2017[24]	"'Commercial Management' is the activity which defines the overarching policies and practices that provide a framework for trading relationships; 'Contract Management' is the discipline through which those policies and	Both pre- and post-award	Focus on the commercial management side of Contract Management, a framework for trading relationships.

[19] NC State University, 'Contract Management' (Supply Chain Resources Cooperative (SCRC), 19 January 2011) <https://scm.ncsu.edu/scm-articles/article/news-from-the-uk-coffee-with-gerard-chick-2#:~:text=Contract%20management%20is%20a%20strategic,contribute%20to%20organizational%20profitability%2Fsuccess> accessed 21 May 2023.

[20] Debra J Borkowich, 'The Social Science of Contract Management. Modifying the Contracts Group Culture', (2011) Contract Management 44, 46.

[21] Thomas Kuhn, *The Structure of Scientific Revolutions* (3rd edn, the University of Chicago Press 1996), *passim*.

[22] Chartered Institute for Procurement and Supply (CIPS) <www.cips.org/ 2013> accessed 07 January 2024.

[23] Kähler (n 7), 89.

[24] World Commerce and Contracting Association (now WorldCC, then IACCM) (2017), 'The definition of commercial management and a commercial manager' (*IACCM,* 27 December 2017) <https://support.iaccm.com/support/solutions/articles/9000059134-the-definition-of-commercial-management-and-a-commercial-manager> accessed 19 October 2018.

	practices are implemented and within which individual transactions are agreed and performed."		Focus on the contractual side of Contract Management. No sustainability focus.
NCMA (2017)[25]	"The process of managing contracts, deliverables, deadlines, and contract terms and conditions while ensuring customer satisfaction."	Both pre- and post-award	Strongly US-oriented, generic definition with procurement orientation. No sustainability focus.
IACCM (now WorldCC) 2017[26]	Commercial Management is "the identification and development of business opportunities and the profitable management of projects and contracts, from inception to completion. A 'commercial manager' is someone whose primary role is in the management or execution of such opportunities or projects."	Both pre- and post-award	Commercial Management-oriented definition. No sustainability focus.
Schuhmann and Eichhorn (2017)	"The concept of Contract Management focuses on the contract and its optimal implementation. Thus, it tends to encounter limits when attempting to achieve objectives lying beyond the contract…the concept of contractual management presented here is based on the possible contribution of the contract to the management of the enterprise, business unit, and transaction. It considers the processes relevant to this field which are bundled by risk management, transaction management, and knowledge management." Contract Management as contractual management, combined with risk management, transaction management, and knowledge management.	Both pre-and post-award, mainly post-award	Seeking a single approach. Intra-organization view. No sustainability focus.

[25] National Contract Management Association (NCMA), 'What is Contract Management?' (2017, 2023) <https://ncmahq.org/Web/Web/Membership/What-is-Contract-Management-.aspx> accessed 21 May 2023.
[26] World Commerce and Contracting Association (n 24).

Dubey, Chavas, Veeramani (2018) [27]	No explicit definition for Contract Management, instead a reference to "three features that define sustainable contracts: a) long term economic survivability of entities constituting the supply chain while b) causing no damage to the social, environmental, and economic systems, in the current or future states to any stakeholders involved, in which the entities are embedded and are c) interconnected through sustainability-enabling [items a.) and b.)] contracts written between a supplier and a customer (buyer). The goal of such contracts is not only to improve node-level (supplier) and network level operational effectiveness, but also to reduce transaction costs."	Mainly on pre-award	Focus on vertical supply chain management and performance. Sustainable contracts rather than Contract Management
Hirvonen-Ere (2019)[28]	"*Advanced maturity-level Contract Management*…involves intra- and inter-company collaboration, draws together the strategic, leadership- and management-related, operative, legal, business, and delivery aspects of a contract, and generally owns the contract lifecycle." Presenting an approach to utilize Contract Management in an expanded manner, to promote sustainability and incentivize the green economy, and bringing business benefits on micro, meso and macro levels.	Both pre- and post-award, entire lifecycle	Among the first academic definitions with focus on utilization of Contract Management in an expanded manner, outside its core functions, to promote sustainability, and on both the horizontal and the vertical supply chain perspective, to promote sustainability. Suggests 10 concrete action points for companies.
WorldCC, Cummins, Guyer and Buchanan 2021[29]	To be noted that recently, after the 2017 definitions, the WorldCC has observed that the trend is towards a more emerged understanding of Contract and Commercial Management as one rather than the only definition.	Both pre-and post award, entire contract lifecycle	From separation of (pre-award) commercial management, and contract management to a single view, where commercial and contract management are perceived as merged rather

[27] Vivek Kumar Dubey, Jean-Paul Chavas, Dharmaraj Veeramani, 'Analytical framework for sustainable supply-contract management' (2018) 200 International Journal of Production Economics 240, 242.
[28] Suvi Hirvonen-Ere, 'The way of business contracts' (n 8), 188.
[29] Tim Cummins, Sally Guyer, and Patricia Buchanan, World Commerce and Contracting Association, 'The Benchmark Report 2021' (Webcast presentation, 24 September 2021) <event.on24.com/eventRegistration/console/EventConsoleApollo.jsp?&eventid=3393781&sessionid=1&username=&partnerref=&format=fhvideo1&mobile=&flashsupportedmobiledevice=&helpcenter=&key=A341E8AE0BA9174A561F2EAEA434C8C5&newConsole=true&nxChe=true&newTabCon=true&consoleEarEventConsole=false&text_language_id=en&playerwidth=748&playerheight=526&eventuserid=472316344&contentt<ype=A&mediametricsessionid=410333371&mediametricid=4757799&usercd=472316344&mode=launch> recording accessed 24 September 2021.

			than separated from one another. No sustainability focus.
Hirvonen-Ere (2021)[30]	"Contract Management is an international systemic business contract approach to manage the contract lifecycle and to orchestrate a corporation's legal, commercial and contractual business contract activity in a coherent manner, on a high-end maturity level. Such an approach brings significant direct monetary value and strategic competitive advantage to companies that apply it. Contract Management aims to increase the contractual quality, efficiency and risk/reward balance of a company's business contracts, and decrease the amount of wasted money, time, resources and quality. This leads to a better relationship between the parties, and fewer disputes and contractual conflicts. Contract Management provides the parties, inter alia, with a flexible framework to agree upon changes and settle claims and proactively prevent risks over the contract lifecycle. Contract Management achieves this via utilization of so-called war stories and lessons learned and developing them further to produce best practices, processes and policies, and via using tools, such as software systems, to facilitate the Contract Management modus operandi."	Both pre- and post-award, entire contract lifecycle.	Generic definition, on an academic doctoral dissertation level. No sustainability focus.
Henschel (2022)[31]	Contract Management as part of contract processualization, among other post-award processes (classified as Project Management, IT Asset Management, and Legal Project Management).	Post-award	Post-award process-oriented discipline, and a management process. No sustainability focus.

[30] Hirvonen-Ere, 'Contract Management Modus Operandi in the Post-Enron World' (n 8),

[31] René Franz Henschel, 'Contractual processualization: designing proactive contractual processes to support legal, technical and commercial purposes' in Marcelo Corrales Compagnucci, Helena Haapio, and Mark Fenwick (eds), *Research Handbook on Contract Design* (Edward Elgar Publishing Ltd 2022), 134-157.

Moreover, the NCMA has suggested core competencies for contract management. Their Contract Management Body of Knowledge is comprised of seven core competencies: leadership, management, guiding principles, pre-award, award, post-award and learning.[32] Moreover, the definition of Contract and Commercial Management is evolving: the WorldCC has noted that since their survey on Contract Management trends in 2019, a recent trend is that the distinction between Contract and Commercial Management is narrowing, resulting in a more merged and more expanded role, involving activities such as risk management.[33]

These definitions provide an understanding of the activities that Contract Management encompasses. However, it is important to note that these definitions serve as mere definitions rather than practical guidance or advice on implementing Contract Management activities in the various phases or how to subsequently refine them into processes and policies. The primary focus, in this case, is on achieving environmental sustainability, particularly within the context of supply chain and transportation logistics. For these reasons, the aforementioned definitions – whilst useful in comprehending the significance and scope of Contract Management – offer limited aid in relation to environmental sustainability. Therefore, we continue by first categorising certain sustainable supplier and supply chain practices. Further, we provide some scheme of how environmental sustainability-related activities could be planned and designed during the contract lifecycle.

Despite the absence of a uniform procedure for Contract Management,[34] the pre-award phase of Contract Management includes processes such as budgeting and pricing, risk pricing, bidding, approval, negotiation, drafting and designing, as well as re-approval. The contract award, the contract commencement, occurs between the pre-award and post-award phases. Here, for simplification, it is assumed that the contract award and contract commencement occur upon the simultaneous mutual signing of the contract or a signing process. Thus, here, the contract commencement is expected to have taken place, and that the contract has become legally binding and enforceable by law, before moving on to the post-award phase. The post-award phase involves a number of processes, including handover, scope management, change request management (controlling changes to the contract scope), claim management, risk management (which often begins in the pre-award phase), renegotiation, amending contracts, and closing out contracts while ensuring that surviving clauses (for example, confidentiality obligations as the case may be) are addressed appropriately.

The more mature the processes, the greater the organizational achievement. A maturity level refers to "a level of organizational capability created by the transformation of one or more domains of an organization's processes. Thus, contract management maturity can be defined as the measurement of effectiveness of an organization's contract management processes."[35] There is no uniform procedure.[36] For the aforesaid reasons, the level of Contract Management maturity[37] is a relevant factor, considering that advanced Contract Management processes can aid in achieving sustainability goals like carbon neutrality in the supply chain by, inter alia, necessitating communication and collaboration. Hence, a company is as sustainable as its supply chain.

Thus, we hypothesize that greater maturity in Contract Management processes and tools will lead to more efficient and effective application and achievement of sustainability targets, such as carbon neutrality, within the supply chain. Only a little amount of literature exists, and where it does, it has different focal points than ours. For industries, this means additional efforts in collaboration with

[32] National Contract Management Association (NCMA 2021) <www.ncma.org> accessed 08 January 2024.
[33] Cummins, Guyer, and Buchanan (n 29).
[34] Kähler (n 7).
[35] Garrett and Rendon (n 5), 80.
[36] Kähler 2013 (n 7).
[37] Rendon 2014 (n 5), Garrett and Rendon (n 5).

companies, and new ways to manage sustainability in supply chains. Therefore, we focus next on sustainability practices.

<b> 2.2 Sustainable supplier and supply chain practices

Companies are under increasing pressure to develop policies and practices for environmentally sustainable development. These pressures have led to the emergence of sustainable supplier management as a crucial strategy in many companies. Research indicates that an organization's internal environmental management capability plays a vital role in addressing and incorporating environmental concerns into business routines.[38] Companies have designed internal environmental visions, strategies, targets and environmental protection policies to ensure the protection of the environment.[39] In the business environment, the development of environmental capabilities is important due to evolving and more stringent sustainability requirements.[40] In particular, successful firms have built proactive strategies to modify their capabilities and develop new ones for the sake of sustainability.[41] Therefore, organizations have developed a range of internal practices to implement and integrate their sustainability targets and policies into practice. To put these targets and policies into action, the commitment and support of senior and mid-level managers is required.[42] Studies have emphasized the significance of effectively educating employees for sustainable development within organizations.[43] Environmental education and training informs employees about the organization's environmental policies and enables them to change their individual behaviour in order to establish a more long-term relationship with the environment and to assign clear responsibilities, for example, to departments.[44] Training programmes are necessary at all levels, ranging from managers to employees.[45] Other internal practices include the establishment of an environmental management system and collaboration between departments for environmental improvements.[46]

[38] Su-Yol Lee and Robert D Klassen, 'Drivers and enablers that foster environmental management capabilities in small- and medium-sized suppliers in supply chains' (2008) 17(6) Production and Operations Management 573; Anni-Kaisa Kähkönen, Katrina Lintukangas, and Jukka Hallikas, 'Sustainable supply management practices: Making a difference in a firm's sustainability performance' (2018) 23(6) Supply Chain Management: An International Journal 518.

[39] Ricky Y K Chan and others, 'Environmental orientation and corporate performance: The mediation mechanism of green supply chain management and moderating effect of competitive intensity' (2012) 41(4) Industrial Marketing Management 621; Sibel Yildiz Cankaya and Bulent Sezen, 'Effects of green supply chain management practices on sustainability performance' (2019) 30(1) Journal of Manufacturing Technology Management 98.

[40] Carsten Reuter and others, 'Sustainable global supplier management: The role of dynamic capabilities in achieving competitive advantage' (2010) 46(2) Journal of Supply Chain Management 45; Philip Beske and Stefan Seuring, 'Putting sustainability into supply chain management' (2014) 19(3) Supply Chain Management: An International Journal 322.

[41] Kähkönen, Lintukangas, and Hallikas (n 38).

[42] Qinghua Zhu, Joseph Sarkis, and Kee-hung Lai, 'Examining the effects of green supply chain management practices and their mediations on performance improvements' (2012) 50(5) International Journal of Production Research 1377; Beske and Seuring (n 40).

[43] Lee and Klassen (n 38); Kaisu Sammalisto and Torbjörn Brorson, 'Training and communication in the implementation of environmental management systems (ISO 14001): A case study at the University of Gävle, Sweden' (2008) 16(3) Journal of Cleaner Production 299; Qinghua Zhu, Joseph Sarkis, and Kee-hung Lai, 'Confirmation of a measurement model for green supply chain management practices implementation' (2008) 111(2) International Journal of Production Economics 261; Joseph Sarkis, Pilar Gonzalez-Torre and Belarmino Adenso-Diaz, 'Stakeholder pressure and the adoption of environmental practices: The mediating effect of training' (2010) 28(2) Journal of Operations Management 163.

[44] Lee and Klassen (n 38); Sammalisto and Brorson (n 43).

[45] Cankaya and Sezen 2019 (n 39).

[46] Zhu and others, 'Examining the effects of green supply chain management practices and their mediations on performance improvements' (n 42).

To fully realize the performance potential of environmental sustainability, organizations must integrate internal sustainability practices with external practices.[47] Although managing sustainable supply chains is recognized as a significant concern for companies,[48] they may encounter difficulties when attempting to transform their sustainability practices into sustainability results[49] and there are challenges to achieving success in this relationship. Could Contract Management make progress in promoting this advancement by combining the key processes of sustainable supplier management and the Contract Management processes? This will be explored in the following subchapter.

<b> 2.3 Key processes of Contract Management and sustainable supplier management combined

Zimmer et al.[50] have suggested three key processes in sustainable supplier management*: Sustainable supplier selection, sustainable supplier monitoring* and *sustainable supplier development*. The *sustainable supplier selection process* is a critical strategic decision-making process for businesses, enabling them to enhance performance and gain a competitive advantage while managing supply chain sustainability,[51] as a firm's supplier base defines the sustainability level of the firm and the entire supply chain.[52] Therefore, selecting the appropriate suppliers has a considerable impact on accomplishing a company's environmental objectives.[53] The purchasing function plays a critical role here, and its success depends on the integration of environmental efforts, purchasing activities and the environmental objectives of the company.[54]

The supplier selection process begins by identifying the requirements and specifications and then proceeds with the formulation of criteria.[55] Managing criteria and the implementation practices is essential in maintaining a company's legitimacy and public image.[56] Supplier criteria are used for evaluating suppliers during the selection process as well as the supplier monitoring and development process. The qualified suppliers undergo a final detailed assessment and selection process.[57]

These sustainability practices and their targets align well with the Contract Management pre-award phase processes. Thus, incorporating these sustainability practices into the Contract Management pre-award process application could strengthen the chances of achieving one's goals and objectives.

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[47] ibid.

[48] Stefan Seuring, 'A review of modeling approaches for sustainable supply chain management´ (2013) 54(4) Decision Support Systems 1513; Sanjay Kumar and others, 'Barriers in green lean six sigma product development process: An ISM approach' (2016) 27(7-8) Production Planning & Control 604; Sunil Luthra and others, 'An integrated framework for sustainable supplier selection and evaluation in supply chains' (2017) 140(3) Journal of Cleaner Production 1686.

[49] Marius Pislaru, Ionut Viorel Herghiligiu, and Ioan-Bogdan Robu, 'Corporate Sustainable Performance Assessment Based on Fuzzy Logic' (2019) 223 Journal of Cleaner Production 998; Zhang Yu and others, 'Sustainable Supply Chain Management and Green Technologies: A Bibliometric Review of Literature' (2022) 29(39) Environmental Science and Pollution Research 584.

[50] Konrad Zimmer, Magnus Fröhling, and Frank Schultmann, 'Sustainable supplier management - a review of models supporting sustainable supplier selection, monitoring and development' (2016) 54(5) International Journal of Production Research 1412.

[51] Atefeh Amindoust and others, 'Sustainable supplier selection: a ranking model based on fuzzy inference system' (2012) 12(6) Applied Soft Computing 1668; Kannan Govindan, Roohollah Khodaverdi, and Ahmad Jafarian, 'A fuzzy multi criteria approach for measuring sustainability performance of a supplier based on triple bottom line approach' (2013) 47 Journal of Cleaner Production 345; Luthra and others (n 48).

[52] Kähkönen, Lintukangas, and Hallikas (n 38).

[53] Cankaya and Sezen (n 39).

[54] ibid.

[55] Zimmer, Fröhling, and Schultmann (n 50).

[56] Luthra and others (n 48).

[57] Zimmer, Fröhling, and Schultmann (n 50).

The *sustainable supplier monitoring process* involves continuously analysing and evaluating supplier and supply chain information with regard to compliance with agreed minimum requirements and performance improvement. This process serves as a means of monitoring the progress and success of development efforts, as well as being an initiator for supplier development activities, and also a basis for supplier replacements.[58]

If it is feasible to reach an agreement by and between the parties on these aspects during the pre-award phase, instead of leaving them open for discussion in the post-award phase, there is a greater likelihood of successful and predictable execution of the contract, for example, with the agreed scope of sustainability, price, time schedule, resourcing and quality output.

The *sustainable supplier development process* focuses on both the sustainable supplier selection and sustainable supplier monitoring. The focus in the development process in sustainable supplier selection is on performance enhancements beyond the minimum requirements. Thus, when the performance is evaluated in the supplier selection process, the development process starts by setting up appropriate development activities. Afterwards, the expected performance of potential development activities is evaluated and optimal activities can be chosen for implementation.[59]

Sustainable development typically requires cooperation and innovative approaches for managing and implementing sustainability in supply chains. Organizations might need to develop their suppliers' capabilities, as companies need dynamic and proactive strategies to cultivate the capabilities required for sustainable supply management. Such capabilities facilitate the implementation of sustainable supply and disseminate environmental practices throughout the entire supply network.[60] Examples of collaborative procedures include joint planning with suppliers to enhance sustainability innovations and improve strategic focus or develop practices, aligning policies, objectives, targets and adopting practices for reduced CO_2 emissions or designing practices for minimizing waste, and collaborative design of initiatives for controlling and monitoring carbon emissions.[61]

As a result, companies have to identify and select the most important and influential practices to implement.[62] As performance evaluation is an integral part of the development, selection and monitoring process, after the implementation of the selected development activities, the performance has to be evaluated again.[63]

However, if the need for expanded activities has not been considered during the pre-award phase, these may be subject to the change request process or amendments. This is true if the original budgeting, time schedule planning, and resource planning has not accounted for the costs and potential time schedule adjustments needed due to the increased level of requirements after the contract award, in comparison to what has been agreed upon before and during the contract award.

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[58] ibid.

[59] ibid.

[60] Aref A Hervani, Marilyn M Helms and Joseph Sarkis, 'Performance measurement for green supply chain management' (2005) 12(4) Benchmarking: An International Journal 330; Kähkönen, Lintukangas, and Hallikas (n 38).

[61] Claudine A Soosay, Paul W Hyland, and Mario Ferrer, 'Supply chain collaboration: capabilities for continuous innovation' (2008) 13(2) Supply Chain Management 160; Zhu and others, 'Examining the effects of green supply chain management practices and their mediations on performance improvements' (n 42); Furlan Matos Alves and others, 'Contingency Theory, Climate Change, and Low-Carbon Operations Management' (2017) 22(3) Supply Chain Management: An International Journal 223; Christian F Böttcher and Martin Müller, 'Drivers, Practices and Outcomes of Low-carbon Operations: Approaches of German Automotive Suppliers to Cutting Carbon Emissions' (2015) 24 Business Strategy and the Environment 477.

[62] Kähkönen, Lintukangas, and Hallikas (n 38).

[63] Zimmer, Fröhling, and Schultmann (n 50).

We have summarized practices for sustainable supplier selection, sustainable supplier monitoring, and sustainable supplier development processes in Table 2. As sustainable supplier and supply chain management literature does not usually cover practices from a Contract (lifecycle) Management perspective, we have added the focus of practices during the contract lifecycle in the pre-award and post-award phases. As seen in the table, most of the practices concentrate on both phases.

Table 8.2 Summary of examples for potential supplier and supply chain practices and allocation to pre-award and post-award phases during the contract lifecycle

Practice	Reference
Pre-award phase of the contract lifecycle	
Identification of needs and formulation criteria	Zimmer et al. 2016[64]
Supplier identification	Zimmer et al. 2016; Cankaya and Sezen 2019[65]
Utilizing lists of sustainable suppliers	Kähkönen et al. 2018[66]
Having environmental management system in place	Zhu et al. 2012; Zimmer et al. 2016; Luthra et al. 2017[67]
Having sustainability/CSR (Corporate Social Responsibility) strategy	Kähkönen et al. 2018[68]
Environmental commitment	Zimmer et al. 2016[69]
Existence of pollution prevention programmes	Zhu et al. 2012[70]
Following ethical guidelines and environmental values	Kähkönen et al. 2018[71]
Expecting a code of conduct	Hoejmose and Adrien-Kirby 2012[72]
Suppliers follow international standards (e.g. ISO14000 certification)	Zhu et al. 2012; Kähkönen et al. 2018; Cankaya and Sezen 2019[73]
Agreeing on environmental audits	Zhu et al. 2012[74]
Expecting second-tier suppliers to follow the same sustainability criteria	Zhu et al. 2012[75]
Selecting suppliers with environmental criteria	Zhu et al. 2012; Cankaya and Sezen 2019[76]
Post-award phase of the contract lifecycle	

[64] ibid.
[65] ibid; Cankaya and Sezen (n 39).
[66] Kähkönen, Lintukangas, and Hallikas (n 38).
[67] Zhu and others (n 42); Zimmer, Fröhling, and Schultmann (n 50); Luthra and others (n 48).
[68] Kähkönen, Lintukangas, and Hallikas (n 38).
[69] Zimmer, Fröhling, and Schultmann (n 50).
[70] Zhu and others (n 42).
[71] Kähkönen, Lintukangas, and Hallikas (n 38).
[72] Stefan U Hoejmose and A J Adrien-Kirby, 'Socially and environmentally responsible procurement: A literature review and future research agenda of a managerial issue in the 21st century' (2012) 18(4) Journal of Purchasing and Supply Management 232.
[73] Zhu and others (n 42); Kähkönen, Lintukangas, and Hallikas (n 38); Cankaya and Sezen (n 39).
[74] Zhu and others (n 42).
[75] ibid.
[76] ibid; Cankaya and Sezen (n 39).

Carrying out environmental audits as agreed (compliance)	Zhu et al. 2012; Kähkönen et al. 2018; Cankaya and Sezen 2019[77]
Environmental monitoring-based criteria	Marshall et al. 2015; Zimmer et al. 2016; Kähkönen et al. 2018[78]
Environmental reporting	Tate et al. 2012[79]
Supplier training	Leppelt et al. (2013)[80]; Grosvold et al. (2014)
Second-tier supplier evaluation	Zhu et al. 2012[81]
Pre- and post-award phases both	
Cooperation with suppliers for environmental objectives and concerns	Zhu et al. 2012; Cankaya and Sezen 2019[82]
Cooperation of environmental compliance and auditing programmes	Foerstl et al. 2010; Zhu et al. 2012; Leppelt et al. 2013; Kähkönen et al. 2018[83]
Designing improvement plans	Tate et al. 2012[84]
Development of environmental competencies and capabilities	Luthra et al. 2017; Zimmer et al. 2016[85]
Use and development of a performance evaluation system	Zhu et al. 2012[86]
Collaboration to reduce emissions and waste	Cankaya and Sezen 2019[87]
Joint development for transparency	Beske and Seuring 2014[88]
Supplier self-assessment	Kähkönen et al. 2018; Tate et al. 2012[89]
Adopting just-in-time logistics system for supplier cooperation	Zhu et al. 2012[90]

[77] Zhu and others (n 42); Kähkönen (n 38); Cankaya and Sezen (n 39).
[78] Donna Marshall and others, 'Environmental and social supply chain management sustainability practices: Construct development and measurement' (2015) 26(8) Production Planning and Control 673; Zimmer, Fröhling, and Schultmann (n 50); Kähkönen, Lintukangas, and Hallikas (n 38).
[79] Wendy L Tate, Lisa M Ellram, and Kevin J Dooley, 'Environmental purchasing and supplier management (EPSM)' (2012) 18(3) Journal of Purchasing and Supply Management 173.
[80] Thomas Leppelt and others, 'Sustainability management beyond organizational boundaries – sustainable supplier relationship management in the chemical industry' (2013) 56 Journal of Cleaner Production 94.
[81] Zhu and others (n 42).
[82] ibid; Cankaya and Sezen (n 39).
[83] Kai Foerstl and others, 'Managing supplier sustainability risks in a dynamically changing environment - sustainable supplier management in the chemical industry' (2010) 16(2) Journal of Purchasing and Supply Management 118; Zhu and others (n 42); Leppelt and others (n 80); Kähkönen, Lintukangas, and Hallikas (n 38).
[84] Tate, Ellram, and Dooley (n 79).
[85] Luthra and others (n 48); Zimmer, Fröhling, and Schultmann (n 50).
[86] Zhu and others (n 42).
[87] Cankaya and Sezen (39).
[88] Beske and Seuring (n 40).
[89] Kähkönen, Lintukangas, and Hallikas (n 38); Tate, Ellram, and Dooley (n 79).
[90] Zhu and others (n 42).

Cooperating with suppliers to reduce packaging materials	Zhu et al. 2012; Cankaya and Sezen 2019[91]
Increasing the use of green packaging (e.g. reusable packaging), cooperation for green packaging	Sarkis 2003; Zhu et al. 2012; Luthra et al. 2017; Cankaya and Sezen 2019[92]
Cooperation with customers for less energy use during transportation	Hsu et al. 2016; Zhu et al. 2012[93]
Cooperation with customers for development of reverse logistics	Zhu et al. 2012; Hsu et al. 2016[94]
Joint efforts on green logistics and distribution including activities to reduce/eliminate environmental damages and wastes	Cankaya and Sezen 2019; Gao et al., 2009[95]
Selection of greener transport methods	Cankaya and Sezen 2019[96]
Effective shipment consolidation and full vehicle loading	Cankaya and Sezen 2019[97]
Developing routing systems to minimize travel distances	Cankaya and Sezen 2019[98]

<a> 3 A framework for linking Contract Management with sustainable supplier and supply chain practices during the contract lifecycle

As companies are as sustainable as their supply chains, one practical implication for enhancing sustainability is to aid in the strengthening of sustainability throughout the complete supply chain. Contract (lifecycle) Management literature rarely addresses sustainability practices, and vice versa, sustainable supplier and supply chain management literature does not address the Contract (lifecycle) Management perspective. Hence, we contribute to prior literature by merging Contract Management and sustainable supplier and supply chain practices in the framework for managing buyer-supplier relationship management for sustainability, which could be applied, for example, in buyer-transport logistics relationships.

In the framework presented below in Table 3, the three key processes of sustainable supplier management[99] are explored via certain Contract Management processes. For example, the sustainable supplier selection process is linked to the budgeting process (including the pricing and risk pricing), risk management, negotiation, drafting and design, and approval processes. Furthermore, as examples of the sustainability practices from Table 2, identification of suppliers[100] and utilization of approved

[91] ibid; Cankaya and Sezen (n 39).
[92] Joseph Sarkis, 'A strategic decision framework for green supply chain management' (2003) 11(4) Journal of Cleaner Production 397; Zhu and others (n 42); Luthra and others (n 48); Cankaya and Sezen (n 39).
[93] Chin-Chun Hsu, Keah-Choon Tan and Suhaiza Hanim Mohamad Zailani, 'Strategic orientations, sustainable supply chain initiatives, and reverse logistics empirical evidence from an emerging market' (2016) 36(1) International Journal of Operations & Production Management 86; Zhu and others (n 42).
[94] Zhu and others (n 42); Hsu, Tan, and Zailani (n 93).
[95] Cankaya and Sezen (n 39); Yongge Gao, Jiyong Li and Yunfeng Song, 'Performance evaluation of green supply chain management based on membership conversion algorithm' (ISECS International Colloquium on Computing, Communication, Control, and Management, Sanya, China, August 2009) <doi: 10.1109/CCCM.2009.5267895> accessed 08 January 2024, 237-240.
[96] Cankaya and Sezen (n 39).
[97] ibid.
[98] ibid.
[99] Zimmer, Fröhling, and Schultmann (n 50).
[100] Zimmer, Fröhling, and Schultmann (n 50); Cancaya and Sezen (n 39).

supplier lists[101] are action points that Contract Management can drive in the pre-award phase, to name a few. Additionally, a practice such as expecting a code of conduct[102] is an example listed in Table 2, which Contract Management can drive in the pre-award phase and further monitor and audit in the post-award phase.

Table 8.3 Framework for buyer-supplier relationship management for sustainability in pre-award, contract-award and post-award phases.

Sustainable supplier and supply chain practices	Contract Management process	Phase
Sustainable supplier selection	Budgeting process, bid process (including pricing and risk pricing), risk management process, negotiation process, approval process, drafting and designing process, re-negotiation process, re-approval process. Further, as examples of the sustainable practices from Table 2, identification of suppliers[103] and utilization of approved supplier lists[104] are examples of action points that Contract Management can drive in the pre-award phase.	Pre-award
Sustainable supplier monitoring	Handover process. The handover process is used to communicate the agreed requirements for the delivery or execution phase from the pre-award team to the post-award team responsible for executing the contract. If a need for supplier development is identified during the pre-award phase, ideally the change request process should be agreed upon before the contract award or, at the latest, during the handover process, to avoid lengthy negotiations and delays in the post-award phase. Auditing process. Change request management process (if the sustainability requirements change after the contract award and the agreed minimum requirements increase based on the buyer's new requirements being higher than the original minimum requirements) à pricing process, risk-pricing process, risk management process. Claim management process. Examples of sustainable practices from Table 2 are, for instance, expecting a code of conduct,[105] or requiring suppliers to follow international standards or agreeing on (environmental) audits. These are samples of action points that Contract Management can drive in the pre-award phase and further monitor and audit in the post-award phase.	Post-award

[101] Kähkönen, Lintukangas, and Hallikas (n 38).
[102] Hoejmose and Adrien-Kirby (n 72)
[103] Zimmer, Fröhling, and Schultmann (n 50), Cancaya and Sezen (n 39).
[104] Kähkönen, Lintukangas, and Hallikas (n 38).
[105] Hoejmose and Adrien-Kirby (n 72).

Sustainable supplier development	If, for example, collaborative development needs are identified during the pre-award phase, it will be feasible to plan and design the necessary development efforts and their outcomes before the contract is awarded. Alternatively, the post-award phase process to identify them during contract execution can be agreed upon. Generally, selecting a pre-award phase strategy to agree upon topics that will have to be agreed upon at some point of the contract lifecycle nonetheless, rather than selecting a post-award strategy, or no strategy at all, provides the parties with the opportunity to take into account the impact on the scope, price, time schedule, resourcing, and quality, resulting in a more seamless contract execution with less time delays and less disagreements.[106] If this starts after the contract award, then a change management process can be applied (if the sustainability requirements change after the contract award and the agreed minimum requirements increase based on the buyer's new requirement being higher than the original minimum requirements) à pricing process, risk-pricing management process. Claim management process. As a sample of sustainability practice from Table 2, see development of reverse logistics[107] and collaboration on green logistics and distribution.[108]	Pre- and post-award

<a> 4 Conclusions, contributions and future research

Our research aimed to investigate whether the implementation of the Contract Management approach can aid in accomplishing the objectives of the European Green Deal and its Fit for 55 package. Our answer is in the affirmative. Our findings confirm that Contract Management can indeed contribute to achieving one's goals at every phase of the contract lifecycle, as detailed in sections 2 and 3. Our theoretical contribution presents a framework integrating Contract Management with sustainable supplier and supply chain practices across the entire contract lifecycle, in both the pre- and the post-award phases. Table 3 provides an illustration of this framework.

We contribute by suggesting concrete action points for contracting and sustainable supplier management practice. As a company is as sustainable as its supply chain, one concrete practical implication to strengthen a company's sustainability is to help to strengthen sustainability in the whole supply chain. Even though this idea is not new, the route we propose is however novel, namely via enhanced and expanded[109] application of Contract Management.

Thus, the contribution to theory is, firstly, adding to the Contract Management and environmental sustainability related literature and theoretical conceptual framework building. Secondly, it provides a multidisciplinary approach, bridging law, Contract Management, sustainable supplier and supply chain

[106] Hirvonen-Ere 2021, 'Contract Management Modus Operandi in the Post-Enron World' (n 8), ch 3, especially 104-114.
[107] Hsu, Tan, and Zailani (n 93).
[108] Cankaya and Sezen (n 39); Gao, Li, and Song (n 95).
[109] Hirvonen-Ere, 'The way of business contracts' (n 8), 183, 185, 198-211; Suvi Hirvonen-Ere and Anu Bask, 'Toward environmentally sustainable supply chains. How contract management can help companies along their transformation journey' (2022) 6(3-4) Journal of Strategic Contracting and Negotiation 199.

management, and gives a broader view than what would be possible via a mono-disciplinary[110] approach that only focuses on a single[111] discipline omitted in this chapter. Rather, the combination of law, Contract Management, supply chain management and environmental sustainability related research is crucial in examining this topic. Thirdly, we classify certain existing environmental sustainability practices according to their phase on the contract lifecycle. This leads to contributions to management practice and provides guidance on when and how in the contract lifecycle to apply a particular environmental sustainability practice that re-enforces the current sustainability practices in order to grow into processes and polices driven by Contract Management, and thereby strengthening the chances of the goals and objectives being realized. On the other hand, the aforementioned contributes to the European Green Deal and its Fit for 55 package with the aim of achieving a carbon-neutral, resource-efficient, fair and sustainable Europe.

As the European Green Deal and the Fit for 55 package strongly impact the developments in all of the areas examined in this chapter, and as the magnitude of the topics explored here is likely to continue to grow in the future, several future research paths are accordingly opened. To name but a few, new approaches are emerging and existing methods are being used in new ways. In the field of law, one example is the proactive law approach[112] with its recent sustainability angle, as well as sustainable contracting. In the field of supply chain management, sustainable supplier and supply chain management is a novel, rapidly growing stratagem. In addition, further development of our framework into a more detailed process and practice decomposition would provide an even more specific guidance to contracting practice. Further, in Contract Management, especially via Contract Lifecycle Management (CLM) software and artificial intelligence-based systems, new ways are developed for the benefit of sustainability. Indeed, contract technology capability exists already today. The more mature the systems and the company processes around Contract Management are, the better able they are to advance sustainability.[113] Finally, the further expansion of how to use Contract Management in an extended and expanded manner, outside its core functions, is likely to be further on the rise. It will be intriguing to see where this development takes us and, as expected earlier, to see what the future holds for Contract Management's expanded utilization. An interesting next step would be to create a universal definition for sustainable Contract Management.

[110] Henschel (n 31).
[111] Tim Cummins, Tim David and Katherine Kawamoto, *Contract and Commercial Management, the Operational Guide* (IACCM, Van Haren Publishing 2011).
[112] Helena Haapio, 'Next Generation Contracts' (Doctoral dissertation, University of Vaasa, Lexpert 2013).
[113] Hirvonen-Ere, 'The way of business contracts' (n 8); Hirvonen-Ere and Bask (n 109).