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Extending the possibilities to develop sustainable supply chains via a holistic organisational approach and individuals' ethics

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**UNIVERSITÉ
DE LORRAINE**

Ecole Doctorale SJPEG

CEREFIGE (EA 3942): Le Centre Européen de Recherche en Economie
Financière et Gestion des Entreprises

Note de synthèse en vue de l'obtention du

Diplôme d'Habilitation à Diriger des Recherches (HDR)

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Professeure Associée en Supply Chain Management Durable

Excelia Business School

15 janvier 2024

**Elargir les possibilités de développer des supply chains durables via
une approche organisationnelle holistique et d'éthique individuelle**

*Extending the possibilities to develop sustainable supply chains via a
holistic organisational approach and individuals'ethics*

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Résumé de ma note de synthèse en vue de l'obtention du Diplôme d'Habilitation à Diriger des recherches

Élargir les possibilités de développer des supply chains durables via une approche organisationnelle holistique et d'éthique individuelle

Extending the possibilities to develop sustainable supply chains via a holistic organisational approach and individuals' ethics

Le supply chain management durable (SSCM) est un domaine de recherche en sciences de gestion reconnu comme tel depuis les années 2000 (Seuring et Müller, 2008 ; Ahi and Searcy, 2013). Après avoir mis l'accent sur la création de profit tout en réduisant l'impact des activités de la supply chain sur l'environnement, la recherche dans ce domaine s'est fortement focalisée sur l'intégration du concept de "Triple Bottom Line" (Elkington, 1997). Le TBL se réfère aux trois piliers du développement durable : économiques, environnementaux, et sociaux qui doivent être pris en compte dans les stratégies des entreprises pour limiter, et idéalement réduire les externalités négatives dans leurs activités de développement.

Cependant, aujourd'hui, le fondateur de ce concept, John Elkington, appelle à revoir son application qui est devenue trop normative et ne remet pas en question le business model des entreprises, ni ne questionne les principes capitalistes qui régissent la plupart des sociétés dans le monde (Elkington, 2018, 2020). Dans ce contexte, les Objectifs de Développement Durable (ODD) des Nations Unies (UN, 2015) offrent une alternative qu'Elkington (2018) considère comme une solution possible pour remplacer le TBL. Dans ce projet d'HDR, je questionne le remplacement du TBL par les ODDs du fait que les ODDs peuvent eux aussi devenir un outil normatif qui ne remet pas en cause les business models des entreprises et de leurs supply chains (SCs). En effet, l'une de mes recherches récentes sur le cas d'une multinationale qui utilise les ODDs, montre que cette multinationale utilise uniquement les ODDs pour communiquer avec ses parties prenantes externes, mais en interne, dans l'entreprise focale et avec ses fournisseurs, cette multinationale n'adopte pas les ODDs (Carmagnac et al., 2023). Ainsi, la recherche sur la durabilité des SCs se trouve dans une impasse tandis que les activités productives liées à la SC continuent d'accentuer les externalités négatives de l'Homme sur les limites planétaires (Wheeler et al., 2020 ; Clift et al., 2017).

Si les modèles existants qui sont sensés guider les managers dans la prise de décisions responsables pour limiter ou éliminer les externalités négatives de l'Homme sur l'environnement et la société (Baumgartner et Rauter, 2017) ne sont pas assez efficaces, comment développer des SCs durables ? J'adresse cette question dans cette HDR en avançant que l'intégration à la fois d'une approche organisationnelle et d'une approche individuelle dans la recherche sur la durabilité des SCs peut amener au développement de SCs plus durables.

Ainsi, dans mes recherches, j'invite les chercheurs, les enseignants et les autres parties prenantes de la SC à repenser la SC de manière plus holistique (objectif n°1 traité dans l'Axe n° 1) et à questionner les apports que peut avoir la recherche dans le domaine de l'éthique sur la durabilité des SCs (objectif n°2 traité dans l'Axe n°2). Étant donné que la recherche en sciences de gestion n'apporte pas de consensus sur la définition de l'approche organisationnelle et individuelle, j'offre ma propre explication et mon positionnement vis-à-vis de cette approche dans le cadre de ma recherche.

Dans l'Axe n°1, je mets l'accent sur la nécessité, pour étudier la SC durable, d'explorer l'ensemble de la SC, et non pas seulement les approches dyadiques entre entreprise focale et fournisseurs par exemple. Pour cela, je décompose la SC telle que mes recherches m'ont amenée à le faire : amont de la SC (fournisseurs et fournisseurs de fournisseurs), entreprise focale (qui comprend l'ensemble des individus et services qui participent au bon fonctionnement de l'entreprise), aval de la SC (intermédiaires, clients, et clients finaux, voire services de recyclage), ainsi que les parties prenantes externes à la SC (individus, groupes d'individus et organisations qui ne participent pas à la production mais peuvent avoir un effet ou être affectées par les activités de production). Cette approche holistique mobilise la théorie des parties prenantes de Freeman (1984) ainsi que la théorie institutionnelle de DiMaggio et Powell (1983). En effet, si nous voulons évoquer la SC durable, il est important de nous positionner clairement par rapport aux différents niveaux de la SC et différentes parties prenantes concernées, à savoir en amont, au sein de l'entreprise focale, en aval et en dehors de la SC (Fritz, 2022b). Les parties prenantes doivent également être identifiées au sens d'individus : qui sont-ils ? L'utilisation du terme « partie prenante » de manière générale, qui est une pratique commune dans la recherche en SSCM, limite les possibilités d'identifier les domaines d'amélioration de la gestion durable de la SC. J'encourage les chercheurs dans ce domaine à être plus spécifiques à cet égard, à adopter une approche holistique de la SC et à remettre en question l'utilisation du terme « supply chain durable » comme l'ont fait Pagell et Shevchenko (2014). Est-ce possible de développer une SC durable étant donné que toute activité de production contribue à la l'exploitation croissante des ressources naturelles et au dépassement grandissant des limites planétaires ? (Elkington, 2018 ; Stockholm Resilience Center, 2023). Afin de développer réellement des SCs durables, il semble nécessaire de pratiquer une pensée holistique pour comprendre et anticiper les conséquences économiques, environnementales et sociales des décisions liées à la SC.

Cela nous amène à l'Axe n°2 car la prise de décision est du fait de l'individu. De plus, chaque individu est influencé dans sa prise de décision par son environnement personnel et professionnel. Dans ces deux environnements (personnel et professionnel), l'individu développe sa propre éthique faite de normes, valeurs, et croyances se traduisant par des

comportements et décisions. Ainsi, je considère que la durabilité des SC est le fait d'individus prenant individuellement ou collectivement des décisions qui soutiennent, améliorent ou détériorent la durabilité des SCs. Il apparaît donc essentiel d'étudier la durabilité des SCs du point de vue des individus, ce que je désigne par l'approche individuelle, qui ne s'oppose pas à l'approche organisationnelle mais la complète. Ainsi, je m'interroge dans l'Axe n°2 sur le rôle de l'éthique dans le développement de SC durables et propose d'étudier comment développer cette éthique par le biais du « Sustainability Mindset ». En effet, je me suis penchée sur le lien entre éthique et SC durable lors de mes enseignements à Excelia depuis 2018. Depuis deux ans, je travaille de manière plus approfondie sur la gestion éthique des SCs en réalisant une revue de la littérature sur le sujet. Cette revue de littérature en cours de finalisation montre que le terme « éthique » est bien utilisé dans la recherche sur la durabilité des SC mais n'est souvent pas défini. Les articles sur le sujet ne mobilisent que rarement les théories de l'éthique et utilisent généralement le terme comme synonyme de « durable », ou se réfèrent à une vision très étroite de ce qu'est l'éthique en SC comme le thème de la corruption. Enfin, la recherche sur l'éthique en SC met souvent en exergue les responsables achats des entreprises, bien que de nombreux autres individus au sein d'autres services ont aussi un rôle à jouer. Ainsi, une vision holistique dans les approches individuelles semble aussi manquer. A titre d'exemple, le rôle des Ressources Humaines ou du Marketing dans la durabilité des SCs peut être également questionné (Dubey et Gunasekaran, 2015 ; Lebel et Lorek, 2008). Le manque de recherches sur l'éthique en SC et l'éthique des individus des différents services qui participent à la SC, ou qui affectent ou sont affectés par les activités de la SC, sont peut-être une des raisons pour lesquelles il n'existe pas encore de réelles SC durables (Pagell et Shevchenko, 2014). Une SC durable pourrait ne jamais exister si le business modèle d'une entreprise focale et de sa SC n'est pas conçu pour répondre aux dilemmes éthiques consistant à donner la priorité à la sécurité de l'Homme et de l'environnement plutôt qu'au profit. En outre, ce qui est perçu comme durable dans une culture peut ne pas l'être dans une autre et vice versa, ce qui souligne la nécessité de prendre en compte l'environnement culturel et les institutions dans la recherche sur la durabilité de la SC (Sarkis, 2022 ; Manning et al., 2006). Comme l'indiquent Di Vaio et al. (2022), le développement de SCs durables nécessite le développement de l'éthique des individus. En effet, l'éthique est devenue importante et est désormais considérée comme nécessaire « pour gérer la SC de manière durable » (Fritz, 2019, p. 9), la durabilité faisant désormais partie des attentes normatives de la société. Ce sujet est d'autant plus complexe et sous-développé qu'il n'existe pas de consensus sur la définition du terme « éthique » en sciences de gestion. Cependant, il est possible de dresser certaines conclusions de l'éthique en sciences de gestion dans le contexte de la durabilité des SCs. Le concept de « Sustainability Mindset » nous offre des perspectives d'application de l'éthique en SC au service de la durabilité. Ces applications

restent à développer et à tester via des cas pratiques en entreprise mais le Sustainability Mindset est, selon moi, un moyen de rendre la SC véritablement durable et de contribuer à explorer le « comment » développer une SC durable. Toutefois, pour réussir dans cet exercice, cette approche nécessite un changement dans la pratique de la plupart des éducateurs et des chercheurs en faisant davantage d'enseignement appliqué et de recherche-action afin de tester et de mesurer l'impact des initiatives qui visent à développer un Sustainability Mindset parmi les étudiants et les praticiens. Pour développer des modes de production et de consommation éthiques et durables, Sachs et al. (2019, p. 813) évoquent la nécessité d'un « *activisme social pour changer les normes et les comportements* », qui concerne tous les domaines de gestion et la société : « *Les mouvements sociaux, l'activisme public et les campagnes de sensibilisation devraient expliquer l'éthique du développement durable, promouvoir l'activisme populaire et la participation des communautés, l'activisme des actionnaires et les mouvements équitables de consommateurs.* » Ainsi, avec l'exemple de la durabilité des SCs dans cette HDR, j'invite l'ensemble des chercheurs et enseignants en sciences de gestion à se questionner sur leur rôle et leur pouvoir de développer un sustainability mindset auprès de tous les individus ou groupes d'individus (en référence à la définition des « parties prenantes » de Freeman, 1984), qui affectent ou peuvent être affectés par le dépassement des limites planétaires.

En ce qui concerne mes activités de valorisation et de transfert de ma recherche, ainsi que l'impact de mes recherches, celles-ci sont exposées dans l'Axe n°3 de cette HDR. Je cherche à valoriser et à transférer mes recherches vers différents publics et par différents moyens. Les publics que je cible sont les enseignants-chercheurs (en particulier en sciences gestion et du management), les étudiants en gestion, les professionnels du monde de l'entreprise et les décideurs politiques, aux niveaux national et international, selon les connaissances ou les idées que je souhaite partager. L'impact de mes recherches peut être mesuré par ma coordination ou ma contribution à des numéros spéciaux pour des revues académiques (par exemple, *International Journal of Physical Distribution and Logistics Management*, *Supply Chain Forum : an International Journal*), ma coordination ou contribution à des ouvrages collectifs dans le domaine du SSCM pour des maisons d'édition reconnues internationalement (par exemple, Routledge) mais aussi au-delà, dans les sciences de l'éducation, notamment via le groupe PRME sur le sustainability mindset, ou le Global Movement Initiative (GMI). Je contribue aussi activement à l'évaluation d'articles pour des revues et conférences académiques nationales et internationales (par exemple, *Logistique & Management*, *International Journal of Logistics Management*, *Journal of Cleaner Production*, EurOMA Forum, EurOMA, PROLOG). L'impact de ma recherche se traduit aussi par les invitations que je reçois de professionnels pour vulgariser ma recherche auprès de leurs publics cibles (Ecovadis, Scalian) ainsi que les invitations que je reçois pour être guest speaker ou guest lecturer de la part

d'universités étrangères (Université Pontificale Catholique du Pérou – octobre 2023, Université Nationale de Bogotá – août 2023, Université de La Costa- août 2023, conférence CIIO – 2023, conférence Projectique – 2024, POMS – 2024). Mes futurs projets de recherche sont fortement liés aux idées exposées dans cette note de soutenance d'HDR, c'est-à-dire développer et renforcer une vision holistique du SSCM et faire en sorte que cette approche soit utilisée, testée, et améliorée par d'autres enseignants-chercheurs et idéalement mise en pratique par les praticiens du monde de l'entreprise, voire du monde politique. Il en va de même pour le sujet de l'éthique individuelle.

En conclusion, j'esquisse dans cette HDR une perspective globale sur le développement de SCs durables. J'insiste sur la nécessité d'aborder la durabilité à plusieurs niveaux, y compris en amont, au sein de l'entreprise focale, et en aval, tout en impliquant un large éventail de parties prenantes, à la fois internes et externes à la supply chain. En outre, je souligne l'importance de l'éthique individuelle dans la prise de décision au sein de la gestion de la SC, reconnaissant que les décisions éthiques sont cruciales pour répondre aux attentes de la société en matière de durabilité. Je soutiens également la nécessité d'une approche holistique qui prenne en compte les niveaux micro, méso et macro de la gestion de la SC. J'avance l'idée que le manque de formation à la prise de décisions éthiques et les différences culturelles dans la perception de la durabilité peuvent entraver la mise en place de SCs véritablement durables. En outre, j'insiste sur le rôle des éducateurs en gestion et des établissements d'enseignement supérieur dans la promotion d'un état d'esprit de durabilité parmi les managers actuels et futurs. Pour terminer, je propose de définir le SC management durable comme *un processus qui consiste à cultiver un état d'esprit de durabilité parmi les dirigeants et les employés de toutes les organisations faisant partie de la SC, afin de prendre les décisions les plus éthiques pour l'environnement et les sociétés qui entourent chaque acteur de la supply chain*. Cette définition souligne l'idée que la prise de décision éthique est au cœur de la réalisation de la durabilité dans les SCs. Globalement, via cette HDR, j'appelle à l'utilisation accrue et la mise en application d'une approche holistique de la SC dans la recherche et dans la pratique, qui soit axée sur l'éthique, pour créer des SCs véritablement durables.

List of abbreviations

AIRL-SCM	Association Internationale de Recherche en Logistique et Supply Chain Management (<i>International Association for Research in Logistics and Supply Chain Management</i>)
ARCS	Activist Research Collective for Sustainability
CNU	Conseil National des Universités (<i>National University Council</i>)
CSR	Corporate Societal Responsibility
EurOMA	European Operations and Management Association
G1	Gap 1
G2	Gap 2
HR	Human Resource
HRM	Human Resource Management/Manager
IPSERA	International Purchasing & Supply Education & Research Association
IRSI	Institute for Sustainability through Innovation
LEAP	Leverage resources, Expand awareness, Accelerate change and Partner
ODD	Objectifs de Développement Durable
PROLOG	Project Logistic
SC	Supply Chain
SDG	Sustainable Development Goals
SM	Sustainability Mindset
SME	Small and medium size enterprise
SSCM	Sustainable Supply Chain Management
SCV	Supply Chain View
TBL	Triple Bottom Line

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General introduction

“Management thinkers still have a lot to tell us. You don’t have to believe everything they say, but they may at least offer stimulation; they might provoke senior managers into abandoning complacency and trying to see problems in a new light.” (Stern, 2001, p.87)

Since 2008, research on supply chain (SC) sustainability has been gradually structured following the publication of the literature review on sustainable supply chain management (SSCM) by Seuring and Müller (2008). This major publication in the field (7,466 citations as of 15th October 2023) identifies the levers and limits of SC sustainability as well as the generic stakeholders: the state, consumers, the focal firm and suppliers. Much of the research in the field is based on this literature review, which uses the concept of the Triple Bottom Line (TBL) to define sustainability in the SC, that is to say, the need for focal companies and their suppliers to deliver environmental and social benefits to their stakeholders, beyond simply generating profit. However, John Elkington, the author who coined the TBL concept in 1994 (Elkington, 1997), has highlighted the limits of this concept today (Elkington, 2018). According to him, the TBL concept has become too prescriptive for companies and researchers, and ultimately contributes little to sustainable development. The TBL was aimed to be more than an accounting tool, as he states: *“the TBL wasn’t designed to be just an accounting tool. It was supposed to provoke deeper thinking about capitalism and its future, but many early adopters understood the concept as a balancing act, adopting a trade-off mentality”* (Elkington, 2018, N.A.). Unfortunately, he observes that profits remain the priority target and states that the: *“Triple Bottom Line has failed to bury the single bottom line paradigm. [...] TBL’s stated goal from the outset was system change — pushing toward the transformation of capitalism”* (Elkington, 2018, N.A.).

Overall, Elkington sees that no *“sustainability frameworks will be enough, as long as they lack the suitable pace and scale — the necessary radical intent — needed to stop us all overshooting our planetary boundaries”* (Elkington, 2018, N.A.). The planetary boundaries are processes *“within which humanity can continue to develop and thrive for generations to come”* (Stockholm Resilience Center, 2023). There are nine processes² and over the years, an increasing number of boundaries have been transgressed because of human activity (Steffen et al., 2015): 3 out of 9 in 2009, 5 out of 9 in 2015, and 6 out of 9 in 2023 (Stockholm Resilience

² Climate change ; Stratospheric Ozone Depletion ; Atmospheric Aerosol Loading ; Ocean Acidification ; Biogeochemical Flows ; Freshwater Change ; Land-System Change ; Biosphere Integrity ; Novel Entities (including plastics)

Center, 2023). One crucial issue is the lack of awareness and guidance for businesses to address these boundaries as state Cranston et al. (2019, p.1): *“The majority of companies today are seeking to reduce their environmental impacts, increase resource efficiency and mitigate risks from climate change. However, decisions to take action are being made without any real knowledge of what is actually sustainable in a finite global system”*. In this context, it appears necessary to conduct research that supports decision-making processes that take into account these planetary boundaries and adopt a holistic thinking approach. This includes the need to rethink the concept of SC sustainability and to go beyond TBL approaches too, as SC activities represent an important element that contribute to transgressing these planetary boundaries due to their global operating scale (Clift et al., 2017; Wheeler et al., 2020). However, current theories and management approaches fail to support managers in developing truly sustainable SCs (Pagell and Shevchenko, 2014; Touboulic and Walker, 2016).

In this HDR, I propose to take an uncommon stance to study SSCM by distinguishing two theoretical approaches of SSCM, namely “organizational approaches” and “individual approaches”. It is to note that in management science, there is no consensus as regards the meaning and content of “organizational approaches” and “individual approaches”. I define organizational approaches as a group of theories that are meant to support managers in decision-making, to improve processes and the effectiveness of the overall organization. Individual approaches in SCM are scarce and underexplored (Pournader et al., 2022). In management sciences, I consider that individual approaches focus on the importance of improving individuals’ understanding, behaviour, and performance within an organization. Individual approaches gather theories that address individuals’ behaviour and decision making within an organization with the aim to improve their job satisfaction and the organization performance. In a sustainability-related context, I would add that these individual approaches should also aim at improving individuals’ understanding about the impact of their decisions and behaviour on Humans and the planet, to limit the negative outcomes of these decisions and behaviours, and thus contribute to the organisation sustainability performance. The distinction between organizational and individual approaches is not meant to separate organisations from individuals, on the contrary, I consider them complementary. However, organizational approaches are the most common approaches to conduct research in SSCM compared to individual approaches (Sarkis, 2022). Nevertheless, the main organizations that are studied are often focal firms or the relations between focal firms and suppliers (dyadic relations), which do not represent the SC from a holistic perspective (Fritz and Ruel, 2023). Indeed, a holistic approach would require studying the relations between all members of the SC from raw materials until end consumers, and eventually until the end-of-life of the product or service that the SC is providing (Fritz, 2019). Among individual approaches, the importance of ethics to

make informed decisions that have no, or a minimal negative impact on people and the natural environment, is undermined (Manning et al., 2006; Ferrell et al., 2013). In this context, the main research question is: *How can the integration of organizational and individual approaches into supply chain management research lead to the development of more sustainable supply chains?*



Figure 1: Graphical illustration of the overall purpose of this HDR

By analysing SSCM through an organisational view in Axis n°1 and through an individual view in Axis n°2, I aim at contributing to filling two gaps. The first gap (G1), is the need for holistic approaches to develop more sustainable SC (Sarkis, 2022). I argue such holistic perspective can be reached by analysing stakeholders and sustainability challenges all along the SC, namely upstream, within the focal firm, downstream and outside the SC (Fritz, 2022b). This is possible by exploring in depth the relations between the stakeholder theory and SSCM with the proposition of the Supply Chain View of Sustainability Management (Fritz, 2022b). The second gap (G2) refers to investigating the contributions an individual approach can bring to SSCM and how it may contribute to developing more sustainable SCs as well. In G2, I propose to explore the application of ethical theories and decision-making models within SSCM research to study how ethics could allow the development of a sustainability mindset to take the decisions and adopt the behaviours that are needed to develop true SSCM in practice (Fritz and Cordova, 2023). While one may be used to hearing about the concept of “business ethics”, I would like to emphasize that I am using in this HDR concepts and theories of ethics. Indeed, I believe the concept of “business ethics” is mistaking as a business cannot have an ethics, only individuals can. This reinforces and justifies further my focus on individual approaches in Axis n°2.

Regarding epistemology, as underlined by Touboulic and Walker (2015), SSCM, which belongs to Operations Management, has traditionally been studied from a positivist view with a strong focus on quantitative methods to study SC efficiency. The use of qualitative approaches in SSCM is quite recent. Furthermore, they note that epistemological positioning in SSCM is undermined or ignored. Bryman (2012) also observed that epistemology in social research is difficult to define and several authors disagree on the definition of each epistemological paradigm. As far as I am concerned, I also recognise that epistemology is often

absent from research in SSCM and, myself, never took a firm stance on a specific epistemological position. I have set a strong emphasis in my research on understanding SSCM, identifying levers and barriers for SSCM as well as differences between developed and developing economies and clarifying some concepts such as ‘stakeholders’, ‘practices’, and proposing methods to identify stakeholders and sustainability challenges in a more holistic way, leading me to recently contribute to bringing SSCM to the theory level with the Supply Chain View of Sustainability Management (SCV) (Fritz, 2022b). Consequently, I believe I have a mixed epistemological positioning, excluding positivism if we understand it as an approach used to “*test theories and to provide material for the development of laws*” (Bryman, 2012, p.24) since I believe each SC is different. Indeed, each SC has its specificities (Touboulic and Walker, 2015; Gold et al., 2010) and thus I believe no generalisation is desirable in this field. I took an interpretivist approach in various publications (e.g., Fritz and Ruel, 2023; Boruchowitch and Fritz, 2022; Fritz et al., 2021; Fritz et al., 2017), in the sense of Bryman (2012, p.27): “*social reality has a meaning for human beings [...] and they act on the basis of the meanings that they attribute to their acts and to the acts of others*” and it is “*the job of the social scientist to gain access to people ‘common-sense thinking’ and hence to interpret their actions and their social world from their point of view*”. This interpretivist approach was taken for instance in Fritz and Ruel (2023) where we asked interviewees to tell us how they would define SSCM. Depending on their industry, gender, experience and other factors, interviewees had different answers. I also took a constructivism approach which is a positioning that “*asserts that social phenomena and their meanings are continually being accomplished by social actors [...] [which] implies that social phenomena [...] are in constant state of revision*” (Bryman, 2012, p.29). Indeed, “*each SC is unique*” and “*knowledge about sustainable SCs is highly embedded in context, and understanding emerges in local situations and through specific interactions between [stakeholders]*” (Touboulic and Walker, 2015, p.9). This was the case for instance in Ferrari and Fritz (2023) since our research focussed on the cognac SC, a SC that is deeply anchored in local SC practices due to the strict rules on the local production of this liquor. In Fritz and Silva (2018), we also underlined the importance of taking into consideration the specificities of the local context when doing research in SSCM, as the literature we analysed indicated that stakeholders’ expectations in Latin America differ from stakeholders’ expectation in developed economies.

After more than 10 years doing research in SSCM, I recently realised I can go further with my research and teaching activities and contribute, at my scale, to developing more sustainable SC by adopting a pragmatic approach as defined by Touboulic and Walker (2015) in the context of SSCM, through the combination of action research, sustainability and pragmatism. The combination of pragmatism and action research leads to “*research that seeks*

to produce scholarly knowledge that is also practically relevant and encourages participation” (Touboulie and Walker, 2015, p.11). The combination of action research and sustainability leads to *“research that contributes to human flourishing in an embedded relationship with the wider ecology of the planet”* (ibid.). Finally, the combination of pragmatism and sustainability leads to *“forward-looking and adaptive management research as a way to address environmental concerns”* (ibid.). Nevertheless, I would add to these combinations the need to address the individual dimension to contribute as well to developing individuals’ sustainability mindset within and outside the SC. I am using such a pragmatic approach in action-research projects developed within the Institute for Sustainability through Innovation (IRSI) at Excecia and more recently in my lectures with Master students in apprenticeship in the course I created, “Ethical supply chain management”. Consequently, I believe a researchers’ epistemological positioning can evolve and change depending on their research objectives and approaches.

Regarding research methods, I am a qualitative researcher who often takes an inductive approach to create new knowledge, improve existing frameworks or understanding of a certain phenomenon. I also use mixed-method approaches (Morse and Niehaus, 2009), especially in complex research projects like SustainHub (Fritz et al., 2017; Schöggl et al., 2016a, b) where multiple stakeholders’ views are necessary to obtain a holistic understanding of SSCM. I used quantitative approaches to a limited extent through cooperation with co-authors mastering for instance PLS-SEM methods (Dr. Svenja Damberg, Dr. Ulla Saari) or regression analysis (Dr. Ali Uyar). In my teaching approaches, I present a very structured approach for students to write the method section of their Master dissertation, and I take the opportunity of this HDR to clarify the term “methodology” versus “method” that is important in research, I believe, and I hope to see the use of such terms standardised one day among the various guidelines to write Master dissertation, Ph.D thesis and academic papers. According to Cambridge dictionary³, ‘methodology’ is *“a system of ways of doing, teaching, or studying something”*, whereas ‘method’ is *“a particular way of doing something”*. On this basis I distinguish methods for data collection and methods for data analysis. My qualitative and explorative way of collecting data led me to often use semi-structured interviews, participant observation, and secondary data. To analyse data, I mostly use qualitative and quantitative content analysis with both deductive and inductive coding systems based on Mayring (2008) and Elo and Kyngäs (2008), and with the use of a software like MAXQDA or NVivo. Also, I pay attention to apply as much as possible the concept of triangulation to reinforce the analysis of data to indicate convergent or non-convergent evidence (Patton, 2002).

³ <https://dictionary.cambridge.org/> (accessed 11th October 2023)

This HDR is organised as follows. I first analyse and discuss the use and role of organisational approaches to develop SC sustainability (Axis n°1). Second, I investigate the contributions of individual approaches to the development of sustainable SCs by mobilising research on ethics and the sustainability mindset (Axis n°2). Third, I will explain how my research is valorised, I will expose different metrics to measure the scientific impact of the work that has been published, and propose future research avenues (Axis n°3). Overall, this HDR project aims to stimulate more holistic and in-depth research in order to open up new opportunities for the creation of (more) sustainable SCs. It also aims at raising awareness on researchers and educators' roles regarding their power to accompany the needed conversion of current production and consumption systems into sustainable production and consumption systems.

Axis n°1 - Combining different organisational approaches to manage supply chains sustainably: a holistic perspective

Before explaining how a holistic perspective can be built based on my research and how it can support the development of more sustainable SCs, one needs to know what an SC is and what sustainable supply chain management (SSCM) means.

An SC is a network of companies that include suppliers, service providers, sub-contractors and customers. This network is often coordinated by one main firm called the focal firm. The focal firm usually governs the SC, has a direct contact with customers, and designs the product or service provided (Handfield and Nichols, 1999). The aim of such network is to supply a product or service under customers' expected quality, time and speed (Christopher, 2016). This is illustrated by Figure 2 below:

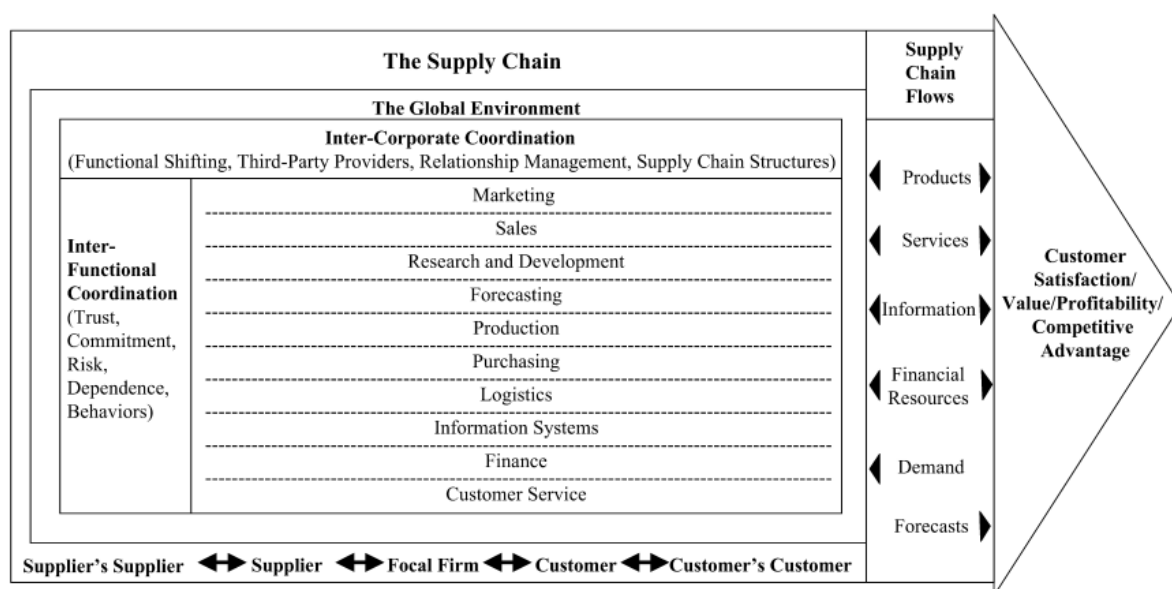


Figure 2: Model of supply chain management (Mentzer et al. 2001, p.19)

Traditionally, SCM is defined according to Mentzer et al. (2001, p.18), who gave one of the most cited definitions of the term according to Beske and Seuring (2014):

“The systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purpose of improving the long-term performance of the individual companies and the supply chain as a whole.”

Besides the importance of SCM for firms due to the globalization of their operations, of their suppliers, and of their customers networks, SCM has also become one of the key management functions that can contribute to sustainable development (Seuring and Müller, 2008). Indeed, as stated by Sarkis (2022, p.1):

“Some of the greatest influences man has on nature are through the production and consumption of resources [...]. The supply chain is critical for a more complete, systemic, and holistic perspective of sustainability concerns caused by commerce and industry”.

SSCM is indeed acknowledged as an activity that can strongly contribute to sustainable practice and policymaking when analysed with a holistic perspective such as a system perspective (Lebel and Lorek, 2008). Since the publication of Seuring and Müller’s (2008) structured literature review on SSCM, with the proposition of a framework that identifies key triggers for SSCM (see Figure 3), SSCM has been researched in different ways, through various theoretical views (cf. Touboulic and Walker, 2015; Fritz and Ruel, 2023).

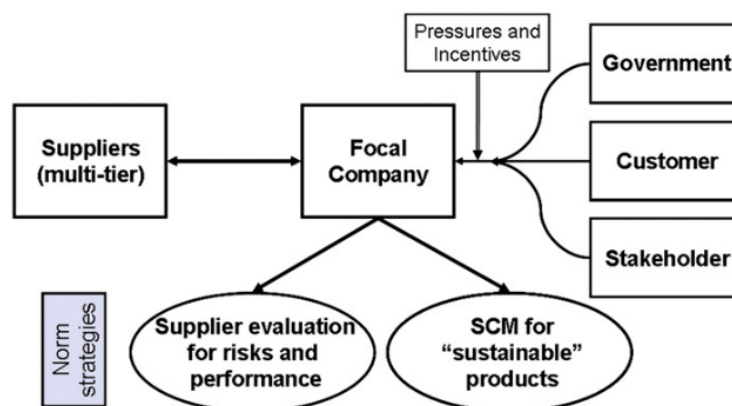


Figure 3: Triggers for SSCM (Seuring and Müller, 2008, p. 1703)

In Figure 3, we have a mix of organisational and individual approaches as “suppliers”, “focal company”, and “customer” represent business partners that form the SC; “government” represents an external SC stakeholders; and “stakeholder” refers to other individuals or group of individuals. Still, this framework does not provide a holistic view of SSCM since pressures and incentives also occur at the suppliers’ level, who are also affected by specific organisations or individuals. Also, the term stakeholder is very broad and the focal company can do more to develop a SSCM than evaluating risks among suppliers or developing sustainable products. What focal companies can further develop is explored in sub-axis 1.2. and Axis 2.

In Fritz and Ruel (2023), we examined the definitions of “Sustainable supply chain management” (SSCM) and found 31 different definitions from 2013 until 2022, compared to Dubey et al. (2017) who found sixteen (16) definitions. Thus, in six years (between 2017 and 2023), the total number of definitions of SSCM almost doubled. We noted that most “of the definitions are TBL-based and rather general with limited guidance for practitioners or researchers” (Fritz and Ruel, 2023, p. 4). To contribute further to Fritz and Ruel (2023) via this HDR, the analysis of SSCM definitions in this publication also highlights the lack of focus on individuals within SC as SSCM is rather defined based on the management of flows, goods

or services, functions, organizations, and the performance of firms forming the SC. Most definitions refer to the meso level (i.e., organization or supply chain) as illustrated by Sarkis (2022) in Figure 4.

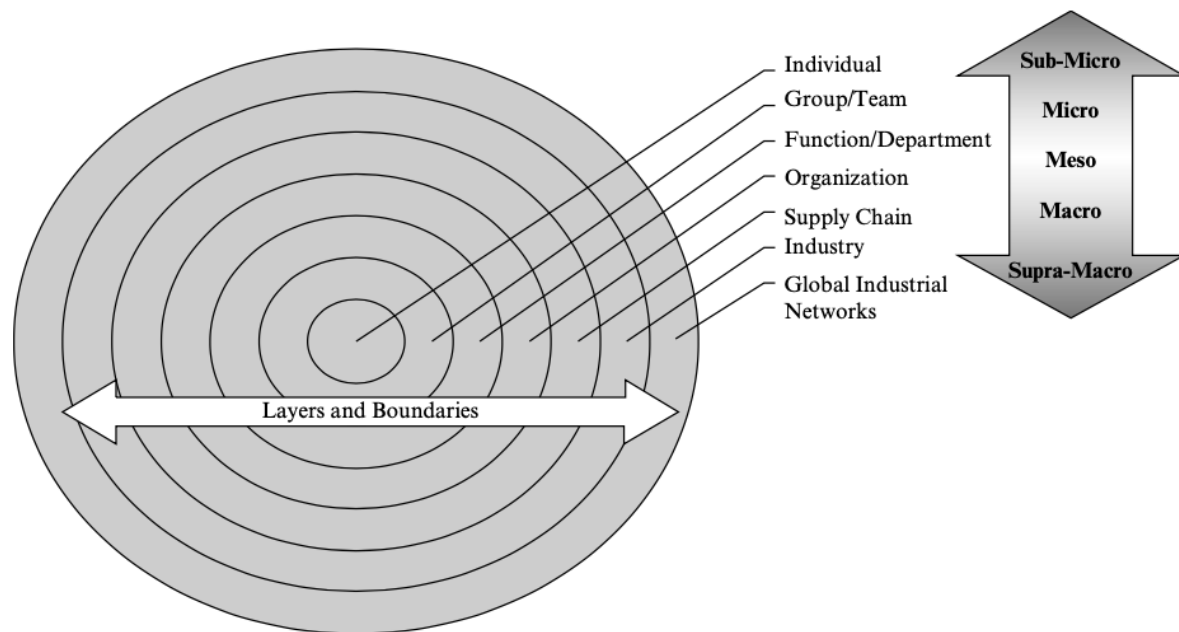


Figure 4: A hierarchical perspective for sustainable supply chains (Sarkis, 2022, p.5)

Figure 4 reflects the different levels that need to be considered for SSCM according to Sarkis (2022). Although called “hierarchical”, there is no level that comes first, all levels (from sub-micro to supra-macro) are to be explored to develop a SSCM. A focus on the meso level in SSCM is a limitation since it neglects the other levels, particularly the individual level which is the focus of Axis n°2 in this HDR: who in these firms contribute to SSCM and how? This can be clarified by the use of the Stakeholder Theory (Freeman, 1984). The term stakeholder is used here in the sense of Freeman (1984, p.46), i.e.: *"any group of individuals or any individual who may affect or be affected by the achievement of organisational objectives"*.

What is more, the topic of SC sustainability is very frequently studied through the TBL prism as shown in several literature reviews on the subject (e.g., Dubey et al., 2017; Touboulic and Walker, 2015). Sometimes, SSCM is even reduced to the environmental dimension (Fritz, 2019). In any approach, one of the main limitations is to study the sustainability of the SC in a general way, without studying its different components: upstream, in the focal company, downstream, and outside the SC, that is to say, in a systemic and holistic way (Fritz, 2022b; Sarkis, 2022). Another general limitation in SSCM research is the focus on the upstream SC only, studying suppliers’ sustainability performance (Sarkis, 2022). Before arriving at a sustainable SC, it is indeed necessary to study the different levels that compose it: individuals, groups/teams, functions/departments, the organisation, the SC, the industry, and then the global industrial network (Sarkis, 2022, p.5). Moreover, some works use the term SSCM but actually

consider only the dyadic relationships with suppliers, considering suppliers as the main responsible for sustainability in the SC. Other works use the term SSCM but study only the activities of the focal firm, which would refer more to the Corporate Societal Responsibility (CSR) of a single firm rather than sustainability management in the SC. For these reasons, I will divide Axis n°1 into four sub-axis corresponding to the different levels of the SC (upstream the focal firm: sub-axis n°1.1.; within the focal firm: sub-axis n°1.2.; downstream the focal firm: sub-axis n°1.3; and outside the SC: sub-axis 1.4) and the different associated stakeholders that I define in Fritz (2022b) with the “Supply Chain View of Sustainability Management” (SCV), which gives a holistic perspective of SSCM.

In more details, in Axis n°1, I will review how to improve SSCM with stakeholders upstream the SC (sub-axis n°1.1), downstream the SC (sub-axis n°1.3) and with stakeholders external to the SC (sub-axis n°1.4). Stakeholders within the focal firm will be discussed in sub-axis 1.2., and further in Axis n°2.

Sub-axis n° 1.1: Improving supply chain sustainability with the focal firm's upstream stakeholders

To improve the sustainability of the SC, research often shows that the focal company relies on the environmental and social performance of suppliers, subcontractors and logistics providers (e.g., Marshall et al., 2015). Tools such as the Ecovadis platform allow companies to select the best partners for this purpose. Within the Horizon 2020 EU project SustainHub, I have been working on the development of sustainability aspects and indicators in order to measure the SC sustainability performance. This project was the starting point of my Ph.D and resulted in several academic publications (Fritz et al., 2017; Schöggl et al., 2016a; Schöggl et al., 2016b). Looking back at this project, I realise that the scope was also mainly on collecting data from suppliers and suppliers' suppliers on their sustainability performance, as requested by the focal firm or the customers. Hence the focus of the indicators developed was more upstream and within the focal firm than downstream. Acting on the selection of partners upstream in the SC can improve the sustainability of the SC. Indeed, if suppliers are selected based on clear economic, environmental, and social criteria, then the sustainability performance of the upstream part of the SC is improved. However, such an approach should be done in a collaborative manner, with the focal firm's support to the suppliers (Sancha et al., 2019), as otherwise it may be considered unethical. In one of my case-study under development, this is the case of a small and medium size enterprise (SME) that is asked by its main customer to measure and communicate the sustainability performance of all the products they sell to them. However, this SME has no expertise, no dedicated person to collect and communicate this information and, in addition, they do not have the budget to pay for the platform the customer requires they use. Such requests can be considered unfair and unethical.

In Fritz and Cordova (2021, 2023), we sought to show that relying on upstream partners is an effort to improve the sustainability of the SC, via, for example, the use of a code of conduct, the inclusion of CSR clauses in contracts, collaboration, or training, but this is not sufficient. Indeed, a SC cannot be called sustainable if it focuses its sustainability efforts only on the upstream part of the SC, or if the focal company does not itself make efforts. Furthermore, the opportunities to contribute to sustainable development in a broader sense, at the level of society and the environment, seem to be understudied, whereas upstream activities such as purchasing have the power to transform consumption and production patterns as well as to accompany individuals to change their mindset. This is what we have shown in Boruchowitch and Fritz (2022) through a single case study, which could be the basis for a multiple case study. In Boruchowitch and Fritz (2022), the need for procurement managers to interact, negotiate and communicate with the different managers in the focal firm is highlighted

to develop a sustainable SC (e.g., SC managers should interact with engineers for the sustainable design of products, with the financial manager to obtain funding for more sustainable technologies). We also show that procurement managers can extend their positive impact on society and the environment by cooperating with local authorities and schools for example. The power of individuals, especially procurement managers and SC managers, can have a great impact on making SC more sustainable and on improving SC positive outcomes on the social and environmental side, as highlighted in Fritz and Ruel (2023). The procurement function is indeed in charge of establishing criteria for call for tenders and selecting suppliers based on these criteria. From an individual approach, they have important ethical responsibilities (Fritz, 2023). However, ethical considerations in research on procurement mainly focus on risks of corruption and bribery (e.g., instead of investigating the potential of the Procurement manager and its team to improve supply chain ethics and sustainability) (Fritz et al., 2022d).

Sub-axis n° 1.2: Improving supply chain sustainability with stakeholders from within the focal company

Stakeholders within the focal company are the SC managers and all the other employees SC managers need to cooperate with to improve the sustainability of the SC. I invite here researchers to refer to individuals rather than functions or departments to reflect better the concept of stakeholder in the sense of Freeman (1984). By referring to the model of Mentzer et al. (2001), this consideration would change the model as depicted in Figure 5:

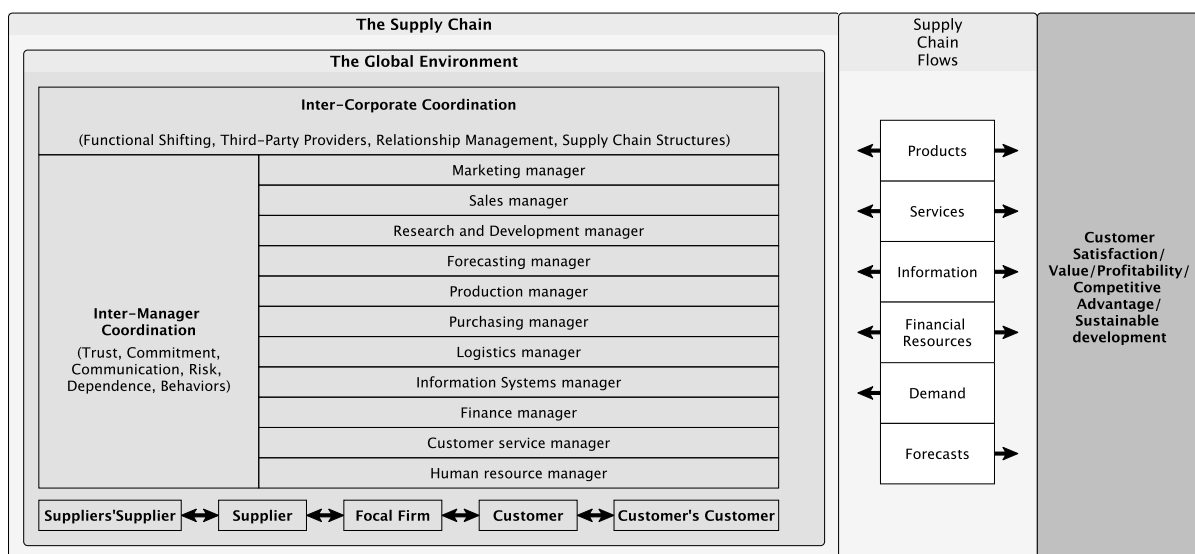


Figure 5: Model of sustainable supply chain management from an individual perspective (adapted from Mentzer et al. 2001, p.19)

Instead of “Inter-functional coordination” (on the left-hand side of the figure) we would have “inter-manager coordination”, which emphasizes the need for communication among the managers (the element “communication” is added in the parenthesis). Also, as shown in my previous research on stakeholder identification in the context of SSCM (Fritz et al., 2018), “suppliers’ suppliers”, “supplier”, “focal firm”, “customer” and “customers’ customer” (at the bottom of Figure 5) need to be included in the “Global Environment” since the focal firm’s global environment might differ from the one of their suppliers and customers. In “Inter-organizational coordination” the “Human resource manager” (HRM) has been added since researchers in SCM have identified that their involvement also supports the development of SSCM through training activities (Jabbour and Jabbour, 2014; Jabbour and Jabbour, 2016). Finally, since the aim is to develop SSCM, “Sustainable development” is added on the right-hand side of Figure 5 to the traditional aims of SCM (i.e., “customer satisfaction”, “value”, “profitability”, “competitive advantage”).

By highlighting the stakeholders within the focal firm with a more individual approach, I argue that several gaps in research can be identified with regards how to develop SSCM. Indeed, according to Dubey and Gunasekaran (2015), there is a shortage of “*sustainable supply chain talent*” at junior, middle and senior levels. They have identified some skills needed to build more sustainable SC and highlight the need to involve HRMs in this process. As sustainability challenges and SC operations grow faster, the need for such talents is also growing (ibid.). They also identified that previous research on the topic mainly focused on the environmental dimension (e.g., Jabbour, 2011; Jabbour and Jabbour, 2014), undermining the economic and social skills that are also needed for SSCM from a TBL perspective. They propose a framework where they distinguish hard skills (e.g., knowledge about green production) and soft skills (e.g., excellent communication skills) to manage a SC sustainably. Within this framework, no skills relate to ethical behaviour or ethical decision-making except the reference to Hamlin (2004), but this research is not focussing on SCM and by reading it, no clear reference is made to ethics. Another limit is that Dubey and Gunasekaran (2015) use the TBL approach to define which skills are needed for SSCM and we have seen in the introduction the limits of the TBL, which caused the recall of the concept from John Elkington himself (Elkington, 2018).

Based on Figure 5, several other gaps on the individual level can be identified. For instance, what is the role of the Marketing Manager and his team towards the development of SSCM? Do SC Managers and Marketing managers cooperate? Some researchers support the fact that individuals working in marketing should also develop “ethical marketing” practices to support the development of sustainable SC (Lebel and Lorek, 2008). In one of my Master student’s Master Dissertation, based on his experience within a large French garden and

handwork company, such cooperation does not exist, and this results in conflicting interests between the departments, as the Marketing manager wants to promote take back operations and reparability of the goods the firm sells, but the SC manager is reluctant to such marketing campaigns since these operations require space in the warehouse. Indeed, it is more profitable to keep this space for new products rather than for products to be repaired and thus sold at a lower price. Badenhorst (1994) also highlight ethical issues in this regard between marketing, sales, and procurement activities where conflicting interests emerge, but his work focuses on the procurement activity, not the entire SC. To the best of my knowledge, no research has addressed the potential of collaboration between SC managers and Sales managers, Finance managers, or Customer service managers, to name just a few management positions highlighted in Figure 5, towards the development of SSCM. Overall, individual approaches highlighting human behaviour and interactions in SCM have been understudied (Dubey and Gunasekaran, 2015; Ellinger and Ellinger, 2014; Sweeney, 2013; Tokar, 2010). Thus, they are all the more undermined in SSCM.

Behavioural research offers another perspective to look at individuals' behaviour and decision-making processes as investigated by Tokar (2010) and further behavioural approaches are encouraged by Pournader et al. (2022). However, approaches that take such an individual perspective are scarce in SCM literature (Tokar, 2010). This is an important gap as stated by Tokar (2010, p.89):

“Behavioural issues, especially in terms of judgment and decision making, have significant relevance and importance for logistics research because people often fail to make choices consistent with normative or optimal policy and do so in specific and systematic ways”⁴.

Behaviour and decision-making can be explored through the study of ethics which is *“personal, and thus have to do with the behaviour of individuals”* however *“individual behaviour is influenced by the norms of the environment and the peer group to which a person belongs”* (Badenhorst, 1994, p.741). In a context where climate change has become part of societal, political, and business agenda, one may consider that fighting climate change has become a norm in many socioeconomic environments. But we have seen with the reference to the planetary boundaries in the introduction that climate change is only one of the nine parameters to consider for a sustainable development. Hence, there is a need to dig further into how to support the development of sustainable behaviour and decision-making, which is the focus of Axis n°2. Such a view is also supported by Tokar (2010) by stating:

⁴ I would like to note in this quote that SCM and logistics do not mean the same and I encourage researchers in the field to clarify that, which I will not do here since it is out of the scope of my objectives in this HDR.

“Across all levels of a firm (operational, tactical, and strategic), virtually every activity that takes place involves some degree of human decision making. Therefore, a deeper understanding of behavioural issues should enable firms to make better decisions. [...] Such understanding, coupled with detailed insights into the quality and determinants of judgment and decision making, also suggests designs for decision environments that will produce desired behaviour. [...] Such knowledge would help firms screen potential employees and select those best suited for specific decision-making tasks” (Tokar, 2010, p.89–100)

However, Tokar (2010) promotes a greater use of behavioural research for economic and efficiency purposes and does not discuss SC sustainability. Hence, how to stimulate the “desired behaviour” for a SSCM and what this desired behaviour may be still remains to be studied. Decision-making implies the need to investigate managers’ decision-making processes, since these individuals are the ones who have the greatest impact on how to run a business. The topic of the necessary involvement of top management and managers to improve the sustainability of a company is not new and is very common in the CSR literature (e.g., Quazi, 2003; Swanson, 2008). However, this topic is little addressed in SSCM, with some exceptions such as Bentahar et al. (2022) who identified top management commitment as a key success factor to develop green SCs and an organizational culture that supports its development, to facilitate investments and dissemination activities for SSCM. Exploring the effects of gender diversity in management committees in the transport and logistics sector (Cuzey et al., 2022), I also highlighted with my co-authors the usefulness of the Upper Echelons Theory, which explains that top management has an important role to play (role model) for other employees. For a SSCM, top management needs to be a role model and make responsible decisions before they can demand that different departments in the firm commit to a responsible approach. Top management also needs to be involved in sustainability issues to support bottom-up initiatives for SSCM (Bentahar et al., 2022). The same applies to managers, and in particular to SC managers, who are in some way intermediaries between top management and employees at the operational level. In the focal firm, it is not only a question of having committed top management and SC managers, but also of instilling responsible behaviour in other employees at the operational level such as shopfloor workers (Starr and Bevis, 2010). For example, I have shown with my co-author the importance of involving managers that belong to other departments such as purchasing, to enhance sustainability in SCs (Boruchowitch and Fritz, 2022). Also, in a working paper with my colleague Nicola Scenci on product recalls and withdrawals, several interviewees in the agri-food sector told us that the main issues regarding responsible behaviour are found at the operational level. Although the

various forms of top management involvement are often addressed theoretically, highlighting the importance of the organisational culture and strategy of the focal firm in building a "World Class Sustainable Supply Chain Management" (e.g., Dubey et al., 2017), there is a lack of empirical studies to understand how to change the mindset of all employees of a focal firm and transmit the resulting ethical values to other members of the SC, for the benefit of society and the environment. It is this theoretical and analytical gap that I have tried to fill with my co-author Miguel Cordova in a book chapter (Fritz and Cordova, 2021) and a paper (Fritz and Cordova, 2023) using the concept of sustainability mindset developed by Isabel Rimanoczy (Rimanoczy, 2021). Having developed an analysis grid and a coding system to identify the elements of the sustainability mindset applied to supply chains, the next step is to test these elements by interviewing SC managers and, if possible, shopfloor workers to have a comprehensive view of sustainability mindsets for SSCM.

Sub-axis n° 1.3: Improving supply chain sustainability with the focal company's downstream stakeholders

In order to pursue a holistic view of SSCM, we also need to take into account the downstream part of the SC, that is to say from the focal firm to the final consumer, up to reuse, recycling and disposal operations that may be in place (Fritz, 2019). I distinguish the terms customers and end consumers by considering that customers have business to business relationships with the focal firm and that end consumers have a business to consumer relationship with the focal firm or intermediaries such as retailers. Research considers the importance of customer satisfaction and the possibilities to improve the sustainability of the focal firm's SC as well as that of the customer via their integration into the SC (Ni and Sun, 2019). Unlike supplier integration to build sustainable SCs, customer integration is understudied (Ni and Sun, 2019; de Sousa Jabbour et al., 2017). Issues exist here when the customer is not interested in the sustainability aspects of the SC or the product purchased, or when they are not willing to pay a premium price (Hu et al., 2019). At the level of end consumers, I also found with my co-authors these challenges of a lack of interest for sustainability aspects (e.g., Saari et al., 2018).

However, since COVID-19, consumers are more interested in sustainability issues than before (Vătămănescu et al., 2021). Furthermore, many articles claim that end consumers want not only products but also more sustainable SCs, which is assumed but not empirically proven (Silvestre et al., 2018; Meixell and Luoma, 2015). This is one of the recent topics I am investigating with quantitative methods (PLS-SEM) where my co-authors Dr. Svenja Damberg (Twente University), Dr. Ulla Saari (Tampere University), and Dr. Katerina Bozic (Ljubljana University) and I seek to find out which aspects of SC sustainability end consumers are really

interested in. This research was conducted through a large-scale survey of consumers in Germany and has resulted so far in a paper submitted to *Business Strategy and the Environment* (Damberg et al., 2023, major revisions) and a conference paper presented at the IPDCM 2022 conference (Damberg et al., 2022a). Beyond end consumers, Luka Kobal, a Ph.D. candidate from the University of Ljubljana who I am co-supervising with Professor Jure Erjavec, is looking at other types of stakeholders downstream the SC: last-mile delivery service providers, and investigating how far they could improve sustainability along the SC too. A deeper analysis of downstream SC stakeholders and their roles towards the development of SSCM is an additional avenue for future research.

Sub-axis n° 1.4: Improving supply chain sustainability with the focal company's external stakeholders

Improving the sustainability of the SC is not only possible via the focal company, its suppliers, or its customers. A growing body of research addresses external SC stakeholders (Bentahar et al., 2022; Carmagnac, 2021). For example, Carmagnac (2021, p.192) shows the importance of non-traditional stakeholders such as Non-Governmental Organisations (NGOs), local communities, alliances, or Inter-governmental Organisations (IGOs), who can play different roles, namely “*campaigning, providing training, developing standards and connecting actors*”. My work also contributes to this topic by studying, for example, the role of IGOs in mercury trade (Fritz et al., 2016), the importance of involving local communities to develop more sustainable SCs in the field of artisanal gold mining (Lara-Rodríguez and Fritz, 2023), the role of non-profit organisations to drive sustainability in the apparel industry (Del Pilar Quiroz Galvan et al., 2021), the role of public services to develop ethical SCM practices (Fritz, 2022a), the role of local authorities to create value through sustainable procurement (Boruchowitch and Fritz, 2022), or the role of federations and organisations that represent a specific industry and stimulate the development of cooperation and innovation to develop more sustainable SCs, like in the cognac industry (Ferrari and Fritz, 2023). To develop these research projects, I often used the Stakeholder Theory (Freeman, 1984) and the Institutional Theory (DiMaggio and Powell, 1983).

This research area on external SC stakeholders deserves to be deepened with case studies including, for example, interviews with SC managers to define the concrete influence these stakeholders may have on the sustainability of the SC, and to identify other stakeholders and their effects on the sustainability of the SC (e.g., the media and others, as referred to in Freeman, 1984). In Fritz and Ruel (2023), we further elaborate the framework of Sarkis (2022) that illustrates the multiple levels of SSCM by adding the level “Governments”, which supports

this need to integrate external SC stakeholders to investigate further the development of SSCM (Figure 6).

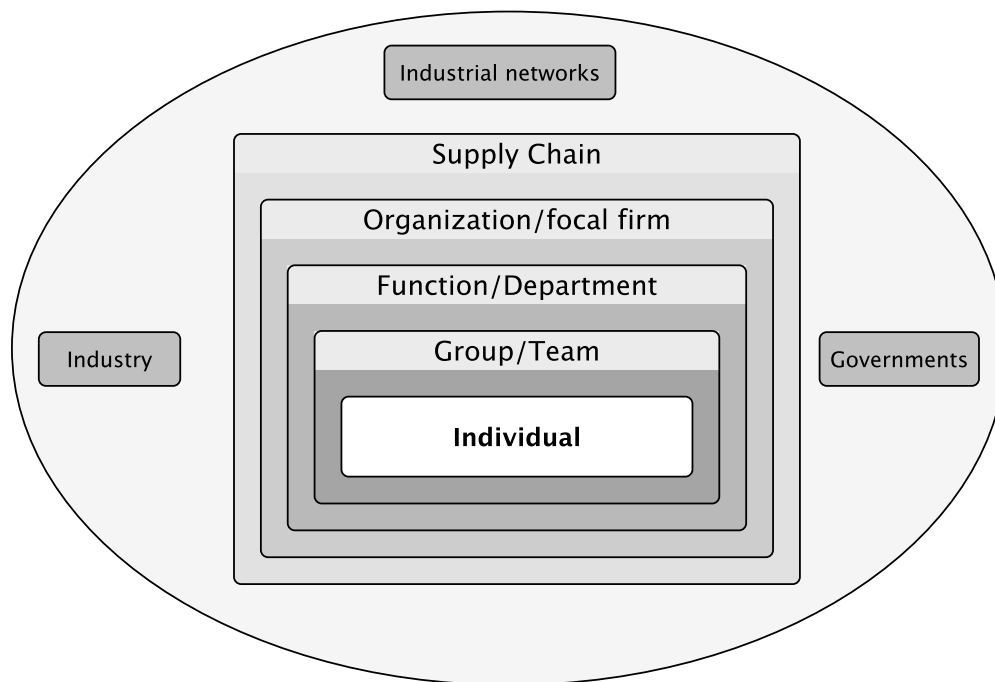


Figure 6: The multi-level sustainable supply chain management framework (based on Fritz and Ruel (2023) and Sarkis (2022))

With Figure 6, I want to highlight the need to consider the multiple levels and stakeholders of SSCM. SSCM is not only in the hands of SC managers, but also lies in the hands of all other stakeholders (in the sense of Freeman, 1984, i.e., “group of individuals” or “individuals”) that belong to the focal firm, to the upstream and downstream part of the SC, as well as the external SC stakeholder group. In Table 1, I highlight what encourages or hinders the development of SSCM according to the interviews with SC managers and consultants across the world that were conducted for the publications Fritz and Ruel (2023). This Table 1 underlines the importance of multiple SC stakeholders such as top managers, HRMs, shopfloor workers, clients, or policymakers. Future research could further study these factors to identify additional areas of improvement to develop SSCM in a way that integrates multiple stakeholders.

Table 1: Factors and stakeholders that encourage or hinder SSCM (based on Fritz and Ruel, 2023)

Multiple levels of SSCM	Factors that encourage or hinder SSCM	Potential stakeholders to involve for SSCM
Individual	Training for all employees on sustainability, SSCM and ethical decision-making, role models among top management	All employees (i.e., both strategic and operational level)
Group/Team	Collaboration between managers and shopfloor workers	SC managers, Purchasing managers, shopfloor workers
Function/Department	Collaboration between SC, Finance, Marketing, Communication and HR departments	SC, finance, marketing, communication and HR managers and their teams.
Organization/Focal firm	Sustainability culture in the focal firm and long-term vision aligned with economic objectives and clients' satisfaction	Employees at all levels, clients.
Supply chain	Lack of holistic visions that include upstream and downstream partners and tier-n suppliers, moving beyond dyadic relations	SC managers
Industry	Various industries have specific standards, contributions and impacts on sustainability	Industry or federations representatives
Global Industrial Networks	Focus on cost and quality to keep market shares hinders SSCM	Industry representatives, other SCs members.
Governments	Policies supporting cost reduction and sustainability encourage SSCM	Policymakers

Conclusions on Axis n°1

To conclude this first axis, we can say that in order to develop SSCM, it is necessary to act both upstream and downstream with SC internal stakeholders (e.g., focal firm's employees, suppliers' employees, customers' employees) and external stakeholders (e.g., individuals working in NGOs, IGOs, federations). This holistic view of SSCM through SC stakeholders

and institutions allows to address the limitations of the “narrow” stakeholder view that is commonly used in SSCM (Touboulic and Walker, 2015, p.8). This is summarised in Figure 7.

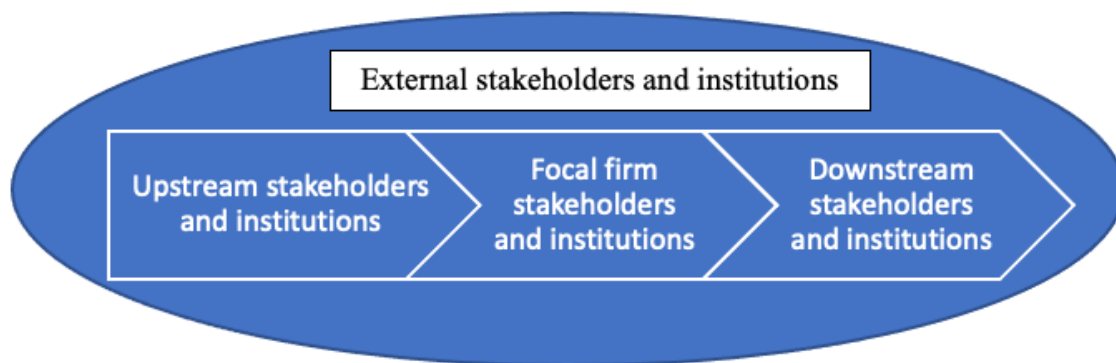


Figure 7: A holistic vision of sustainable supply chain management

If we want to study a sustainable SC, it is important to position ourselves clearly in relation to the different SC levels as stressed in Fritz (2022b), namely upstream, within the focal firm, downstream and outside the SC, and in relation to the various stakeholders addressed. Stakeholders also need to be identified in the sense of individuals: who are they? Using the term stakeholder in a general manner is, I argue, a missed opportunity to go further and identify areas of improvement for SSCM. I encourage researchers in this field to be more specific in this respect, to take a holistic approach of the SC and to question the use of the term "sustainable supply chain". In order to really develop sustainable SCs, it seems necessary to practice a holistic thinking to understand and anticipate the economic, environmental and social consequences of supply chain-related decisions (Wong et al., 2015; Meixell and Luoma, 2015).

This holistic thinking can be reached with the Supply Chain View of Sustainability management (SCV) that I propose in Fritz (2022b). The SCV is a theorization of SSCM that I developed and use in my research and teaching to contribute to the need for more systemic and holistic approaches (Sarkis, 2022) and move beyond research on dyadic relations with suppliers, in order not to omit important stakeholders for SSCM (Fritz et al., 2016). The main theories used in the field of SSCM are usually the resource-based view, stakeholder theory, institutional theory, and transaction cost theory (Touboulic and Walker, 2015), leaving room for many other approaches, such as the SCV I propose. This SCV may gain increasing relevance among practitioners as I received a request from Ecovadis to vulgarise this SCV in a short article to be posted on their website, and one student wrote me an e-mail in August 2023 to thank me for this contribution that enabled him to understand better the complexity and challenges of SSCM. Since I aim in this HDR to highlight the importance of integrating the individual dimension in the construction of sustainable SCs, I strongly mobilise the stakeholder theory and believe it is important to continue using it but in a way that is adapted to SCM, like through the SCV. Indeed, in SCs, the stakeholder theory allows to explore the internal and

external stakeholders of an organisation and to identify those who contribute to, oppose, or are affected by the activities of SCs in favour, or to the detriment of, sustainable development (Fritz et al., 2018). This application of the stakeholder theory in SSCM is strengthened by the SCV (Fritz, 2022b) that elevates SSCM to the theory level. In Fritz (2022b), I propose the following framework to conduct research in SSCM from a holistic perspective that highlights all potential stakeholders to consider:

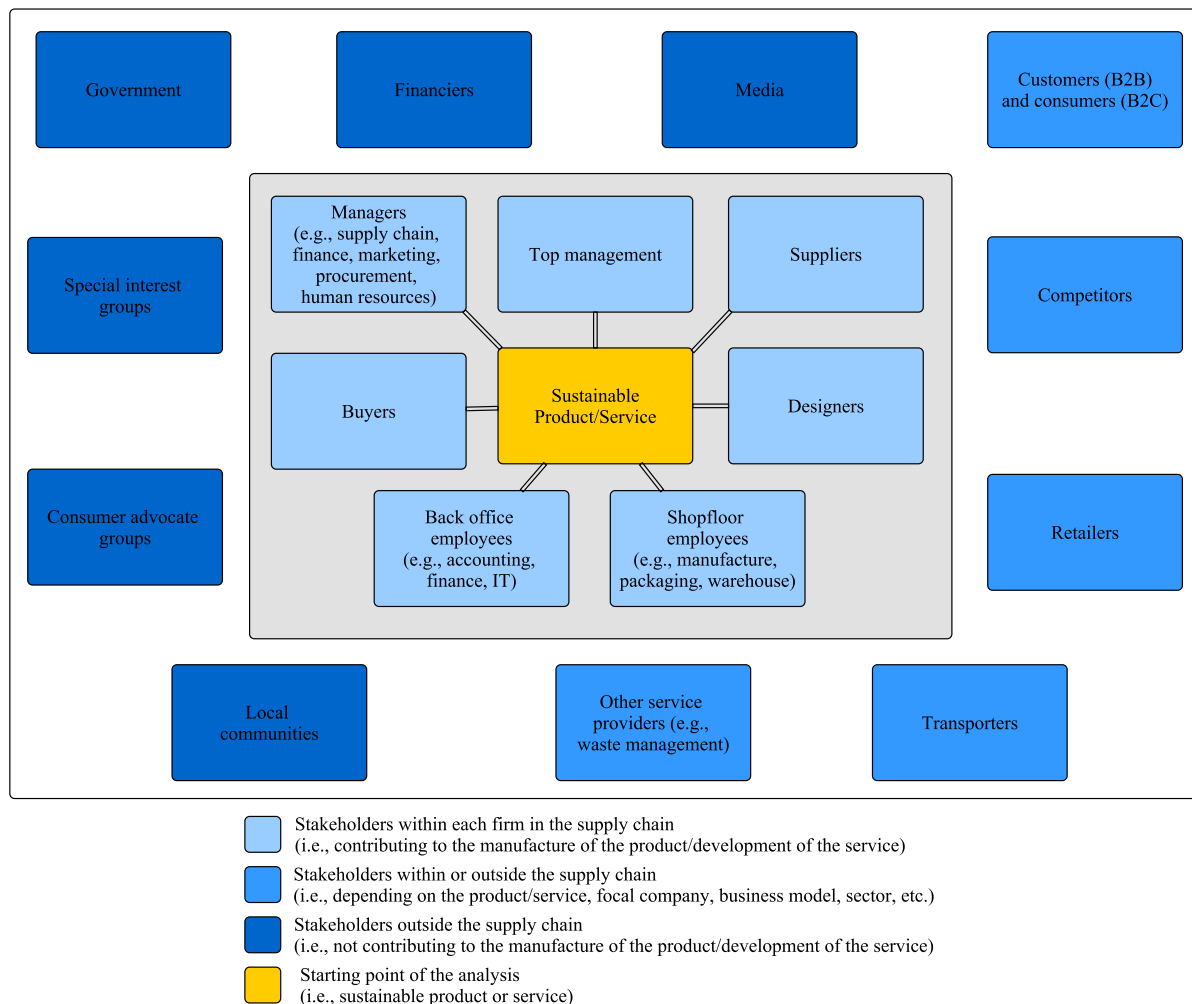


Figure 8: The Supply Chain View of Sustainability Management (Adapted from Fritz, 2022b, p.5)

By identifying stakeholders who are affected or affect SC sustainability, I argue one can understand and identify more holistically the sustainability challenges along the SC. This SCV is further illustrated in Fritz (2022b) with concrete examples such as the electric car SC. In each example, I clearly distinguish stakeholders from upstream, within the focal firm, downstream the SC, and outside the SC to highlight a more individual approach of SSCM. Indeed, SSCM heavily relies on the individuals who take decisions for SSCM.

However, judging the sustainability of a decision is also a matter of individuals' ethics, which is understudied in SC research. Research in SCM focuses on the sustainability of SCs

as a network of organisations, often ignoring the individuals within them. However, decisions for or against sustainability are taken by individuals such as executives, SC managers, or other managers and departments, depending on the firm. It therefore seems necessary for research in this field to deepen our knowledge on these decisions: who takes decisions related to SSCM? how are these decisions made? Given that ethical decisions are decisions that are considered acceptable by society (Bowen, 1953) and that members of the society increasingly want sustainable products, companies, and SCs (Damberg et al., 2023), I therefore propose to study how ethical decision-making can contribute to improving the sustainability of SCs, while acknowledging the limits of this proposition as well (mainly cultural settings and lack of global standards). I develop this theme in Axis n°2 by mobilising the concept of sustainability mindset and theories and tools from the field of ethics.

Axis n° 2 - The role of ethics as an individual approach to develop a sustainability mindset to manage supply chains sustainably

In Axis n°2, I will examine the role of ethics, which I consider as an individual approach that can support the development of more sustainable SCs. It is important to note that I differentiate between “ethics” and “business ethics”. Indeed, *“ethics is concerned with the study of morality: practices and activities that are considered to be importantly right or wrong, together with the rules that govern those activities and the values to which those activities relate”* (Mullins, 2010, p.722). Ethics is part of each individual and can affect the organization, the SC, and stakeholders at large. Studying individuals’ ethics and decisions is relevant *“because of their effect on people in organisations, as well as people outside organisations who are affected by the choices made by the people in organisations. [...] the ethical aspects of organisational behaviour are too important to ignore”* (Mullins, 2010, p.717). As underlined also by Treviño and Nelson (2011, p.19): *“business ethics is essentially about human behavior. [...] By understanding human behavior in an organizational context, we can better understand and manage our own and others’ ethical conduct.”* Business ethics is an example of individuals’ applied ethics in business, as stated by Mullins (2010, p.718):

“just as medical ethics is about the application of general ethics to the human activity called medicine. [...] This particular application of ethics, however, is also complicated by the fact that ethics mainly deals with good or bad conduct on the part of individuals, resulting in possible difficulties in applying these ideas to impersonal corporate entities like companies. Is it appropriate to regard companies as if they were individual people [...]? Or, can the subject be satisfactorily seen as relating to the conduct of individuals as employees of businesses?” (Mullins, 2010, p.718).

Following Mullins’ (2010) questions in the latter quote, I consider that it is not appropriate to assimilate companies to individuals. Indeed, “business ethics” is in a way a “humanization” of businesses. Ethics is a human specificity where individuals behave and take decisions based on formal and informal rules and norms, on preferences, and on expectations. When studying ethics in business, I believe it is more appropriate to refer to individuals’ ethics as employees of businesses. By moving from the organization level to the individual level, I argue that it is possible to empower individuals to become change makers and to improve the sustainability of businesses and the SCs they are embedded in. This is what I explore in this HDR with the application of the Sustainability Mindset approach (Rimanoczy, 2021) to the context of SCM.

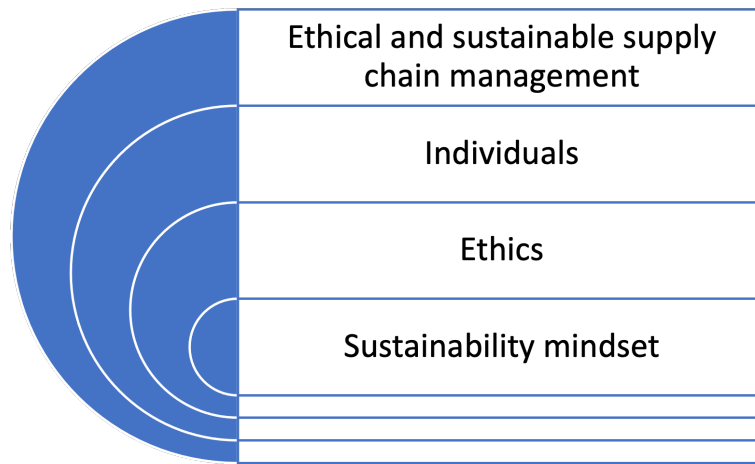


Figure 9: Relations between individuals, ethics, the sustainability mindset and ethical and sustainable supply chain management

Figure 9 reflects my interpretations of where ethics is in SSCM. Ethics refers to the norms, values, and beliefs of individuals. These individuals bring their own ethics in businesses through their role of employees. In their employee role, they sometime experience conflicting values and norms with the rule of conduct defined by the firm (e.g., in a form of Code of Conduct). However, when it comes to developing sustainable SCs, individuals' ethics needs to focus on economic, environmental, social aspects of decision-making that will affect stakeholders, which is part of the sustainability mindset. Hence, if individuals are trained to develop their sustainability mindset (which is part of individuals' ethics) and encouraged to do so, I argue that SCs have greater chances to be ethical and sustainable.

To do so, in this section, I focus on the individual level of the SC (Sarkis, 2022, p.5), meaning the individuals who contribute to its functioning and who take strategic and operational decisions to make SCs more sustainable. It is therefore a question of studying how individuals, through their values, norms, and beliefs at top management and other levels in the focal firm (i.e., operational level), can stimulate or hinder the sustainability of SCs. An individual approach to SSCM is essential since:

“in practice and in research, sustainability can easily get bounded in what is best for man, and not necessarily what is the best for the natural environment. [...] If humans destroy the natural environment, they are destroying themselves and their social and economic systems” (Sarkis, 2022, p.1).

In the SCV I developed (Fritz, 2022b), the individual approach corresponds to the level “within the focal firm” but can be transferred to any other firm or stakeholder organisation that plays a role in the SC (e.g., suppliers, customers, governmental organizations). Indeed, the SCV complements the stakeholder theory by adapting essential elements of this theory to the SC context, as illustrated in Figure 8.

To identify SC stakeholders with limited bias and risks of omission, I argue that placing the product or service at the centre of the identification process is an alternative to traditionally customer or firm-centred approaches (Fritz, 2022b; Fritz et al., 2018; Fritz et al., 2016). Indeed, the SCV necessarily reveals all the departments where individuals take part to the design/production/financing of the product/service within each firm that is part of the SC. Then, from an institutional perspective, it also highlights stakeholders that are outside the SC by looking at who outside the SC can have an influence on the product/service or be impacted by the related SC activities. This approach aims at similar objectives as Sarkis' (2022) framework such as the need to highlight the importance of individual decision-making among different departments of each firm/organization that belong to the SC or is outside the SC. Indeed, SSCM does not concern only the procurement department, but also the marketing⁵, engineering⁶, finance, or HR departments (Jabbour and Jabbour, 2014), among others, without forgetting the shopfloor workers (as highlighted in Fritz and Ruel, 2023, on the basis of 30 interviews with SC managers and consultants), or truck drivers (Peters et al., 2021), the latter being one example of SC stakeholders' unheard voices, and sometimes victims, of humans' unsustainable production and consumption patterns.

Thus, in this Axis n°2, we will first highlight how ethics is used in management science and how ethics can help make more ethical and sustainable decisions in business (sub-axis n°2.1). Second, we will underline how ethics in management science can support the development of more ethical and sustainable SCM (sub-axis n°2.2). Third, a focus will be set on developing a sustainability mindset to improve ethics and sustainability in SCM (sub-axis n°2.3). All these sub-sections take an individual approach to SSCM.

⁵ one of the students I supervised in his Master Dissertation in 2023 clearly showed the impacts of marketing on SSCM efforts based on the case of his company

⁶ I heard testimonies of engineers on the role they feel they have or unethical practices they heard of regarding SSCM and I used these as case-studies in the course I created, "Ethical supply chain management", run for the first time in 2023

Sub-axis n° 2.1.: Ethics in management sciences

Before entering the topic of ethics in SCM, it is necessary to clarify what ethics means. Since ethics is a “multifaceted concept” (Cliffe and Solvason, 2021), Table 2 presents some of the definitions one can find of the term.

Table 2: Some definitions of the multifaceted concept of ethics

Definition of ethics	Reference
“The word “ethics” is derived from the Greek word “ethos” meaning conduct, customs or character and ethics can be described as the application of morals to human activity. Ethics is therefore, the application of moral theories to the analysis of practical problems.”	Manning et al. (2006, p.358)
“Ethics is circumscribed as all human action aimed at securing a good life”	Journal of Business Ethics (2023, N.A.)
“Derived from the Greek word “ethos”, which means “way of living”, ethics is a branch of philosophy that is concerned with human conduct, more specifically the behaviour of individuals in society. Ethics examines the rational justification for our moral judgments; it studies what is morally right or wrong, just or unjust.”	Government of Canada (2023, N.A.)
Ethics (of care) “is a species activity that includes everything we do to maintain, continue and repair our world so we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web.”	Fisher and Tronto (1990, p.40)
“Ethics refers to standards and practices that tell us how human beings ought to act in the many situations in which they find themselves - as friends, parents, children, citizens, businesspeople, professionals, and so on. Ethics is also concerned with our character. It requires knowledge, skills, and habits.”	Markkula Center for Applied Sciences (2023, N.A.)
“Ethics refers to both moral principles and to the study of people’s moral obligations in society.”	McCombs School of Business (2023, N.A.)
“Ethics is more than a mere description of what people do; more even than a description of what they believe they ought to be doing to be decent, just and good.”	Bauman (1995, p.10).

“Ethics is a specific set of principles, values, and beliefs that govern the behaviour of individuals or groups. Ethics guide our practice, recognize our responsibility, inform our decision-making, and help us navigate moral dilemmas.”	Whitehead and Aviles (2018, p.5)
“Ethics is about mattering, about taking account of the entangled materializations of which we are a part”.	Barad (2007, p.384)
“Ethics is a call and practitioners are invited to respond; but how, and in what way, remain personal choice.”	Cliffe and Solvason (2021, p.113)

As underlined by Cliffe and Solvason (2021), definitions of ethics are often binary and simplistic, limited to the distinctions between what is good or bad behaviour or decision. However, it is not possible to generalize and state what is right or wrong (St Pierre, 2000; Mullins, 2010). Indeed, as stated by Bazzul (2018, p.474): “*there is literally an infinite number of ways of living and being ethical*”. These ways of living and being ethical can be explained by various ethical theories. To echo Manning et al.’s (2006, p.358) definition of ethics, the field of ethics gathers a variety of moral theories such as utilitarianism, ethics of duties, virtue ethics, or postmodern ethics, among others, as summarised in Fritz (2022a). For the purpose of this HDR, I will not dig into each ethical theory and its implications for SSCM, which is an area for future research development. However, it is important to understand the distinction between consequentialist and non-consequentialist theories to understand the arguments in sub-axis n°2.2.

Consequentialist theories are approaches that guide individuals to behave or take decisions based on their consequences. The most common theory in this regard is utilitarianism, which can be defined as “*A theory that states that an action is morally right if it results in the greatest amount of good for the greatest number of people affected by the action*” (Crane and Matten, 2016, pp. 93–125). Non-consequentialist theories are approaches that recommend to follow the rules or principles in a society, such as: ethics of duties, defined as “*ethical theories that consist of abstract, unchangeable obligations defined by a set of rationally deduced a priori moral rules, which should be applied to all relevant problems*” (Crane and Matten, 2016, pp. 93–125); virtue ethics, which is “*a theory that contends that morally correct actions are those undertaken by actors with virtuous characters, and that the formation of a virtuous character is the first step towards morally correct behaviour*” (Crane and Matten, 2016, pp. 93–125); or postmodern ethics, which is “*an approach that locates morality beyond the sphere of rationality in an emotional ‘moral impulse’ towards others. It encourages one to question*

everyday practices and rules and to listen to one's emotions and 'gut feelings' about what is right and wrong" (Crane and Matten, 2016, pp. 93–125).

The most common approach in management science is consequentialism, where the consequences of an action or decision taken by an individual or group of individuals in a firm can be quantified and justified by facts and figures (Mullins, 2010). Utilitarianism implies that the greater good is what matters the most and thus leaves the door open to negative externalities that affect minority groups of individuals. For instance, although I did not dig into ethics at this time, I show that regulations such as the Minamata Convention on Mercury, which aims at regulating and ultimately eradicating the use of mercury in various industries worldwide, is to some extent a "good" approach since mercury use is a source of contamination of water and of the food chain, which concerns all Humans around the world. However, it can also be thought as a "bad" approach since artisanal and small-scale gold miners, who are the largest users of mercury and struggle for their living, often do not have cheap alternatives (Lara-Rodríguez and Fritz, 2023; Fritz and Lara-Rodríguez, 2022; Fritz et al., 2016). This example can be classified under the utilitarianism theory, a consequentialist theory, or the ethics of duty theory, which is a non-consequentialist theory that consists of: *"abstract, unchangeable obligations defined by a set of rationally deduced a priori moral rules, which should be applied to all relevant problems"* (Crane and Matten, 2016, pp. 93–125). The issue with a non-consequentialist view in this example, is that negative externalities (e.g., creating barriers for small-scale miners and their community to earn their living) are undermined. Both consequentialist and non-consequentialist theories are important, and both can be used in every-day life and in business, but they may lead to very different and sometimes contradictory results (Mullins, 2010). For this reason, *"ethical awareness [must be] cultivated and the different perspectives will often help to shed light on a particular dilemma"* (Mullins, 2010, p.723). Such awareness raising is related to the need to train and practice ethical decision-making among individuals and within organizations, which is, I argue, one path to improve sustainability management in SCs (see sub-axis n°2.2). Indeed, as argued by Solvason (2016, pp. 45–46) *"ethics is not something to be taught but embraced"*, and training programmes should recognize ethical decision-making as a competence, as any other professional competence (Solvason, 2016; Cliffe and Solvason, 2021), including for SC managers.

Nonetheless, ethical decision-making in firms is often centred around an ethical code of conduct (Helin and Babri, 2015) rather than part of training programmes aiming at training individuals working at the firm. These firm or industry ethical codes can guide practitioners but do not explain how to take an ethical decision and how to deal with personal values that

sometimes are in conflict with the firm’s ethical code, because of, for example, managers’ or customers’ requests (Mullins, 2010). As stated by Powell et al. (2012, p.45), “*ethical codes can never be more than a starting point because there will always be ambiguities and complexities in research*”. Indeed, ethical codes can be assimilated to light regulations, and as shown by Treviño and Nelson (2011, p.20), regulations are only the formalization of ethics, law “*is reflecting society’s minimum norms and standards of business conduct*” but does not represent the entire ethics of a society since “*many standards of conduct are agreed upon by society and not codified in law*” (Treviño and Nelson, 2011, p.20). Similarly, many standards of conduct are agreed upon in firms but are not formalised in an ethical code. As illustrated by Treviño and Nelson (2011, p.20), ethical decision-making in firms depends on both personal and organizational pressures, and before being able to behave ethically, one needs to be ethically aware and able to make an ethical judgment (see Figure 10).

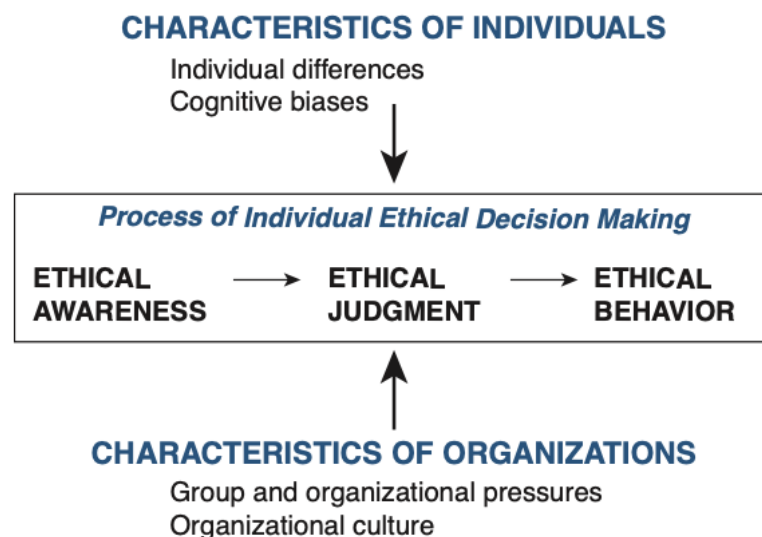


Figure 10: The Ethical Decision-Making Process (Treviño and Nelson, 2011, p.20)

Overall, I consider that ethics should be integrated into all management fields rather than considered as a separate field of study only, especially when referring to teaching ethics in management education (Melé, 2008). Nevertheless, ethics has been investigated to a limited extent in SCM and even less in relation to SSCM (Fritz et al., 2022c). When I presented the first outcomes of the structured literature review on ethics in SSCM at EurOMA conference in 2022 in Berlin, it was the first time I saw a room full of researchers, to the point that there were not enough seats and people had to stand, which reveals a strong interest from the research community on the topic. One may thus wonder, given the importance of ethics in business research, whether ethics could serve the development of more ethical and sustainable SC. Indeed, if the majority of individuals on earth understand and believe that climate change is an urgent matter (awareness has been raised for several years with for instance the Ellen Mc

Arthur Foundation encouraging a circular economy⁷, or the goals set by the European Union to become climate neutral by 2050⁸), individuals then need support to be able to make an ethical judgment about their ethical decisions or behaviour (for instance regarding their purchasing habits), which will then allow them to develop or strengthen their ethical behaviour, following Treviño and Nelson (2011)'s process of ethical decision-making. From a virtue ethics perspective, if all individuals contributing to SCM activities would be aware of climate change and make decisions or behave in a way that does not contribute further to climate change, this would support the development of more sustainable SCs. However, as seen in the introduction with the planetary boundaries, climate change is just one of the biggest challenges on earth. Given the fact that there are nine planetary boundaries and that all of them are necessary to ensure Human survival, further research should also look at how SCM can contribute to limiting the impacts on these other boundaries for instance. Additionally, how to raise such awareness in the context of SSCM and how to support individuals in making an ethical judgment? This question is to be studied and some response elements are given in the next sub-axis n°2.2. and sub-axis n°2.3.

Sub-axis n° 2.2.: How can ethics serve the development of SSCM?

After analysing some of the main ethical theories in management science in sub-axis n°2.1 and understanding that ethical decision-making is a process that first requires ethical awareness and ethical judgment, which then allows ethical action or behaviour, we will explore further what determines an ethical behaviour and we will derive implications for SSCM.

According to Badenhorst (1994, p.743), the most important factors that support ethical decisions are: 1) Individual's personal behavioural code; 2) Behaviour of company's managers; 3) Formal company policy; and 4) Behaviour of colleagues. However, these factors and additional ones can also lead to unethical decisions namely: 1) Behaviour of company's managers; 2) Ethical climate in the industry; 3) Behaviour of colleagues; 4) Absence of company policy; or 5) Personal financial position. Indeed, individuals' ethics is "*guided by certain intrinsic rules (e.g. norms, values, or beliefs), which are largely culturally derived*" (Ferrell and Gresham, 1985) and we have seen in the previous sub-axis 2.1. that cultural pressures in a business context can stem from the individual's environment and from the firm (Treviño and Nelson, 2011).

⁷ <https://ellenmacarthurfoundation.org/> (accessed 8th October 2023)

⁸ <https://www.consilium.europa.eu/en/policies/climate-change/#:~:text=Under%20the%20European%20climate%20law,EU%20climate%20neutral%20by%202050> (accessed 8th October 2023)

According to Davies and Crane (2003), ethical decision-making is a vast research field in business, where several models have been developed and discussed, especially in management (Treviño, 1986; Jones, 1991) and marketing (Hunt and Vitell, 1986; Ferrell and Gresham, 1985). According to Loe et al. (2000), the model developed by Jones (1991) is the most comprehensive one to understand ethical decision-making processes. Hence, we briefly illustrate and explain this model in the following (Figure 11).

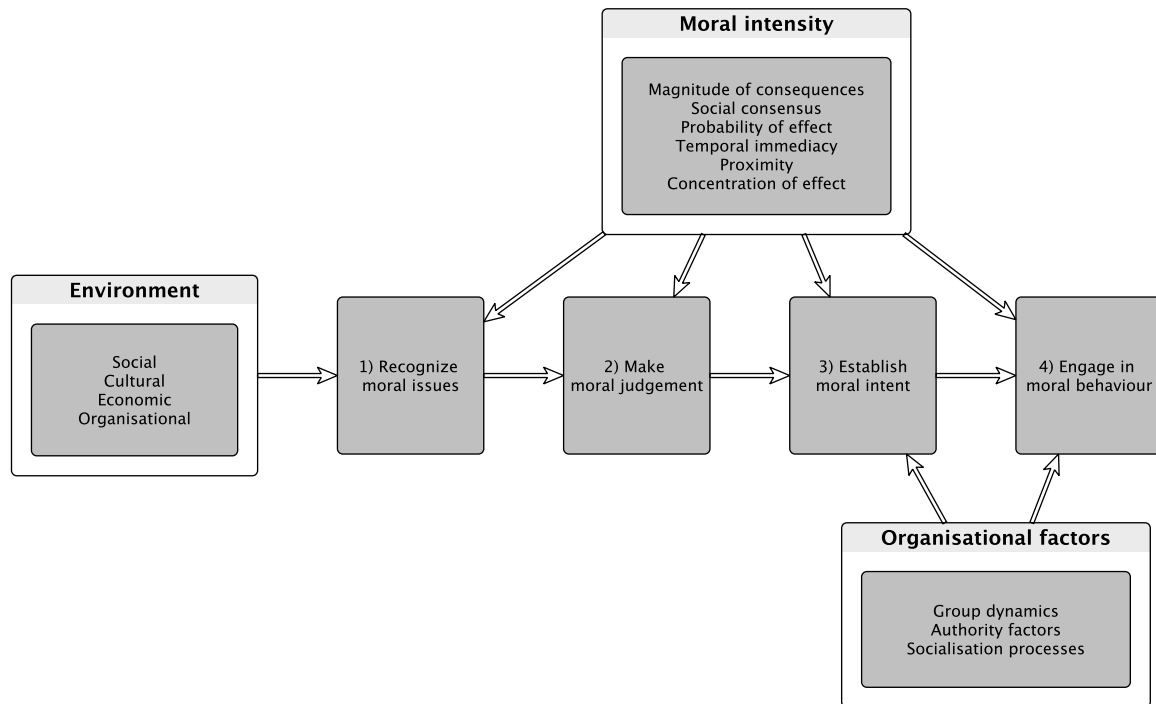


Figure 11: An issue-contingent model of ethical decision-making in organizations (adapted from Jones, 1991)

Jones (1991)' model is applicable in the organisational context (e.g., a firm) and consists in four main stages numbered from 1 to 4 in Figure 11. The "Environment" and "Organisational factors" influence the decision process as they help determine what is right or wrong. Ethical decision-making in an organization context can be defined according to Thompson (1995, p.185) as:

"a multifaceted social process that entails interpretations regarding the nature of the ethical issue, a corresponding definition of the community of concern, and the recognition (or overlooking) of various, and potentially competing, stakeholder interests."

Jones' model integrates the cultural aspects as part of the environment that guides individuals in their decision-making, which is not always the case in SSCM research, as found in Fritz and Silva (2018). However, the regulation and environmental (in the sense of Nature) factors are

not explicitly integrated in this model, although they represent important factors in decision-making processes, especially in SSCM (Fritz, 2022b; Seuring and Müller, 2008). Fergusson et al. (2020) use Jones' (1991) model to develop a framework of moral intensity in the SC considering the TBL dimensions and illustrate it with the example of a retailer that withholds payments to its suppliers. However, this research is conceptual and illustrated by dyadic relations and behaviours between retailers and suppliers, thus it does not account for the whole SC (from raw material providers until end-consumers and product end-of-life management), which hinders the development of a holistic view of SCM as seen in Axis n°1. Further research is needed, which considers the effects of moral intensity on consumers, associations, or competitors for example. Further research is needed regarding the use of more comprehensive approaches to sustainability than the TBL as well, as Elkington (2018) withdrew this concept. To the best of our knowledge, limited research has investigated the elements represented in Jones' (1991) model in the SSCM field, especially not the moral intensity and organisational factors. Some of these elements may be linked to the emerging research stream on the social dimensions of SSCM as argued by Fergusson et al. (2020). We recognise that research on the social dimension of SSCM is limited, and we argue that more mobilisation of ethical research and theories could contribute to fill in this gap.

In a SC context, Manning et al. (2006, p.359) define ethics as:

“the application of values and principles to organisational issues and decision making to determine what actions to take. Ethical issues may well involve a degree of uncertainty and require a decision between several, sometimes competing, values or alternatives. Ethical decision making will be influenced by a number of factors including: legislative compliance; national ethical standards, for example, differing standards on animal welfare; organisational culture; and the interaction of varying organisational cultures in the supply chain.”

In addition, the same authors define ethical impact according to the ISO 14001 of 2004 as: *“any ethical influence whether adverse or beneficial, totally or partly resulting from an organisation's activities, products or services.”* In these definitions, one can note that no reference is made to individuals as ethics is considered at an organisation level. Furthermore, beyond legislation, which defines what is legal and what is not, ethics allows to identify what is “right” and what is “wrong” and as a consequence, the different and sometimes contradicting views of supply chain stakeholders need to be considered to develop more ethical SC (Manning et al., 2006). As argued by Ha-Brookshire (2017) with the moral responsibility theory of sustainable SCs, a SC can only be sustainable if the organisation and all the individuals in it

have a moral sense. In order to develop this idea, we use the concept of sustainability mindset, which contributes to the development of a moral sense of sustainability in the actions and behaviours of individuals (see sub-axis n° 2.3).

By taking the example of the food industry, Early (2002) underlines that ethics in this industry is the reflection of organisations' leaders in this sector. We have seen with Badenhorst (1994) that manager's behaviour is the first reason that leads individuals working in a firm to take unethical decisions. When transferring this idea to SCM, it appears that a focus on SC managers and top management in general is a key starting point to develop more ethical SC. I have contributed to investigating this idea by studying gender diversity in SCM (Kuzey et al., 2022). Gender diversity contributes to more sustainable and ethical SC, as for instance women tend to follow rules better than men (Ruel and Fritz, 2021). However, policymakers (who are stakeholders outside the SC) need also to be engaged and fully aware of the ethical consequences of the legislations they vote for and the decisions they make given their driving role for SSCM (Seuring and Müller, 2008) and the potential unfair or unethical consequences of their decisions as I underline in a book chapter on SC resilience in the post-COVID era (Fritz, 2022a). Like SC managers, policymakers need to be trained to ethical reasoning (Manning et al., 2006). In this sense, Manning et al. (2006) further highlight an important issue regarding other stakeholders, especially the consumers or the overall society, who will need to cover the costs (e.g., pay a price premium) for more ethical goods and services to allow ethical SCM to be "effective and sustainable" (Manning et al., 2006, pp.368–369). In this regard, one may wonder if it is fair to focus on consumers to bear the costs of ethical SCM? Which other stakeholders could make an effort to share this cost and eventually make ethical products become the norm instead of being only accessible to the consumers who have the greatest purchasing power?

In the work currently conducted with Lee Matthews and Amitabh Annand (a structured literature review on ethics in SSCM – Fritz et al., 2022c), we can already state that almost no research paper in SSCM that claims to address ethics in SSCM uses an ethical theory as a lens. Consequently, there is to date a lack of research on what ethical SCM means and what ethical theories can bring to SSCM. Several publications address the topic of "ethical sourcing" or "Corporate Social Responsibility", which are part of SSCM but do not represent the entire SCM and operations activities (Fritz, 2022a), thus do not contribute to the necessary holistic view argued for in Axis n°1. As a starting point, knowing which ethical theories exist and applying them to SSCM will support a better understanding of how decisions are made in and for SSCM (Fritz, 2022a), taking into account all SC stakeholders, which reinforces my previous research on the importance of identifying SC stakeholders and institutions (e.g., Fritz, 2022b; Fritz et al., 2018).

Ethical decision-making in SSCM is incipient and is one of the research gaps I aim to contribute to in this HDR and future research projects. One of the oldest contributions to the field dates back to the 90's with Cooper et al. (1997). Most of the research on ethics in SSCM relate to one specific SC function: the procurement (Fritz, 2022a); but limited contributions delve into business ethics theories, other SC functions, or other levels (in the sense of Sarkis, 2022) in SSCM research, as investigated in our on-going structured literature review on ethical SCM (Fritz et al, 2022c). Furthermore, little recommendations are provided for practitioners or future research avenues for researchers. In the following, we review the main contributions to ethical decision-making in SSCM.

Cooper et al. (1997, p.192-193) identified ethical issues that purchasing and SCM people need to handle. They refer to the importance of ethical behaviour and personal values, the increasing complexity of ethical dilemmas and supplier selection or assessment in a context of globalization, the variety of factors that affect ethical decision-making (e.g., firm policy, working environment, professional association's codes of ethics and meetings, cosmopolitan versus local working style). They identify 44 ethical issues among which:

- *“failure to provide products and services of the highest quality in the eyes of the internal/external customers”;*
- *“failure to provide prompt, honest responses to customers inquiries and requests”;*
- *“false or misleading representation of supply requirements or interest in discussions with suppliers or others”;*
- *“allowing personalities to improperly influence the buying decision”;*
- *“showing partiality toward suppliers preferred by upper management”;*
- *“misuse of sensitive information belonging to suppliers or others”;* or
- *“lack of knowledge or skills to competently perform one's duties”.*

These are concrete examples of ethical issues in SC and purchasing management. My recent contribution to the “Handbook of Research on Supply Chain Resiliency, Efficiency, and Visibility in the Post- Pandemic Era” (Fritz, 2022a, pp.402–422) complements these issues within the COVID-19 crisis, where I highlight the following ethical issues in SCM:

- *“the pandemic resulted in job losses in various sectors around the world, which pushed the most vulnerable people to sometimes work in the black market”;*
- *“increased demand for specific products, such as toilet paper, masks or antibacterial gel, also caused higher pressure on workers to satisfy the demand, thus deteriorating working conditions”;*
- *“audits on supplier sites being reduced or postponed due to sanitary reasons”;*
- *“increased use of unethical recruitment practices”;*

- “Significant salary drops have also been reported in the garment industry in developing economies, forcing workers to borrow money or indebt themselves to satisfy their basic needs”;
- “Suppliers’ desperate situations have given buyers strong bargaining positions that have led them to make unethical requests of their suppliers”.

As a result, like Seuring and Müller (2008) identified triggers for SSCM, I proposed a framework to represent the triggers for ethical SCM that takes into account the individual (micro) level through employees working in operations, management and governance levels; the meso level with the SC as a whole; and macro level by including pressures and incentives from external SC stakeholders, providing a holistic view of ethical SCM (Figure 12).

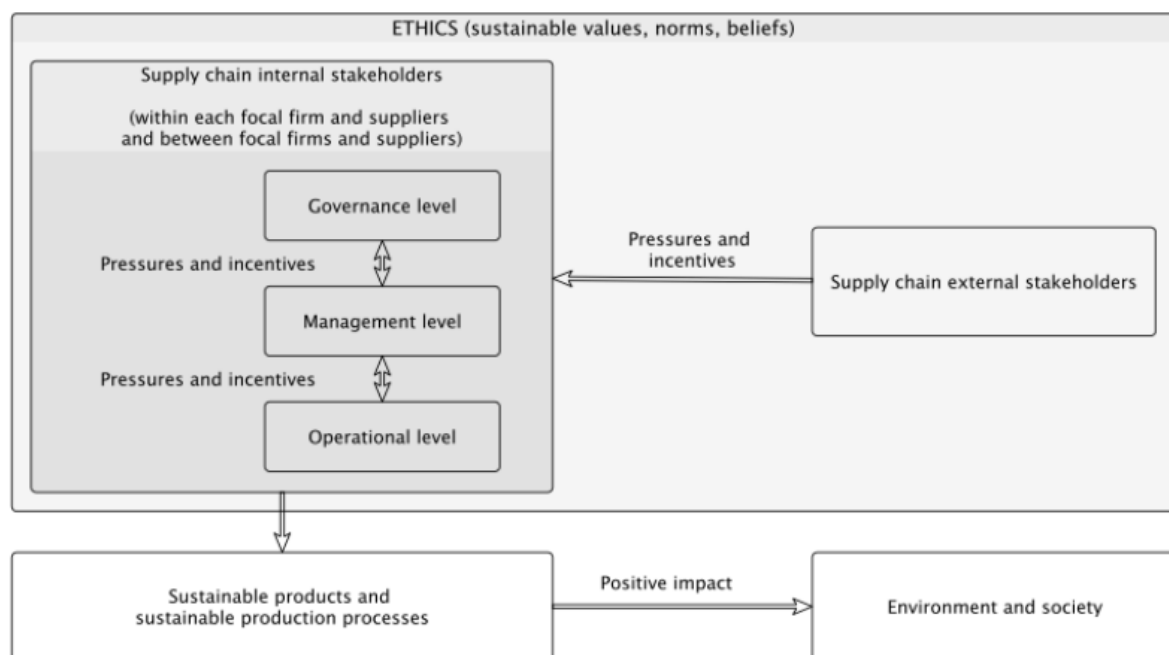


Figure 12: Triggers for ethical supply chain management (Fritz, 2022a)

Cooper et al. (1997, p.192–193) also identified several levers to facilitate ethical decision-making such as:

- “personal moral values and standards [...]”;
- “the fact that [the] immediate supervisor does not pressure [the professionals] into compromising [their] ethical standards”;
- “a management philosophy in [the] organisation which emphasizes ethics in operations”;
- “[the] organisation’s policy for ethical conduct in purchasing”;
- “ability to go to [the] supervisor for information and advice on ethical issues”;

- *“family and friends who provide support and insight for [the professional] in resolving ethical conflicts.”*

Their study also points out the lack of ethical trainings and the absence of a department to which ethical issues can be reported (which is necessary for a successful ethical culture according to Treviño and Nelson, 2011, especial in large firms). Among the fiercest challenges, high level competition in the industry; lack of training on ethics; colleagues’ unethical behaviour or demands; managers’ concerns limited to personal losses or gains; or a focus on end results instead of ethics in employee performance measurement, were highly ranked. This study hence highlights the multi-level perspective necessary to enhance ethical decision-making in SCM: individual, organisational, and inter-organisational (as illustrated in Figure 4 based on Sarkis, 2022) as well as factors outside the SC (individuals’ environment).

Later on, Davies and Crane (2003), two well-known researchers in the field of business ethics, studied ethical decision-making applied to fair trade. Fair trade is related to upstream SCM, as it can be one criterion to select suppliers or a tool to develop suppliers to fit with the procurement department’ requirements. From their case-study, Davies and Crane (2003) emphasize that fair trade is not only a charitable approach for firms to gain legitimacy or fulfil their mission, it must also enhance company profits and growth. They also highlight the need for all employees to have a fair-trade mindset and the importance of moral intensity and ethical codes of conducts regarding issues to handle ethical decision-making. According to them, employees working in fair trade companies might have a “moral curtain” regarding, for instance, cooperation with unethical retailers, or partnering with unhealthy organizations since the aim of fair trade is primarily to support farmers upstream the SC. This study underlines again the fact that ethical sourcing⁹ is not enough to create an ethical SC as it is limited to the upstream SC (Pagell et al., 2010; Kim et al., 2018) instead of the entire SC (from upstream until downstream) and I contributed to clarify this in an encyclopaedia article (Fritz, 2023, in press). In the development of empirical research, it would be interesting to investigate this concept of moral curtain with a holistic perspective of SSCM including for instance marketing, advertising, sales, retail and SC managers in this regard. This would enable to investigate ethical issues not only upstream the SC but along the entire SC to contribute to more holistic views of ethical and sustainable SCM.

Then Beamon (2005) digs further into engineers’ ethical decision-making to green the SC. She defines the concept of environmentally conscious supply chain management (ECSCM)

⁹ Defined by Pagell et al. (2010, p. 58) as *“Managing all aspects of the upstream component of the supply chain to maximise TBL performance”* or Kim et al. (2018, p.1033): *“Managing all processes of supplying the firm with required materials and services from a set of suppliers in an ethical and socially responsible manner”*

as: *“the control exerted over all immediate and eventual environmental effects of products and processes associated with converting raw materials into final products”* (Beamon, 2005, p. 221). She identifies that a focus in research has largely been set on product recovery or product design, letting other life-cycle stages aside such as the production itself, where engineers have however a crucial role to play to limit the negative environmental impacts of products and processes. The minimal ECSCM is taking care about *“safety, health, and welfare of the public”*, which can be extended to *“environmental stewardship”*, meaning: *“the responsible use of natural resources in a way that takes full and balanced account of the interests of society, future generations, and other species, as well as private needs, and accepts significant answerability to society”* (Worrell and Appleby, 2000, p. 263).

Beamon (2005) furthermore defines ethical supply as: *“the practice of providing goods and services to customers while subscribing to an ethical code”* (Beamon, 2005, p.221). However, the efficiency of an ethical code to be used along the SC has been questioned in several studies (e.g., Helin and Babri, 2015). Indeed, an ethical code is the main instrument for ethical management, followed by ethical audits and alert systems (Deslandes, 2012). They apply to an organisation, a profession, a sector, or a group of organisations (ibid.). However, they may be ineffective if they are developed by the top management only, if they are not well understood by employees, and if employees do not adhere to the ethical values that this code promotes (ibid.). Furthermore, Beamon (2005) undermines the variety of SC stakeholders by focusing on engineers, who are not the only responsible for SSCM: SC managers and shopfloor workers are also among the immediate stakeholders to involve in ECSCM. Finally, ECSCM focusses mainly on care for the environment, while an ethical SC should also foster the respect of Humans and bring benefits to society. Consequently, one further research area would be the definition and conceptualisation of a *“sustainably conscious supply chain management”* (SCSCM).

Beyond SC managers and engineers, other stakeholders have a role to play to support ethical decision-making in SCs. SC are embedded in socio-economic systems where several stakeholders need to be satisfied, where SCs have to face various inter-related sustainability challenges (Wieland, 2021; Fritz, 2022), and where regulations are among the main drivers for SSCM (Seuring and Müller, 2008). Hence, to promote ethical SCM, policymakers also need to integrate ethical decision-making in their processes and *“be able to understand and evaluate moral arguments, be fair-minded and make well-reasoned decisions”* (Manning et al., 2006, p.358). Overall, there is a lack of empirical research on ethical decision-making across many management sciences and a lack of studies on the topic across diverse industries, although the variety of ethical codes suggest that SC managers may face diverse ethical dilemmas (Wasioleski and Weber, 2008). In their literature review on ethical decision-making in SC,

Ferrell et al. (2013) found that the topic is very fragmented and lacks holistic approaches. They suggest a framework for ethical decision making in SCM (Figure 13) and highlight several important facts about the topic: 1) CSR and ethics are often used as synonyms in SSCM while they are not; 2) CSR and ethics are often studied from a narrow perspective on specific ethical issues such as fair working conditions or product safety (while ethical decisions also touch upon, e.g., reverse logistics, transportation, tracking); 3) it is a challenge for SC managers to diffuse a balanced ethical culture along the SC while maintaining the ethical culture of their organization.

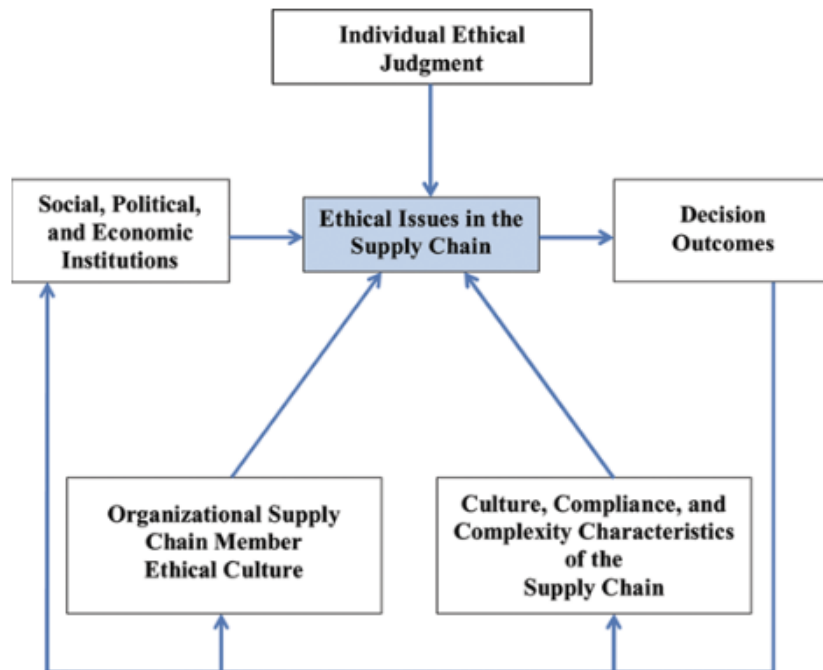


Figure 13: Supply chain ethical decision-making framework (source: Ferrell et al., 2013)

However, in the framework of Ferrell et al. (2013), which illustrates SC ethical decision-making (Figure 13), the importance of SSCM does not appear. In their research, the responsibility for ethical decision-making is appointed to SC managers. Also, the upper part that takes into account individuals only refer to “ethical judgments” but we have seen that ethical judgments requires ethical awareness too (Treviño and Nelson, 2011; Jones, 1991). Furthermore, this framework describes how an ethical decision-making occurs in an organization building upon Ferrell and Gresham’s (1985) model, but to build an ethical SC, there is a need to take a broader network perspective that includes SC and non-SC stakeholders (Wieland, 2021; Fritz, 2022b). I argue that in order to develop an ethical and sustainable SC, ethics and sustainability need to be diffused among all employees and stakeholders within the firm, within the SC and outside the SC (see Fritz, 2022b). How to reach such a diffusion remains to be studied though, and in today’s context of unsustainable production and

consumption patterns, there is a need to conduct more action/activist research to propose solutions and tools for current and future SC managers, that can be implemented as soon as possible given the increasing pressure Humans put on the planetary boundaries. As stated by Ferrell et al. (2013, p.276-277):

“more needs to be known about how ethical decisions are made in SCM and what should be the mutually shared principles, values, and norms. [...] Supply chains often operate across many cultures and institutional environments, but there needs to be shared values to achieve desired conduct.”

Whether mutually shared principles, values, and norms are possible in SCM, and which ones, remains to be studied as well. Also, one may wonder if this is desirable since recognising a common set of acceptable principles, values, and norms would lead to a simplistic and binary view of ethics by determining what is “right” or “wrong”, which was criticized and considered impossible by a number of researchers in ethics (Cliffe and Solvason, 2021; St Pierre, 2000; Mullins, 2010; Bazzul, 2018).

To answer the question of how to support ethical decision-making in SCM to support the development of more sustainable SCs, I believe one of the main levers is through awareness raising and training. This means that more research is needed to dig into theoretical underpinnings linking both management sciences, but also to analyse real-world case studies and eventually develop and test training programs for ethical SCM with a longitudinal approach and the use of pre and post survey instruments. Concrete tools exist that allow to solve ethical dilemmas such as the 8 steps suggested by Treviño and Nelson (2011, pp. 52–58): (1) Gather the Facts, (2) Define the Ethical Issues, (3) Identify the Affected Parties, (4) Identify the Consequences, (5) Identify the Obligations, (6) Consider Your Character and Integrity, (7) Think Creatively about Potential Actions, and (8) Check Your Gut. Developing a *“performance management process that supports ethical conduct”* is also a possibility to stimulate more ethical decision-making since *“people ‘do what’s measured and rewarded’”* (Treviño and Nelson, 2011, p.172). Nevertheless, the focus of such management processes should go beyond legal compliance and look for developing an ethical culture along the SC as stated by Treviño and Nelson (2011, p.245): *“Research has found that the best of these formal ethics management programs have an overarching values-based approach that incorporates legal compliance within the framework of a broader set of company values”*. They also add the importance of managers as role model, which corroborate previous research: *“Whether an organization is large or small, the keys to effective ethics management are commitment to ethics from the very top, involvement of leaders and employees at every level, and recognition that ethics management is an ongoing effort requiring continuous reinforcement and integration into the larger corporate culture”* (Treviño and Nelson, 2011, p.245).

In so far, several opportunities arise to determine how to develop more ethical SCs and how this can support the sustainability performance of SCs. However, most research going in depth on the topic does not consider the SC scope from a holistic perspective as defined in Axis n°1. Hence, to bring answer to the questions raised, further research is needed to identify all potential tools that would be appropriate to develop ethical decision-making in the SC context and to conduct action research with firms to test and validate the findings. Even educators in management institutions can have an early role to play by training future managers to ethical decision-making (Noel and Hathorn, 2014; Melé, 2008) in a SC context (which is what I tested and explain further in Axis n°3). Among the possible tools, the next sub-section will focus on the development of a “Sustainability Mindset” along the SC to support ethical decision-making and the development of more sustainable SCs.

Sub-axis n° 2.3.: Developing a sustainability mindset for ethical decision-making in SSCM

Taking into account the individual level of decision-making for SSCM necessarily relates to the study of individuals’ values, behaviours, norms, but also their knowledge and ability to recognize the impact of their decisions and behaviours. As stated by Sarkis (2022, p.6): “*The culture and mindset of different functions, similarly to those of individuals, may vary and careful investigation is needed*”. The concept of sustainability mindset, in this context, is helpful to move away from normative approaches like the TBL has become, and analyse individuals’ knowing, doing and being, which are the elements individuals base their decisions and actions on (Rimanoczy, 2021).

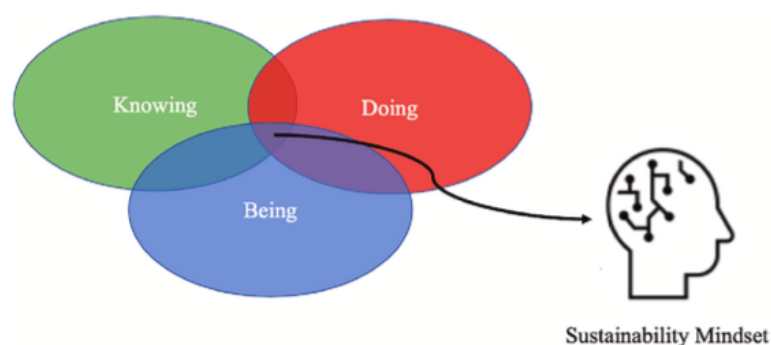


Figure 14: The three dimensions of the sustainability mindset (Fritz and Cordova, 2023, p.2 based on Rimanoczy, 2021)

This is the stance I take together with my co-author, Dr. Miguel Cordova from the Pontifical Catholic University of Peru. We are both members of the Principles for Responsible

Management Education (PRME) working group on the sustainability mindset, led by Isabel Rimanoczy, which is where we got to know each other. As underlined by Sarkis (2022), approaches based on individuals are linked to organizational environmental psychological perspectives, which implies eventually the need for more interdisciplinary research between psychology and SSCM, which has not been often pointed out, as far as I am aware of. Together with Miguel Cordova, we are at the beginning of our research in this field, and I am also working with Dr. Jure Erjavec from the University of Ljubljana to explore the relations between personality traits, the sustainability mindset of SC managers and SSCM.

In order to study this phenomenon, we will dig into behavioural sciences as encouraged by Pournader et al. (2022) and we will use psychological concepts, especially “ethical decision-making” in the context of SSCM and the “sustainability mindset”, which characterises the level of sustainability present in the values, norms and behaviours of individuals. The sustainability mindset (SM) aims to support the transition to more sustainable societies by positively changing the mindset of individuals (Rimanoczy, 2021). An SM can be achieved through the balanced development of three dimensions: knowing, doing and being. For example, individuals need to identify and understand the challenges of sustainability (knowing), and then connect with them - not only intellectually but also emotionally (being) - in order to improve their ability to make decisions for sustainability (doing). An SM is defined as:

“a way of thinking and being that results from a broad understanding of ecosystem manifestations, social sensitivity, as well as an introspective focus on one's personal values and higher self, and finds expression in actions for the greater good of the whole” (Kassel et al., 2018, p.7).

The SM is also a way to stimulate individuals' contributions to the SDGs through various exercises (Rimanoczy, 2022a, 2022b, 2022c, 2022d) and Sarkis (2022, p.4) stated that:

“SDGs have implications for all dimensions of sustainable supply chains, and sustainable supply chains have implications for each of the 17 SDGs”

Consequently, exploring how the stimulation or development of an SM in SCM can support SSCM constitutes a potentially significant research opportunity to support the SDGs, but one needs to pay attention to using the SDGs in SSCM wisely, and not simply to replace the TBL and make the SDGs become a new normative approach to develop sustainable SCs. Indeed, in a recent research paper written together with Dr. Liliane Carmagnac and Dr. Minelle Silva, where we interviewed different stakeholders from the SC of a multinational promoting the SDGs, we found that, in practice, the firm still uses its own indicators to assess the sustainability performance of its SC and SDGs are only a communication tool (Carmagnac et al., 2023, under revision). I believe the SM is a particularly suited approach because it stimulates individuals' thinking in ways that are relevant for SCM, such as “systems

perspectives” (Rimanoczy, 2021). Furthermore, it stimulates individuals’ “emotional intelligence” and “spiritual intelligence” (ibid.), which are, as far as I am aware of, ignored in SSCM research. Such perspectives in SSCM research could hence bring new knowledge and elucidate some of the barriers to SSCM.

According to Elkington (2020), companies can belong to three different movements: the "green swan" are those companies that seek to align themselves with the SDGs, the "grey swan" are those that are in transition or undecided, and the "black swan" are those that ignore the SDGs and challenges such as climate change. Thus, depending on the positioning and strategy of the company, it is more or less difficult to instil a sustainability mindset among the various employees of the focal company. This proposition is explored in a multiple case study in the electronics sector (Fritz and Cordova, 2023). Our case study shows that the sustainability mindset acts on three dimensions: "knowing", "doing" and "being" and we find in the secondary data we analysed on the Fairphone case, elements that correspond to these three dimensions, contrary to the three other companies analysed (hp, Sony, Lenovo). SC sustainability is at the heart of Fairphone's corporate strategy and communications. Through the case studies, we also identified the essential but understudied role of HRs in developing sustainable SCs, which is aligned with Jabbour and Jabbour (2016) on the topic of green SCM. Indeed, Fairphone's job advertisements insist in their looking for people with the same mindset, whereas the other analysed companies do not include any CSR or sustainability knowledge/experience criteria in SC or logistics positions. It therefore seems interesting to further investigate the relationship between HRs and SSCM, especially on the topic of SC sustainability training (Bentahar et al., 2022). This is a project that I have discussed with possible co-authors in HRs with the aim of conducting, firstly, a literature review on the inter-relations between HRs and SC sustainability and then, secondly, build upon this literature review with multiple case-studies including interviews and observation with SC managers and other departments in firms that we have yet to identify. Hence the sustainability mindset concept highlights interesting research opportunities, in particular through action research methods to test and demonstrate whether developing an SM among individuals participating in SCM activities can support the development of more SSCM. For example, such action research could take as a basis Rimanoczy's (2022a, 2022b, 2022c, 2022d) workbooks to develop pre and post-test related to the researcher's intervention. Such action research could also be led by educators in their classroom with students preparing for SCM job positions or executives within the context of “back to school” programmes such as proposed by La Belle EDuC¹⁰.

¹⁰ <https://labelleeduc.org/> (accessed 9th October 2023)

Also, further research could dig into other opportunities to change individuals' mindset towards a sustainability mindset. For instance, in social science, Bicchieri (2017) describes how individuals behave based on their own and others' beliefs, expectations or the social norm in place. She refers to "moral codes" as codes that *"regulate the behaviors that a society considers to be most important, including behaviors that directly or indirectly affect others"* (Bicchieri, 2017, p.31). Bicchieri (2017, p.35) furthermore defines a social norm as:

"rule of behavior such that individuals prefer to conform to it on condition that they believe that (a) most people in their reference network conform to it [...], and (b) that most people in their reference network believe they ought to conform to it [...]."

However, a norm is followed by individuals only if they are aware of it and if they believe a relevant number of other individuals follow the norm or believe it should be followed, with eventually sanctions in case the norm is not respected (Bicchieri, 2017, p.65–66). This being said, what if SC managers and other individuals contributing to SC activities would consider that sustainable decision-making is the most important? What if individuals would consider how they affect others and nature by their decisions and behaviour? Could sustainability be the basis for a social norm for all decision-making related to SCM, holistically? Bicchieri (2017, p.106–110) further explains that to change a norm, *"there must be shared reasons"*, which are a necessary *"prerequisite"*, as well as *"coordinated action"*. In SSCM research, one may thus wonder: what would be shared reasons to make more ethical and sustainable decisions in SCM? Would Human and the environment' safety be a "good" reason? If so, how to raise awareness and support individuals in making ethical and sustainable decisions for SSCM? These are research questions that provide avenues for future research that combine interdisciplinary views of SCM and social science. Nonetheless, the COVID-19 pandemic spotlighted several ethical issues along the SC such as unethical supplier treatment or buying practices in a context where business survival/profit-making was the priority (e.g., Dowling, 2021; Baldry, 2020). Such observations can lead one to think: is it worth to infringe ethical values because of profit-making? (non-consequentialist view). What are the consequences of unethical SC practices and are they acceptable? (consequentialist view). The various ethical challenges in SCM during the pandemic were among the reasons that motivated this HDR to shed light on the need to develop and train ethical decision-making in SCM, via, as suggested, the development of a sustainability mindset. Indeed, if any individual who has to make an ethical decision affecting the sustainability of the SC would be trained, or at least given time to pause and reflect according to different ethical decision-making tools as highlighted in sub-axis 2.1., I argue that SC would be closer to sustainability. Further research is needed to prove that, but in the Master course I created at Excelia that was directed to Master students in apprenticeship, meaning young professionals in their last year of Master studies working for a company while studying,

many of them highlighted that ethical issues are not discussed in their company. Nor did they know about any ethical code of conduct in their organisation. The priority is profit-making and customer satisfaction. One of them even confessed that his company has a policy for second-hand products (e.g., reselling at a lower price the products consumers returned because of minor defects) but when they accumulate, his manager tells him to throw them away to save space in the warehouse. In our research with Dr. Salomé Ruel, HDR on the definition of SSCM for practitioners (Fritz and Ruel, 2023), we also observed such unethical behaviours, despite the firm's communication on its sustainability engagement. Consequently, it seems relevant to conduct action and activist research (Touboulic and McCarthy, 2020; Fritz et al., 2022e; Touboulic and Walker, 2016) with practitioners to study their decision-making processes before and after being trained to develop their sustainability mindset. To some extent, it is known that purchasing managers have a role to play to make SC more ethical and sustainable (Goebel et al., 2012; Sancha et al., 2019), but as seen in the previous axis, SSCM should extend to other stakeholders within and outside the SC. Overall, there is a lack of research on ethical concerns of SC managers and other employees (Jabbour, 2015).

Conclusions on axis n°2

To conclude on Axis n°2, developing an SM within the focal firm and along the SC to enhance SSCM can take different forms and requires the involvement of multiple stakeholders. Research has shown different drivers for ethical or unethical decision-making in SCs, but the focus has mainly been set on procurement and SC managers. This focus simplifies the study of ethics within a focal firm, but does not reveal the complexity of reality that requires to take a more holistic approach as argued in Axis n°1, taking into account the micro, meso and macro levels of SCM. For example, the lack of training on ethical decision making, may be the reason why there is so far no truly sustainable SC (Pagell and Shevchenko, 2014). SSCM might never exist if the business model of a focal firm and its network is not meant to attempt to solve the ethical dilemma of prioritising Human and the environment' safety over profit. In addition, what is perceived as sustainable in one culture may not be in another and vice versa, which highlights the need to take into account the cultural environment and institutions in SSCM research. As stated in Fritz and Ruel (2023): *“To make SCs truly sustainable, CSR should ideally be reflected within all firms that are part of SCs, which also requires the development of individuals' ethics (Di Vaio et al., 2022). Indeed, ethics has become important and is now considered necessary “[for managing] SC sustainably” (Fritz, 2019, p. 9) due to sustainability having become part of society's normative expectations.”* The use of individual approaches that mobilize individuals' ethics through, for instance, the sustainability mindset concept is, I

believe, one way to make SC truly sustainable and to contribute to exploring the “how” to develop SSCM as called by Pagell and Shevchenko (2014). This is summarized in Figure 15.



Figure 15: The potential of individual approaches to develop sustainable supply chains

However, to be successful, such approach requires a shift in most educators and researchers’ practice by doing more applied teaching and action research in order to test and measure the impact of initiatives that aim at developing a sustainability mindset among students and practitioners. Such a shift could occur if more researchers and educators would join initiatives that promote activist and action research for instance.

Axis n° 3 - Research valorisation, scientific impact, and future research directions

In this Axis n°3, I will be expose three sub-sections: 1) the realised and planned valorisation and transfer activities; 2) the current scientific impact and foreseen plans to expand it further; and 3) future research directions regarding my own work and the work planned with potential Ph.D. students and co-authors.

Sub-axis n° 3.1.: Valorisation and transfer activities

I aim at valorising and transferring my research towards different audiences and through several means. In order to be effective, I believe valorisation and transfer of knowledge needs to be adapted to each audience. The target audiences for me are educator-researchers (especially in management sciences), management students, business professionals, and policymakers, at national and international levels depending on the knowledge or ideas I want to share. Therefore, I explain below how I valorise and transfer activities to these different targets.

3.1.1. Valorisation and transfer of knowledge towards educator-researchers

Educators-researchers are my peers at Excelia Business School and other business schools or management universities. By collaborating together, I exchange some of my publications with them for their own research or for their courses. One of the publications I share the most when I am invited as guest lecturer for instance is my book chapter (Fritz, 2019) where I define the evolution of the term “sustainable supply chain management”. By checking citations of this book chapter, one may note that it has been cited a number of times by authors from Peru, probably thanks to my cooperation as guest lecturer with Miguel Cordova, who shared it with all his students.

Also, through co-authorship, I often bring in the Stakeholder Theory from an SC perspective and from the systems perspective I learnt from my Ph.D. education at the Institute of Systems Sciences, Innovation, and Sustainability Research, University of Graz, Austria (e.g., Fritz et al., 2022d; Fritz et al., 2018). By chairing conferences, organizing conferences (EurOMA Forum, PROLOG, AIRL-SCM), or participating in conferences (e.g., PROLOG; EurOMA; EurOMA Forum) I also find opportunities to share my publications with other educator-researchers.

Finally, I am part of several research and teaching networks where I share my knowledge and publications. First, the LEAP group linked to the PRME working group on the Sustainability Mindset led my Isabel Rimanoczy. I am part of it since 2018 and this group gathers about 260 educators and researchers from all over the world and from different fields.

Meetings are organised once a month where members can share their work or perspectives related to research and education in sustainability management. Second, I am a co-founding member of the Global Movement Initiative (GMI)¹¹ together with Professor James Stoner from Fordham University, United States. We created the GMI in 2019 following an online meeting led by Isabel in her LEAP group where I got to know James Stoner and felt so inspired and aligned with his statement about the “*need for management education to stop teaching business as usual to ensure the survival of all species*”. We initially developed an application for the Ellen Mac Arthur Foundation to receive funding to build a network of 400 universities and business schools worldwide that would engage in such necessary transformation of business programmes and curricula. Although we were not selected, we continued structuring our activities, participating in conferences on business education, organising monthly open houses where educator-researchers can present their successes and failures towards such a transition. In October 2023, we finalised our biggest project: a book for Routledge with stories from pioneers from all over the world to inspire other educator-researchers to lead the change we need in management education. The GMI has now the status of non-profit association based in the USA. Third and finally, I am part of a research network co-created by 41 young researchers in the field of SSCM to support each other. It is called the Activist Research Collective for Sustainability (ARCS). We usually organise one session per month where we can present working papers or discuss topics that we find relevant. No one owns this group; the idea is that each member takes part of it. In this group, I proposed myself to support the development of case-studies and teaching activities on SSCM via my experience with The Case Centre and Excecia Case Centre where I am a referee for colleagues in my department. Recently, in June 2023, we also created such a group within ARCS and we are currently developing our activity plans.

3.1.2. Valorisation and transfer of knowledge towards management students

Teaching is another way to valorise and transfer knowledge. As encouraged and tracked at Excecia Business School, I use articles and book chapters I wrote to bring students some basic knowledge on a certain concept such as ‘Sustainable Supply Chain Management’ (Fritz, 2019); or to provide them with a method to solve the exercises I give them such as the identification of SC stakeholders (Fritz et al., 2018) or the identification of sustainability issues along the SC (Fritz, 2022b). I do this with Excecia’s students but also with students from other institutions where I am invited as guest lecturer (e.g., Pontifical Catholic University of Peru, University of Graz). Fritz (2019) is useful for the course “Supply Chain Research Projects” I give at Excecia

¹¹ <https://www.globalmovement.net/>

for example. Via Google Scholar or Academia.edu I often receive comments of the persons who downloaded this chapter, and they say it is for their Master or Ph.D. research related to SSCM.

For students, I am also developing and testing case studies with businesses (see detailed CV) that aim to be published with case-study editors such as the CCMP, The Case Centre or *Logistique & Management*, which recently launched a section for French case-studies. Currently I have one case study publication on the sustainability of the Cognac SC, which I use in my “Sustainability and Supply chain management” course. This case study has also been used by Salomé Ruel, with students at KEDGE business school specialised in the wine sector.

Finally, I also valorise and transfer the research I conducted via the mentoring of students in their Master dissertation. As of July 2023, I accompanied 38 students in their Master dissertation and often shared with them my book chapter on SSCM (Fritz, 2019) to give them basic knowledge and concepts to start doing research in the field; my paper on the stakeholder identification method (Fritz et al., 2018), or, more recently, my paper on community-based business models which gives them a basis on key concepts in the field of sustainable business models and their inter-relations with SSCM (Fritz and Lara-Rodríguez, 2022), as well as the paper where I theorize SSCM (Fritz, 2022b). I can see in their Master thesis that the ones who really read and use these papers are able to analyse things more systematically and holistically than the ones who do not.

3.1.3. Valorisation and transfer of knowledge towards business professionals

Professionals are to me the individuals who can inform lecturers and students about the reality of the business world and who can implement changes, including the ones needed for SSCM. It is hence very important for me to be in direct contact with them not only to valorise and transfer knowledge, but also to stay informed about the reality of the business world and identify potential research areas that can serve the business world towards the development of more sustainable business models and SCs.

Consequently, I voluntarily participate in events where I can meet professionals. For instance, since 2021, I am a volunteer expert in SSCM for Cap Digital, a non-profit organisation based in Paris and recognised as one of the largest clusters in Europe for the development of innovative economic systems. Thanks to this organisation, I was asked to advise several companies regarding the improvement of sustainability in their logistics and SC operations. The CEO of one of these companies regularly participates in my English courses related to sustainable digitalization and SCM to explain what they are doing and discuss with students. I also take advantage of these regular meetings to develop case-studies where I always involve the person I am in direct contact with as co-author.

Another way of valorising and transferring knowledge to business professionals is through LinkedIn. On LinkedIn platform I am following groups related to my research and courses such as sustainable procurement groups. When I publish a paper related to the topic, I share it on my page and tag the group or share it on the group page. In this way, I was contacted by a consulting firm, Scalian, based in Toulouse, France, to participate in a Masterclass on sustainable procurement in October 2022 (see flyer in Figure 16).



Figure 16: Masterclass on sustainable procurement organised by Scalian in October 2022

Among the organisers, I was in direct contact with Cyril Sarrieu, who had a research background and agreed to develop a joined research project with a pre and post survey to assess whether the Masterclass had any impact on participants after the event and on the long term. Unfortunately, we did not get enough participation to draw any conclusions. But the roundtable was a hybrid event that was filmed, and I was given the authorization to use it in my course. In addition, I got to know professionals working on the topic of sustainable procurement and one of them agreed to develop a case study together. When on-site at Scalian, I could also exchange with Scalian employees who came to meet me and Cyril Sarrieu to tell us they did not know Scalian was addressing sustainable procurement issues. So, in addition to raising awareness among the participants we also raised awareness among Scalian employees.

Another way to valorise and transfer research towards business professionals is by sharing the paper I wrote thanks to them, once they are published. Often, I do not get any reactions, but I was once asked if the interviewee could write in the company's yearly report that he contributed to my research, and of course I answered positively.

With some interviewees, I keep in touch once or twice a year to share information I found could be of interest to them and to check up how they evolved. This is the case especially with one SME that wonders how to valorise its sustainability efforts. In our last exchange in

May 2023, the CEO asked me what I was thinking about the growing pressure they had from one of their biggest clients to register and report on the sustainability of their products on the Ecovadis platform. Indeed, this SME has no expertise, no Sustainable Development Manager, and no funding to adhere to this platform. I found this was a perfect mini case-study to develop for my course on “Ethical supply chain management” with 3rd year Master students in apprenticeship. The ethical question raised was: should a company pay fees to report on their sustainability efforts? Most students thought it was not right to force an SME to report on a certain platform because this would only serve the client who was in direct contact with the final consumers. They advised that the SME should communicate more on what they are doing and designate one person to be responsible for sustainable development.

Finally, I realised this year, in 2023, that Master students in apprenticeship are the closest professionals I could keep in touch with and invite to be guest lecturers in the future or to co-develop case studies. I plan to develop this type of relations with them from next year on, upon their agreement and in the respect of their privacy and in full transparency.

3.1.4. Valorisation and transfer of knowledge towards policymakers

To reach policymakers, I firstly choose academic journals that target them as part of their audience, for instance *Resources Policy* (“aimed at individuals in academia, government, and/or industry”)¹², *Extractive Industries & Society* (“bringing together research undertaken by an interdisciplinary group of social scientists in academia, government, the NGO community and industry”)¹³ or *Natural Resources Forum* (“We quarterly publish articles that are original, scientifically strong and policy relevant and may inform policymakers through pragmatic, science-based lessons learned from experiences at the local, national and global levels”)¹⁴.

Second, I created and kept contact with direct or indirect policymakers from the United Nations Environment Program (UNEP) where I did an internship in 2014, and from the Organisation for Economic Co-operation and Development (OECD), which organises every year the Forum on Responsible Mineral Supply Chains, which I attended twice physically before the COVID-19 pandemic. I am in contact with people from these organisations concerning my research work on mercury use in ASGM. I also use sometimes the social media LinkedIn and tag relevant policymaking organizations (e.g., the World Economic Forum) on publications that I believe could be of interest to them.

Finally, one of the ways to have an impact among policymakers is to answer calls for research projects, such as the ones from the European Commission. Indeed, these calls are

¹² <https://www.sciencedirect.com/journal/resources-policy>

¹³ <https://www.sciencedirect.com/journal/the-extractive-industries-and-society>

¹⁴ <https://onlinelibrary.wiley.com/journal/14778947>

usually meant to inform or guide policymakers and being part of them is a way to directly meet them in Brussels, or to invite them to consortium meetings to present them the outcomes of the project. I had the opportunity to do that within the H2020 projects ‘SustainHub’ and ‘IN-BEE’.

Overall, one of the ways to go further and reach a wider audience, including society at large, would be to write for professional journals such as ‘Usine Nouvelle’ in French or ‘The Conversation’ in English. Participation in radio programmes on ‘Radio Catholique Française’ (RCF) organised by my IRSI colleagues at Excelia (two participations) or for ‘Supply Chain Magazine’ (May 2023) also contributes to the valorisation of my research through communication channels accessible to a wide audience. Finally, we are supported by Excelia's communication department which relays the key points of our contributions via twitter and LinkedIn.

Sub-axis n° 3.2.: Scientific impact

The scientific influence of my activities extends to the local and international level via collaborations for special issues, the organisation of conferences, the evaluation of papers for various academic journals and the coordination of collective research and book projects. This influence can also be measured via certain platforms such as Publons with the Altmetric tool (citations by type of audience) or Google Scholar (number of citations).

As of 15th October 2023, Google Scholar highlights a total of 865 citations of my publications between 2018 and 2023 (905 in total), and a **h-index of 15**. Details on the number of citations per year since 2016 are given in Figure 17.

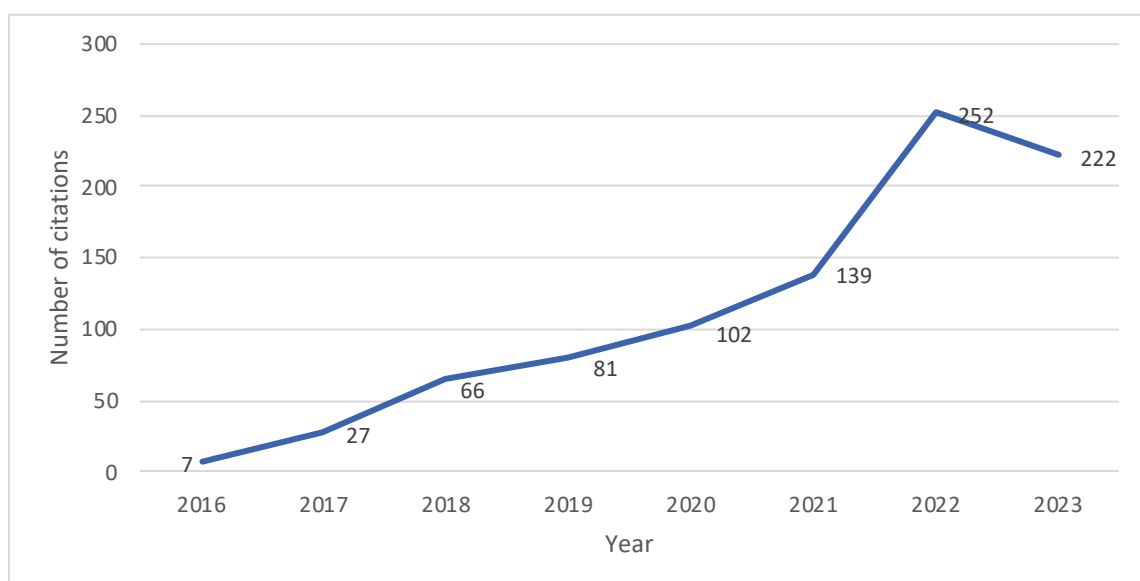


Figure 17: impact according to Google Scholar as of 15th October 2023 (N=896)

The most cited publications (i.e., the ones which were cited more than 40 times during the period 2016-2023) are shown in Table 3.

Table 3: Most cited publications from 2016 until 2023, as of 15th October 2023 (source: Google Scholar)

Reference details	Number of citations	Type of publication
Fritz, M.M.C., Schöggl, J.P., Baumgartner, R.J. (2017). Selected sustainability aspects for supply chain data exchange: Towards a supply chain-wide sustainability assessment. <i>Journal of Cleaner Production</i> , 141, 587-607.	153	Academic paper
Schöggl, J.P., Fritz, M.M.C., Baumgartner, R.J. (2016). Toward supply chain-wide sustainability assessment: A conceptual framework and an aggregation method to assess supply chain performance. <i>Journal of Cleaner Production</i> , 131, 822-835.	122	Academic paper
Fritz, M., McQuilken, J., Collins, N., Weldegiorgis, F. (2018). <i>Global Trends in Artisanal and Small-Scale Mining (ASM): A review of key numbers and issues</i> (pp. 81-81). Winnipeg, MB, Canada: International Institute for Sustainable Development. ¹⁵	84	Report for the Intergovernmental Forum (IGF) on Mining, Minerals, Metals, and Sustainable Development
Fritz, M.M.C., Silva, M.E. (2018). Exploring supply chain sustainability research in Latin America. <i>International Journal of Physical Distribution & Logistics Management</i> , 48(8), 818-841.	75	Academic paper
Fritz, M. M., Rauter, R., Baumgartner, R. J., Dentchev, N. (2018). A supply chain perspective of stakeholder identification as a tool for responsible policy and decision-making. <i>Environmental Science & Policy</i> , 81, 63-76.	62	Academic paper

¹⁵ Note: I contributed to this report while I was an independent consultant, in the transition period between the end of my Ph.D. and my current position at Excelia Business School (i.e., between 2017 and 2018)

Fritz, M. M. (2019). Sustainable Supply Chain Management. <i>Responsible Consumption and Production. Encyclopedia of the UN Sustainable Development Goals</i> , Springer, Cham, 1-14.	58	Book chapter
Fritz, M.M.C., Maxson, P.A., Baumgartner, R.J. (2016). The mercury supply chain, stakeholders and their responsibilities in the quest for mercury-free gold. <i>Resources Policy</i> , 50, 177-192.	50	Academic paper
Schögggl, J.P., Fritz, M.M.C., Baumgartner, R.J. (2016). Sustainability Assessment in automotive and electronics supply chains—a set of indicators defined in a multi-stakeholder approach. <i>Sustainability</i> , 8(11), 1185.	48	Academic paper

The most cited publications are Fritz et al. (2017) and Schögggl et al. (2016) with both above 100 citations each (cf. Table 3). These publications are related to the EU Project H2020 ‘SustainHub’, where I was in charge with my colleague Josef-Peter Schögggl and my Ph.D. supervisor Professor Rupert J. Baumgartner, of developing indicators and methods to assess the sustainability of SCs in the electronic and automotive sectors (cf. detailed CV in Appendix n°3). This project lasted 3 years (from 2012 to 2015) and was the basis of my Ph.D. thesis. During this project, I quickly realised the importance of multi-stakeholder approaches when developing new indicators as we worked with companies (e.g., Johnson Control, Continental, i-Point), consultants (Denkstatt GmbH) and other universities. Each partner, especially practitioners from companies, had their own set of data and way to collect data. In this project, we had to create a standardized set of data and collaborate with IT partners to standardize data collection processes as well. Hence, it was necessary to build such tools and processes together to define which data was available or possible to collect. Such multi-stakeholder work led me to learn about and use the Stakeholder Theory (Freeman, 1984) in my academic writing (e.g., Fritz et al., 2018; Fritz et al., 2016).

However, I found some limitations to this Stakeholder Theory to apply it in the SC context. Indeed, the Stakeholder Theory puts one single company at the centre of the analysis, and in the SC context several companies interact in a network to deliver a product or service to consumers. With the SustainHub project, I saw similarities and differences between a single company and SC stakeholders thanks to the Stakeholder Theory, as firms play a role in SSCM but also policymakers like the EU. Also, the chosen sectors, particularly the electronics sector in which we interviewed several stakeholder groups (e.g., companies, NGOs), led us to observe the different meanings of SSCM from a developed and developing economy perspective. At

this time, between 2012 and 2014, little was written on the sustainability of SCs in the electronics sector. The electronics sector was the sector I was interested in the most as I was shocked by what was happening with electronics wastes in the early 2000's. I initially wanted to do my PhD on the topic of electronics waste management, where strong inequalities exist between developed and developing economies, and also where individuals working on the sites where electronics wastes were sent were putting their health at risk when looking for precious metals, especially gold. As I was moving on with my Ph.D., I kept myself informed on the topic and found an advertisement from the United Nations Environment Programme (UNEP) for an internship on mercury trade for a use in artisanal and small-scale gold mining (ASGM) in 2013-2014. They were looking for an intern to understand mercury trade worldwide, which (in short) is a dangerous heavy metal artisanal miners use to find gold (UN, 2018). This was the opportunity for me to get to know an international organization that is an important stakeholder for SSCM, as well as a sector and topic I was curious to know more about since I worked as a business developer for two years in the mining sector, but only in developed economies (Lafarge in Paris and INASHCO B.V. in The Netherlands). My Ph.D. supervisor agreed that I applied to this internship. I was selected and went to the UNEP in Geneva for four (4) months between April and July 2014. Although my mission was to help understand why mercury trade was happening and which routes it would take, I conducted a literature review on the topic and a survey towards National Contact Points, which brought me back to the multi-stakeholder approach. I remember I drew the mercury trade SC on a board at the UNEP to prepare a focus group, which I found was strongly interlinked with the gold SC, and UNEP colleagues asked me: "why did you draw the gold SC?". I explained that I found that these two interlinked SCs highlighted a variety of stakeholders and that all have a direct or indirect role to play to reduce or even stop mercury trade. It was unfair for me to consider only artisanal miners and the local governments as responsible for mercury use in ASGM. If gold buyers (such as the Indian Government or the World Bank which are among the biggest gold buyers in the world) would care about the way gold is produced, then they could support the mercury-free transition. These are some of the outcomes that I highlighted in Fritz et al. (2016) and Fritz et al. (2018), which led me to be recognized as a knowledgeable reviewer from the *Journal of Cleaner Production* on the topic of ASGM and also led me to be asked by Peter Maxson from Concorde East/West Sprl to contribute to the update of the 2018 Global Mercury Assessment for the UNEP, and to contribute to the update on key figures in ASGM by Fitsum Weldegiorgis from the International Institute for Environment and Development for the IGF (Fritz et al., 2018, cited 84 times).

Finally, when looking at organizations or researchers that cited my work, these are mainly academic papers, books, conference proceedings, and Master Dissertations on CSR,

sustainability, management or environmental sciences, engineering, and policymaking. One publication was cited by employees working at the United Nations Institute for Training and Research, Chemicals and Waste Management Programme and the United Nation Environment Programme (cf. Stylo, 2020). Overall, citations come from authors from various countries over the world (Austria, Brazil, China, Czech Republic, Colombia, Finland, Germany, Ivory Coast, Italy, Lithuania, Mexico, Peru, Poland, Russia, Spain, Sweden, South Africa, Turkey, UK, USA). This analysis underlines that my work has a global reach but requires some more efforts to be recognized in my own country, France, which gives me directions to improve further my scientific impact.




It is to note that Google Scholar gives a good indication of impact in academia, but since it is only counting the number of citations, it does not reveal other types of impacts that are highlighted from sub-section 3.2.1. to sub-section 3.2.7.




3.2.1. National and international research cooperations

Research cooperations are the result of my Ph.D time in Austria, networking at conferences and personal networking through Research Gate or LinkedIn with researchers who share the same research interests as me or complementary ones (e.g., research field, research methods). These are summarised in Table 4.

Table 4: Research cooperation (from the most recent to the oldest, N=23)

N°	Period	Cooperating partner	Topics
1	2022 - today	Jure Erjavec, Ljubjana University, Slovenia , h-index: 10	- Sustainability and digitalization in supply chain, - Teaching sustainable supply chain management and supply chain digitalization
2	2022 - today	Laouratou Diallo, ISIAM, Morocco , h-index: NA ; and Marie-Noelle Rimaud, Excelia Business School, France , h-index: 2	- Case-study on CSR in Bauxite supply chain
3	2021 - today	Lee Matthews, Nottingham University Business School, UK , h-index: 9	- Ethical supply chain management
4	2021 - today	Gernot Lechner, Graz University, Austria , h-index: 11	- Circular supply chain management in Western African countries
5	2021 - today	Christiane Kadio, University of San Pedro, Ivory Coast , h-index: NA	- Circular supply chain management in Western African countries
6	2021-2022	Anne Touboullic, Nottingham University Business School, UK , h-index: 15	- Special issue for SCF:IJ
7	2021 - 2022	Stefan Seuring, University of Kassel, Germany , h-index: 68	- Special issue for IJPDLM - Assessment of Erik Siems Ph.D thesis

8	2021 - 2022	Stelvia Matos, Surrey Business School, UK , h-index: 23	- Special issue for IJPDLM
9	2021 - today	Gérald Ferrari, Independent consultant in oenology, Cognac, France , h-index: NA	- Sustainability in the Cognac supply chain
10	2022 - today	Svenja Damberg, Twente University, The Netherlands , h-index: 5 	- Trust and supply chain transparency - Consumer purchasing behaviour - Born-sustainable companies - Sustainable development goals
11	2021 - today	Liliane Carmagnac, Excelia Business School, France , h-index: 3 	- Sustainable Development Goals in purchasing and supply chain management (single case-study and meta-synthesis)
12	2021 - 2022	Andreas Kallmuenzer, Excelia Business School, France , h-index: 27	- Family business supply chains
13	2020 - today	Dominic Drillon, Excelia Business School, France , h-index: 8	- Sustainable digitalization
14	2020 - today	Miguel Cordova, Peru , h-index: 7 	- Sustainability mindset in supply chain management - Leadership for sustainable supply chain management

15	2019 - today	Juan Sebastián Lara-Rodríguez, National University of Colombia, Colombia , and University of Lisbon, Portugal , h-index: 8 	<ul style="list-style-type: none"> - Sustainable development goals in Artisanal and Small-Scale Gold Mining (ASGM) supply chain - Sustainable Business Models in ASGM supply chain
16	2019 - today	Nicola Screnci, Excelia Business School, France , h-index: N.A.	<ul style="list-style-type: none"> - Withdrawal and recall of dangerous consumer goods in the agro-food industry
17	2019 - 2022	Félix Boruchowitch, Excelia Business School (I supervised him for this Master Dissertation), France , h-index: N.A.	<ul style="list-style-type: none"> - Sustainable value creation through sustainable procurement for and with multiple supply chain stakeholders
18	2018 - today	Salomé Ruel, Excelia Business School, France , h-index: 12	<ul style="list-style-type: none"> - Gender diversity in supply chains
19	2016 - today	Ulla Saari, Tampere University, Finland h-index: N.A. 	<ul style="list-style-type: none"> - Sustainability in smartphone supply chains - End-consumers' expectations regarding sustainability management in supply chains
20	2014 - today	Minelle Silva, Winnipeg University, Canada , h-index: 21 	<ul style="list-style-type: none"> - Sustainable supply chain management - Sustainability logic and institutional theory in supply chain management - Developing economy perspectives on sustainable supply chain management

21	2018 - 2021	Romana Rauter, Graz University, Austria, h-index: 18	- Sustainable business models and supply chain management
22	2012 - today	Josef-Peter Schögl, Graz University, Austria, h-index: 18	- Sustainable supply chain management - Sustainability assessment
23	2012 - 2017	Rupert J. Baumgartner, Graz University, Austria (Ph.D supervisor), h-index: 43	- Sustainability assessment - Sustainable supply chain management


Note: the following sign  highlights the persons with whom I use the Sustainable Development Goals in our research contributions.

Table 4 shows that I collaborate with a variety of researchers worldwide who have a different level in terms of impact by looking at their h-index. Out of 23 regular collaborations for research, 10 are with women and 13 with men, leading almost to parity. Among these collaborators, 13 have a h-index inferior to 10 (including 6 who have no h-index because of their profession or because they did not create a profile on Google scholar). The remaining 10 colleagues have a h-index superior to 10, going up to 68 (i.e., Stefan Seuring). This variety of profiles shows that I both contribute to improving colleagues' performance as they contribute to improving mine.

3.2.2. *Special issue coordination in academic journals*

My research impact can also be measured by my coordination or contribution to special issues for academic journals. As of July 2023, I have been coordinating three special issues and two books within a group of three to four colleagues. These are:

- *Supply Chain Forum: An International Journal* (CNRS 4, FENEGE 3, HCERES B). Title: Practicing sustainability in Operations & Supply Chain Management. Coordinators: Fritz, M.M.C., Silva, M., Touboulic, A. Published in 2022. Number of articles: 6.
- *International Journal of Physical Distribution and Logistics Management* (CNRS 3, FENEGE 2, HCERES A.). Title: The social sustainability of global supply chains: A critical perspective on current practices and its transformative potential. Coordinators: Silva, M., Fritz, M.M.C., Matos, S., Seuring, S. Published in 2023. Number of articles: 7.
- *International Journal of Productivity and Performance Management* (IJPPM). Title: Managing Industry 4.0 technologies and their impact on the sustainable performance of territories. Coordinators: Vlachos, I., Fritz, M.M.C., Ruel, S., Kumar, V. Published in 2021. Number of articles: 4.
- Associate Editor for Sustainable Development Goal 12 for "Encyclopedia of the Sustainable Development Goals: Transforming the World We Want". Chief Editor: Professor Walter Leal. Springer, World Sustainability Series. Published in 2020. Number of chapters: 243.

I also have future projects on other topics:

- *The International Journal of Logistics Management* (FNEGE 3). Project under development. Title: Application of Artificial Intelligence for Sustainability Management. Coordinators: Bentahar, O., Fritz, M.M.C., Benzidia, S., Fosso Wamba, S.

3.2.3. Coordination of collective research and teaching books

I recently started to become committed in the development of collective books within the Global Movement Initiative I am part of since 2019. As my teammates and I were wondering how we could have an impact and share our successful stories of curriculum transformation within business schools and management education programmes, I suggested to launch a call for contributions and coordinate a book project. This idea was welcome by the team members, I drafted the call for contributions, and we all worked together to polish it and make sure we could reach a global audience. Indeed, curriculum change in higher education on management to move from teaching business-as-usual to teaching transformative/regenerative business is a global challenge. We launched the call for paper on 1st June 2022, received multiple proposals from educators all over the world, reviewed each of them to bring them to the story telling writing style we were looking for, and we finalised the project in July 2023. All chapters have been peer reviewed by members of the GMI and Routledge editing team. We also collected endorsements from multiple researchers and lecturers committed toward sustainability teaching in management educations such as: Anne Touboulic (United Kingdom), Lee Matthews (United Kingdom), Rupert Baumgartner (Austria), Donald Huisingh (United States), Respati Wulandari (Indonesia), Hunter Lovins (United States), and Stuart Hart (United States). The book is currently available for pre-order and the dispatch will start by December 2023. The cover will be as follows:

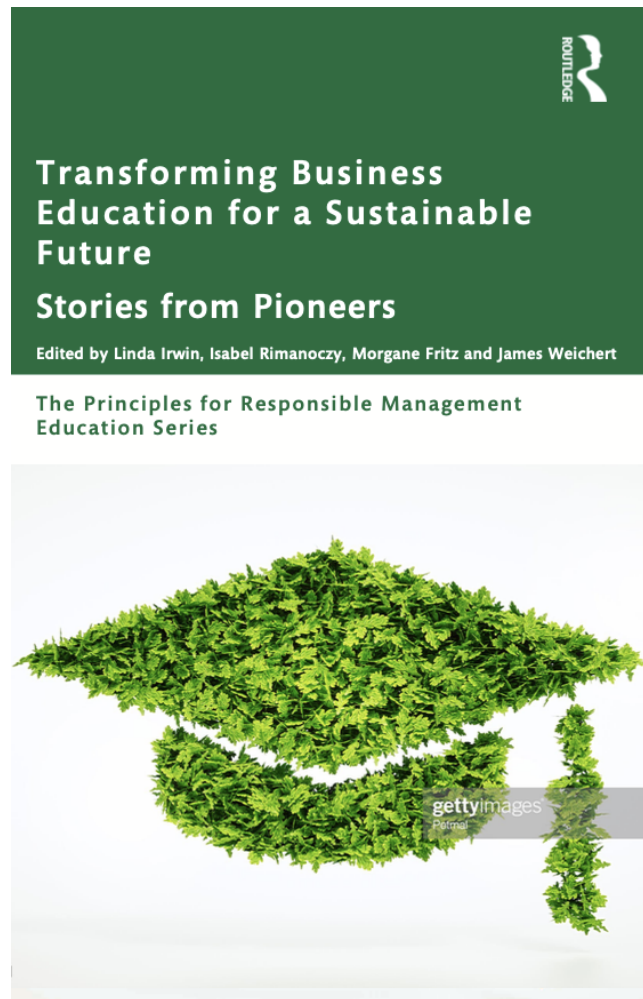


Figure 18: First book coordination with the Global Movement Initiative team

We gathered all authors in an online meeting in early July 2023 to get to know each other and sum up the contribution of each author. Several participants mentioned their willingness to become part of the GMI and a group cohesion started. In October 2023, we worked on a second call for contributions to publish a Volume 2 (the call was sent out in November 2023) and perhaps many more.

In the close future, I also have another book project on SC case-studies with Laurence Viale, which we discussed with the 2024 IPSERA conference organisers who welcomed the initiative. This book aims at publishing pedagogical case-studies following a session on pedagogical case-studies that we proposed to IPSERA organizers, which was accepted. Such project is motivated by my involvement at Excelesia's Case Centre to promote pedagogical case-studies on SSCM and Laurence Viale's involvement on sustainable procurement and experience in

writing teaching cases. The target editor is still to be defined and discussions are taking place with The Case Centre to work on this project together.

3.2.4. Reviewer for national and international academic journals

I started to review paper submissions for academic journals during my Ph.D. with the *Journal of Cleaner Production* in 2015. The number and types of journals for which I served as reviewer grew over time through my research network and direct requests from editors (cf. Table 5).

Table 5: Number of reviews per academic journal (N=31)

Starting year	Journal name	National, International	Number of reviews
2023	Journal of Supply Chain Management	International	1
2022	Business Strategy & the Environment	International	1
2022	Journal of Business Economics	International	1
2021	The International Journal of Logistics Management	International	4
2021	Corporate Social Responsibility and Environmental Management	International	1
2021	Transactions on Engineering Management	International	1
2021	Management Review Quarterly	International	1
2019	International Journal of Physical Distribution & Logistics Management	International	2
2019	Logistique & Management	National	1
2019	Business & Society	International	1
2019	International Journal of Productivity and Performance Management <i>(co-managing an SI together with Ilias Vlachos, Vikas Kumar and Salomé Ruel)</i>	International	2
2015	Journal of Cleaner Production	International	15

3.2.5. Contributions to national and international conferences

My scientific impact can also be measured by my serving as reviewer for national and international conferences as well as organizing or chairing specific tracks or being part of the organizing committee.

Table 6: Contribution to national and international conferences

Conference name	Roles per year	Level
Members' Case Forum 2023, organised by The Case Centre	<ul style="list-style-type: none"> 2023: presentation of my activities as referee regarding the development of case-studies for teaching SCM within Excelia Case Centre and conferences, together with Excelia Case Centre director, Marie-Noelle Rimaud. Online. 	International
Congreso Internacional Industria y Organizaciones (CIIO)	<ul style="list-style-type: none"> 2023: invitation as a keynote speaker (my first time) to the 10th edition of this conference dedicated to innovation in organizations and supply chains to support the sustainable development goals. Presentation entitled: "From sustainable supply chain management to ethical supply chain management". Place: Barranquilla, Colombia 	International
Rencontres Internationales de Recherche en Logistique et SCM (RIRL-SCM)	<ul style="list-style-type: none"> 2024: Scientific committee 2022: participant 2020: participant 	International
IPSERA	<ul style="list-style-type: none"> 2024: Session chair on case-studies (the first one for this conference) with The Case Centre and Laurence Viale, followed by a book gathering the best case-studies. 	International
Journée de Recherche Supply Chain & Innovation (JRSCI - Excelia)	<ul style="list-style-type: none"> 2023: participant 2022: reviewer (N=1) 	National

	<ul style="list-style-type: none"> • 2020: participant 	
Journée de Recherche Internationale sur l'Intelligence Artificielle (JIRIA - Excelia)	<ul style="list-style-type: none"> • 2022: reviewer (N=1) 	National
EurOMA	<ul style="list-style-type: none"> • 2023: participant • 2022: reviewer (N=6), participant 	International
Méthodes et approches créatives et critiques de l'apprentissage et de la formation au management (MACCA)	<ul style="list-style-type: none"> • 2022: Development and coordination of a collaborative workshop on the sustainability mindset at Excelia, La Rochelle, France; reviewer (N=2) 	National
EurOMA Forum	<ul style="list-style-type: none"> • 2024: reviewer (N=3) • 2023: reviewer (N=4) • 2022: chair for a track on teaching cases, Zagreb, Croatia (online); presenter • 2021: Organizing and scientific committee at Excelia Business School, La Rochelle (online); management of a special issue for <i>Supply Chain Forum: an International Journal</i> on practices for SSCM; development of the first session on teaching cases for the conference, in partnership with INNOV Case Lab (Excelia) and The Case Centre; session chair • 2019: participant 	International
PROLOG	<ul style="list-style-type: none"> • 2023: Organizing committee, Luxembourg, Luxembourg; session chair; participant • 2021: Co-Chair for the session « Advancing Supply Chain Sustainability research: the role of innovative and critical studies »; reviewer (N=1) • 2019: session chair, participant 	International

Academy of International Business – Latin America and the Caribbean (AIB-LAC)	<ul style="list-style-type: none"> • 2021: Reviewer (N=1) 	International
RIODD	<ul style="list-style-type: none"> • 2019: development of the only English-speaking session of the conference entitled « What is a ‘territory’ for sustainability management in supply chains? ». To this session, I co-developed my first special issue together with Ilias Vlachos (Excelia), Salomé Ruel (Excelia), and Vikas Kumar (Bristol Business School) for the <i>International Journal of Productivity and Performance Management</i> (IJPPM) • Organizing committee, Excelia, La Rochelle, France; session chair; reviewer (N=2) 	National
New Business Model (NBM) conference	<ul style="list-style-type: none"> • 2019: reviewer (N=4) • 2017: Organizing committee, Graz, Austria; reviewer (N=2) 	International

3.2.7. Invitations from professionals

Finally, the way to assess my scientific impact is also by looking at invitations I received from professionals. These are listed in Table 7.

Table 7: Invitation from professionals

Invitation from	Description
Ecovadis, December 2022	Ecovadis is one of the leading platforms to assess and select suppliers based on their sustainability performance. In December 2022, following a post I made on LinkedIn to promote my paper “A Supply Chain View of Sustainability Management” (Fritz, 2022b), I was invited by Véronique Seel, Ecovadis Marketing Officer, to write an article for their audience which will be published on their website. The audience is professional investors and buyers.
Scalian	Speaker at the roundtable on sustainable procurement organised by Scalian consulting company and targeting practitioners, Toulouse, France (6 th October 2022).
La Rochelle Chamber of Commerce, 2020	Invited at the 4 th meeting on Social and Solidarity Economy to deliver a speech on the topic of sustainable procurement (La Rochelle, 19 th February 2020).
COROLO, 2019	In 2019, I was invited by our research partner, COROLO, to accompany them to the PRODURABLE fair in Paris. They had a presentation on their business model and asked me to present the drivers and barriers for companies and their supply chains to disclose their sustainability performance.
Styrian Government, Graz, Austria, 2018	I was invited to be part of a roundtable following the publication of my Ph.D. thesis in 2017. The event was “LAND.HAUS.GESPRÄCH” (regular meeting to discuss topics relevant to politicians and society). The roundtable was on the topic of cooperation for the development of developing countries with the following question: Interest-guided foreign policy or partner-led development policy?

	(“Entwicklungszusammenarbeit - Interessensgeleitete Außenpolitik oder partnergeleitete Entwicklungspolitik?”). Graz, Austria (25 th April 2018)
COWI, May 2016	COWI is a consulting firm who invited me to present the results of my research on ASGM to consultants and government representatives in Dar Es Salaam, Tanzania. This is following my publications on the topic of ASGM stakeholders, which were shared further by UNEP colleagues with COWI. I gave a presentation entitled: “Actors in the local/regional/global value chains for mercury and gold” during the “Sub-regional training workshop on baseline inventories of mercury use in ASGM”

Sub-axis n° 3.3.: Future research directions

My future research plans are centred around personal research ambitions, European-funded research projects, and potential Ph.D supervisions. My personal research ambitions are particularly related to going more in depth into the development and dissemination of a sustainability mindset for SSCM (sub-axis n°3.3.1). Other research plans are related to project applications that have not yet been successful and that will be resubmitted. Finally, future research directions are also guided by the Ph.D projects of potential candidates.

3.3.1: The levers and limits to integrate an individual approach in sustainable supply chain management

The idea to integrate individual approaches in SSCM to support the development of SSCM is relatively new in the field, as well as the use of the sustainability mindset. Culture and mindset are topics that are seldomly investigated in SSCM. However, as stated by Sarkis (2022), to develop SSCM: “*The culture and mindset of different functions, similarly to those of individuals, may vary and careful investigation is needed*” (Sarkis, 2022, p.6).

Regarding culture, SC sustainability is a complex topic due to the different normative and cultural frameworks for different stakeholders in different contexts. Salvia et al. (2019) show, for example, that the priorities related to the SDGs are not the same in different continents. Based on the literature review conducted with Dr. Minelle Silva on sustainable SCs from the perspective of Latin American publications (Fritz and Silva, 2018), we noted the

influence of cultural and normative dimensions and, in particular, we noted that culture and institutions (in the sense of DiMaggio and Powell, 1983) need to be taken into account to understand SC sustainability in different contexts. Therefore, we proposed the origami framework (Figure 19), that underlines the need to reshape the common frameworks that are used in SSCM depending on the context, and to be open to include other/new dimensions than the TBL.

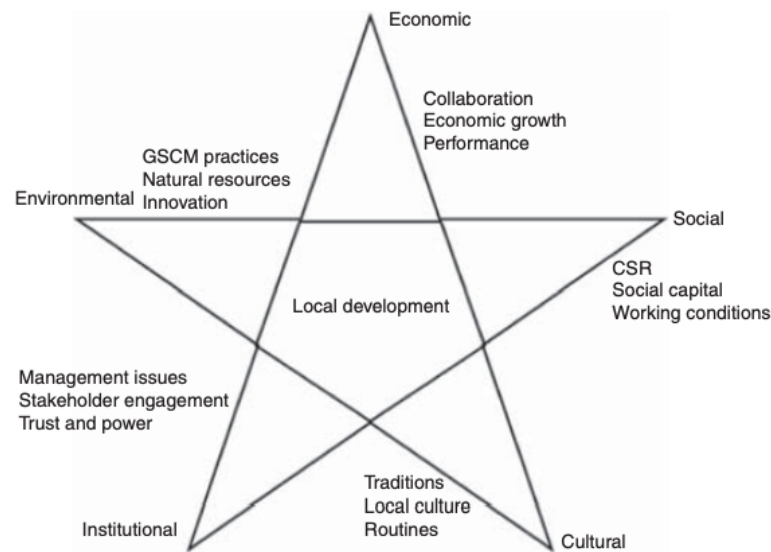


Figure 19: The origami framework (source: Fritz and Silva, 2018, p.883)

Corporate culture and institutional forces have a role to play that will differentiate practices especially upstream in the SC, as we have shown in the case of family and non-family firms with Salomé Ruel, Andreas Kallmuenzer and Harns Rainer (Fritz et al., 2021). Indeed, family-firms tended, in our research, to care more about social sustainability upstream the SC than non-family firms. Furthermore, I am currently conducting research on 'born sustainable' companies such as those certified by B-Corp with Svenja Damberg and Ulla Saari (Damberg et al., 2022b) where we highlight the innovative capacity of B-Corp companies and its impact on the development of sustainable products. We found that the SC organisation of B-Corp companies is not necessarily coherent with the SDGs, perhaps due to a lack of holistic vision on the sustainability of SCs (the "knowing" dimension of the sustainability mindset), or the lack of applicability of SDGs into businesses (as found in Carmagnac et al., 2023). Some beliefs in the importance of technology such as digitalization to solve sustainability challenges in SCs also need to be studied in depth in order to understand the influence of digitalisation, its limits and its benefits (Fritz et al., 2022b; Rodhain, 2019). On this topic, we propose with

Professor Omar Bentahar, HDR, Dr. Smail Benzidia from the University of Lorraine and Professor Samuel Fosso Wamba from Toulouse Business School, a special issue entitled "Application of Artificial Intelligence for Sustainability Management" for the *International Journal of Logistics Management*. More generally, at the individual level, it is important to understand how to make the right decision to develop a sustainable SC, which requires the mobilisation of individuals' ethics.

SSCM researchers could explore further the development of a sustainability mindset through the research field of individuals' ethics in business. I was inspired by the field of ethics in business when I entered Excelia in 2018 and was given a course to teach on "business ethics" to first year Master students. I did not master this field and conducted research to identify key authors. This led me, among others, to Crane and Matten (2016), a book I was recommended by Stefan Gold who found himself in the same situation as me at the beginning of his career. By teaching "business ethics", CSR, sustainability and SSCM, I wondered: where is ethics in business? Is it included in sustainability, in CSR, or is it another dimension? This is a question I always ask my students who have various answers, and is still an open research question.

Finally, to me, the only stakeholders that can voluntarily and positively influence sustainability, and thus ethics in an organization, are individuals (the micro-level according to Sarkis, 2022). All individuals have their own ethics based on norms and values they learnt throughout their education and experiences. If ethics is the ability for individuals to decide what is right and what is wrong, then one may wonder how powerful ethics could be to support Humans in their understanding and deciding of what is or is not sustainable. Ethics is part of our everyday life and so should sustainability. Consequently, I encourage the development of research and teaching activities that explore the inter-relations between ethics and SSCM.

I am currently in this process, with firstly a structured literature review on ethics in SSCM conducted together with Dr. Lee Matthews (University of Nottingham) and Dr. Amitabh Anand, HDR (Excelia). This literature review aims to mobilise ethical concepts and related theories in SCs and to better integrate the individual dimension in SSCM (Fritz et al., 2022c). I also took opportunities I was given to write book chapters on ethics in SCM such as Fritz (2022a) on ethical practices to achieve SC resiliency, and one on the definition of ethical sourcing (Fritz, 2023, in press) as an opportunity to stimulate further thinking on the topic. As part of a research project together with Dr. Salomé Ruel, HDR, I also collected several, but inconclusive, definitions from SC practitioners and consultants on what ethical SCM means to them. The results show that for several interviewees, it is limited to no bribery and corruption. Such a research could be expanded to obtain more data to develop a research paper.

More recently, in 2022, when we created the MSc. Sustainable Supply Chain Management with all the colleagues from the Supply, Purchasing and Project Management at Excelia (process described in more details in Fritz et al., 2023 - in press), I created the course “Ethical supply chain management”. This course is, to my knowledge, among the first courses on the topic in the world. I had created a first version of this course in 2020 with the invitation of CAMPUS ESPRIT INDUSTRIES in Redon, France, to teach 7 hours to 2nd year Master students on a topic I could freely propose related to SCM. I proposed a course called “Ethics in supply chain”, which was given online. I was motivated to develop this course as it became clearer and clearer to me, since I started to teach “business ethics” in 2018 and since the COVID-19 crisis, that I had to support critical thinking in SSCM among students and practitioners, to contribute to the education of responsible (SC) managers. In addition, after following Isabel Rimanoczy’s training on the sustainability mindset in 2019 online and again in 2022 at Excelia, I was given several tools to do that. In 2023, when I gave the course “Ethical supply chain management” to Excelia’s Master students (23 in total), it was a very special moment for me. Indeed, I did not teach in a traditional way as Isabel Rimanoczy (2016) suggests with her book, ‘Stop Teaching’, but instead I took totally different pedagogical approaches, giving space to students to exchange about their experience and thoughts. Building on ‘Cadavre exquis’, a writing approach developed by the French author Jacques Prévert, among others, I asked students to develop a theatre play based on their own experiences to illustrate what an ethical dilemma in SCM could be. To prepare them, I designed and organised ‘speed story telling’ exercises where all classmates had to tell each other about one ethical dilemma they experienced in a SC context. We further discussed specific case-studies and investigated whether their own company had an ethical code of conduct and what it contained. During the entire period where the course took place, I asked them to keep in a diary their everyday thoughts, questions, and learning outcomes on ethical SCM. A large sample of these 23 students thanked me in their diary for opening their eyes on what ethical dilemmas in SCM could be, one of them even included the topic of ethical SCM in his Master dissertation at the last moment before handing it. Several stated that they would pay attention to ethical issues in their professional and even personal lives, or that they were willing to make things change in their working environment. Compared to the first session of the course where students told me they do not discuss ethical issues in their company and they felt they have no power to do so given their age and limited experience, I could read that I managed to change their mindset and make them feel more confident regarding their power to become change makers. They realised that ethics can be different from individual to individual and understood the importance of

dialogue to solve ethical dilemmas. Finally, the theatre plays they created were full of emotions and reflecting several ethical dilemmas in SCM regarding recruitment practices, abuse of workers' rights, or consumers' health and safety. Knowing that these theatre plays were based on their own experience, it was sometimes shocking to learn about the unethical consequences the decisions of SC managers, HR managers, marketing managers, logistics manager or Managing Directors could have on people and the environment. I am currently looking at ways to valorise their work and share these theatre plays with other colleagues and students. I already shared the story through Excelia's internal journal on pedagogical innovation. Furthermore, I believe this course will lead me to develop publications in a new field: management education. Indeed, I never realised so much the importance education can have to develop individuals' sustainability mindset. This reminds me a quote I used several years ago for a Poster presentation on education for sustainable development at the World Symposium on Sustainability Science and Research – Implementing the 2030 United Nations Agenda for Sustainable Development, held in Manchester, in 2017:

“Education is the most powerful weapon you can use to change the world.” From Nelson Mandela (2003).

I often use this quote in my courses as well to inspire students, who are sometimes hopeless, on what they can do around them: discuss and transmit their knowledge about sustainable development and ethical decision-making.

3.3.2. Research projects that support my future research interests

The following Table 8 summarises my future research project by type of research.

Table 8: Future research projects and ideas

Research projects	Description
Research papers	<ul style="list-style-type: none"> • Develop research papers with a pragmatic approach and action research to develop a sustainability mindset • Develop research papers on ethical decision-making in SCM • Explore the effect of ethical SCM course on practitioners (longitudinal study)
Research projects	<ul style="list-style-type: none"> • Develop research projects (European Union, National French Agency, Exchange through the Chamber of

	<p>Commerce of France in other countries) to obtain fundings to hire Ph.D candidates</p> <ul style="list-style-type: none"> • Develop my network with professionals to increase the chances to conduct action research
Books	<ul style="list-style-type: none"> • A volume 2 of “Transforming Business Education for a Sustainable Future: Stories from Pioneers” is in preparation for Routledge, with a focus on how to change education practices • New book project on how to teach sustainable and ethical SCM • Book gathering case-studies on SSCM and purchasing with Laurence Viale, promoted via IPSERA
Conferences	<ul style="list-style-type: none"> • Organise special sessions on teaching cases in SCM at major SCM conferences (PROLOG, AIRL, IPSERA, EurOMA) • Contribute to the research community on innovation in pedagogy with Projectique Confence • Extend my network to increase the possibilities of being guest speaker and spread or stimulate researchers and educators to study the added-value of ethics in SCM, management education and practice
Special issues	<ul style="list-style-type: none"> • Develop special issues on ethics in SCM to stimulate research on the topic and create new knowledge
Pedagogy	<ul style="list-style-type: none"> • Continue innovation in pedagogy and develop research in the field • Apply the sustainability mindset exercises in different courses • Continue preliminary testing on ethical SCM with students

Over the past few years, I have developed and taken the lead in two research projects, namely ETHICO-CREA (EU project) and FASD: Family-Firms & Sustainable Development – a supply chain perspective (bilateral project between Austrian and France).

ETHICO-CREA - Co-creating sustainable and ethical business models for a circular economy, is the first EU project I have been coordinating based on my previous experience at the University of Graz. It is directly linked and inspired by my teaching and research interests that link ethics with SSCM. For this project, I managed to gather thirteen (13) partners based on my network and the network of my co-authors. These partners were: Excelia (France), the University of Graz (Austria), Cap Digital (France), Jonköping Business School (Sweden), Tampere University (Finland), University College Cork – National University of Ireland (Ireland), Barksanem Sarl (Burkina Faso), Basel University (Switzerland), Aarhus University (Denmark), INfraRes GmbH (Germany), NOVA University of Lisbon (Portugal), Politecnico di Milano (Italy) and Euronovia (France).

It was a two-stage research project under the EU call: Horizon 2020, Call: H2020-SC5-2018-2019-2020 (Greening the economy in line with the Sustainable Development Goals (SDGs)) and the funding scheme Research Innovation and Action (RIA). The abstract of this proposal is as follows:

“The purpose of this project is to co-create and analyse sustainable and ethical business models that support Circular Economy (CE) transition. Five priority areas of the CE Action Plan are considered: Electronics and ICT, plastics, textile, construction and buildings, and food/water/nutrients. The objective is to co-create business models for a circular economy (BMfCE) sustainably and ethically, test this co-creation process empirically, and assess its outcomes to support the transition to a CE. The project is structured into the four phases of the Design Research Methodology with an interdisciplinary team ranging from management, social sciences, and human geography. The first phase will ascertain the key socio-political and socio-cultural factors influencing the CE transition in the selected sectors with at least 11 case studies. These case studies will involve multiple stakeholders and key nodes of global supply chains in the European Union and Africa and help uncover related business models and underlying stakeholder sustainability mindset and ethical behaviour. The second phase will focus on sustainable and ethical co-creation processes between companies, consumers, and other organizations to develop a toolbox gathering exercises, trainings, and assessment methods to co-create BMfCE in line with the EU Green Deal and the EU CE Package. The third phase will combine small and large-scale business experiments to pinpoint characteristics of sustainable and ethical co-creation of BMfCE. In the fourth and final phase, the findings of the case studies, the toolbox and the business experimentation will be distilled

into policy recommendations for the transition to a CE. The findings will be shared to the wider business, public and academic community via a digital platform that will showcase successful co-creation processes and provide training modules to foster the sustainable and ethical co-creation of BMfCE.”

The project passed the very competitive first-stage evaluation but unfortunately, not the second one as other projects appeared to be more robust to the EU commission. It is usually known that a good project requires two to three trials or more to obtain fundings from the EU. Thus, we hope to be more successful with the next submission, provided we find a call that enables us to elaborate further on our proposal.

FASD emerged as a result of the paper I developed and published together with Andreas Kallmuenzer, Salomé Ruel, and Rainer Harms (Fritz et al., 2021). This project was developed together with Innsbruck University represented by Professor Mike Peters and Dr. Bernhard Bichler and Excelia colleagues, namely Andreas Kallmuenzer, Liliane Carmagnac and myself. It was submitted two times in 2020 and in 2021. The summary of this project is explained as follows, as submitted to the funding body:

“In most European countries, especially in France and Austria, family firms traditionally are the largest employers and need to be resilient in times of crises. They show strong regional roots and embeddedness that support local economies. In research, the role of family dynamics in the firms and its surrounding society is acknowledged but only limited research has explored the impact of family dynamics in the sustainable management of supply chains (SC). Supply chain management (SCM) handles information, financial and products flows from raw materials until end consumers. Products must be delivered at the right place, right time, and at the required quality. Globalisation has increased the complexity of SCM, risks, and stakeholder engagement. The Agenda 2030 requires SCM to be resilient and to integrate economic, environmental, and social aspects. This project investigates how family dynamics can contribute to more sustainable SC, including the under investigated social dimension.”

Overall, FASD received a good assessment regarding the content of the research approach and the research design. Fundings were not obtained mainly because of questions related to the budget. Consequently, my colleagues and I believe we will have good chances to succeed with the next submission.

3.3.3. Current Ph.D co-supervision and potential PhD supervision

Throughout my network within and outside Excelia, I had and still have several opportunities to supervise Ph.D candidates. Their projects are all related to sustainable or ethical SCM. The persons listed below are all potential candidates, and several of them still have to formalize their project with a registration at a doctoral school.

- *Luka Kobal, Ph.D candidate registered at the University of Ljubljana, School of Economics and Business, Slovenia. Co-supervised with Ass. Prof. Jure Erjavec*

Luka Kobal is a Ph.D candidate whose proposal was recently accepted by the University of Ljubljana. I was proposed to co-supervise him by Jure Erjavec, who I got to know through a mirror class I gave in 2021. Luka's topic is related to the downstream stakeholders of the SC and their roles toward the development of SSCM. The title of his Ph.D project is: "*Consumers' Perceptions and Decisions for Sustainable Last Mile Delivery*". One of the main questions is how companies can make Last Mile Delivery more sustainable given the rising trend for consumers to order online goods, which results in very inefficient delivery services. The approach taken will mobilise concepts from consumer research such as consumer preferences, which may bring relevant insights to the field of SSCM given the lack of research on the downstream part of the SC.

- *Nicola Screnci, lecturer at Excelia Business School*

Nicola Screnci is lecturer at Excelia Business School and would like to develop his Ph.D project on the topic of agri-food products recalls and withdrawals to ensure and preserve consumers' health and safety. This proposal is based on a research project we worked on together from 2019 until 2023 on the case of COROLO, a French start-up based in La Rochelle which aims at developing software solutions for companies in various sectors to ensure their compliance with sustainability-related regulations and to ensure consumers' safety. He plans to investigate the various recalls and withdrawals systems, the normative contexts that support or hinder companies to improve their recalls and withdrawals of agri-food products, as well as the ethical challenges around profit making and consumers' safety. So far, he still needs to formalize his Ph.D project and register to a Doctoral School.

- *Kshitij Anthwal, Excelia Business School, alumni and social entrepreneur*

Kshitij Anthwal approached me following my publication on developing a sustainability mindset among SC managers (Fritz and Codova, 2023). He studied at Excelia Business School and was developing during his last year a business to develop a sustainability mindset in the tourism industry in India, called “Travel Komorebi Project”. His project is supported by various organizations, and he plans to conduct action research on site to investigate how to make tourism more sustainable in India, especially among local service providers in this sector. So far, he still needs to formalize his Ph.D project and register to a Doctoral School.

- *Juan Camilo Vargas Muñoz, Master student in Industrial Engineering, National University of Colombia, Bogotá, Colombia*

I met Juan Camilo Vargas Muñoz during the CIOO conference in Barranquilla, Bogotá, in August 2023. He was finalizing his Master dissertation on the topic of healthcare SCM and was interested in developing a Ph.D. project on the topic, with a strong emphasis on sustainability. His professors highly recommended him to me for his rigour and seriousness.

- *Pablo Emilio Mora Lozano, La Sabana University, Colombia*

I met Pablo Mora during the CIOO conference in Barranquilla, Bogotá, in August 2023 thanks to a new colleague at Excelia, Jairo Montoya. He did his Master thesis on the security of global SCs and would like to go on with a Ph.D on this topic that includes also the topic of SSCM. He is registered at the Doctoral school of La Sabana and I would co-supervise him with Jairo Montoya.

- *Ester Xicota, Pontifical Catholic University of Peru, Peru*

Ester Xicota is a lecturer and consultant in sustainable fashion. I met her at the Pontifical Catholic University of Peru, Peru, during my research stay (21st October – 7th November 2023). She is highly involved in field work with associations that support textile production from Lama wool and motivated to further investigate issues along lama wool SC. She still needs to formalize her Ph.D project and register to a Doctoral School.

Furthermore, I discovered several opportunities to supervise or co-supervise Ph.D candidates in Colombia and Peru through the French Embassy fundings. I am in contact with Colombian

and Peruvian professors to investigate these opportunities from next year on. I find it particularly relevant to supervise Ph.D candidates from developing economies since the development of sustainability, SSCM, and ethical SCM is challenging given the high level of informal businesses, among other contextual factors.

Conclusions on axis n°3

To conclude on Axis n°3, I have highlighted in detail what my future research directions are. These are first and foremost related to my strong interest in doing research on the topic of ethical SCM; to develop this topic as a new research stream and enrich the field of SSCM. This is meant to move away from the normative view of SSCM, based on the integration of the TBL or the SDGs in SCM. I believe the field of SSCM can go much further and produce breakthrough knowledge relevant for all management sciences by going into this direction and enhancing activist and action research approaches. Beyond my own research interests, I remain open to new research ideas that are also inspired by calls for proposals from the European Commission or the French National Research Agency as well as proposals from Ph.D. candidates.

Overall conclusions

In a context where traditional approaches to sustainability management, such as the TBL coined by John Elkington, have shown their limits, because of their misuse by firms, researchers and practitioners have the opportunity to think about the direction to take to develop more sustainable SCs. The UN SDGs (UN, 2015) offer an alternative that Elkington (2018) considers as a possible solution to replace the TBL. In this HDR project, I question the replacement of the TBL by the SDGs, because the SDGs can become a normative tool that does not question the business models of firms and their supply chains (SCs), like it was the case for the TBL. Furthermore, given the current state of the planetary boundaries, it may be a too lengthy process. Indeed, the sustainability of SCs seems to have reached an impasse, while productive activities linked to SCs continue to accentuate human negative externalities on the planetary boundaries. Consequently, how can sustainable SCs be developed? I addressed this question in this HDR by arguing that integrating both an organizational approach and an individual approach in SC sustainability research and practice can lead to the development of more sustainable SCs.

I outlined in this HDR a comprehensive perspective on the development of sustainable SCs with organizational approaches combined with individual approaches. I emphasised the need to address sustainability at multiple levels, including upstream, within the focal firm, and downstream, while involving a wide range of stakeholders, both internal and external to the SC. This leads to the development of the Supply Chain View of Sustainability Management, which is a proposal for a holistic perspective of SSCM. Furthermore, I highlighted the importance of individual approaches, that mobilize the study of ethics in decision-making for SSCM, acknowledging that ethical decisions are crucial for meeting society's expectations on sustainability and respecting the planetary boundaries. Given that research in management sciences does not provide consensus on the definition of the organizational and individual approaches, I offer my own explanation and my positioning regarding these approaches.

I also underscored the lack of research on specific functions and individuals that take part to SC activities, can be impacted by SC activities, or can impact SC activities, namely what is commonly called “stakeholders”. For instance, trainings in ethical decision-making could contribute to the development of SSCM by raising awareness of individuals on what is ethics, what is acceptable or not, and designating individuals as role models in each organization that is part of the SC, such as the Managing Directors, the SC Managers, or the Procurement managers. However, I also pointed out the limits regarding the strong focus on

these functions and the lack of research on other functions (e.g., engineers, Marketing Managers, HRMs). Stakeholders must be identified in the sense of individuals: who are they? The use of the term “stakeholder” in a general way, which is a common practice in SSCM research, limits the possibilities of identifying areas of improvement to foster SSCM.

Moreover, I stress the role of management educators and higher education institutions in fostering a sustainability mindset among current and future managers, for instance by developing calls for book chapters on transforming business education for a flourishing world or special issues, as well as the active participation in the development of Master programmes to promote the practice of ethical decision-making and sustainability consciousness in SCM. Indeed, I believe there is a strong need to practice business ethics among students and practitioners to stimulate awareness on what is sustainable or not and ease decision-making in business for the overall Human’s and environment safety. When one is working on the topic of SSCM for many years, one tends to forget that it may not be clear to everyone what SSCM means and given the research I conducted, there is still a lot of work to do to make sure decision-makers know at least the basics about SSCM. On the contrary, every individual has an ethics, thus I believe that stimulating ethical decision-making for SSCM might create the shift we need in individuals’ mindset regarding current unsustainable production and consumption patterns.

Such a view underlines the idea that ethical decision-making is at the core of achieving sustainability in SCs. Overall, with this HDR I call for a more holistic and ethics-driven approach to create truly sustainable SCs. This HDR project aims to show that the study and construction of a sustainable SC requires a combination of both organisational and individual approaches. Individual approaches need to be studied together with organizational approaches, which brings to light the intersection between SSCM and individuals’ ethics and sustainability mindset, as illustrated by Figure 20.

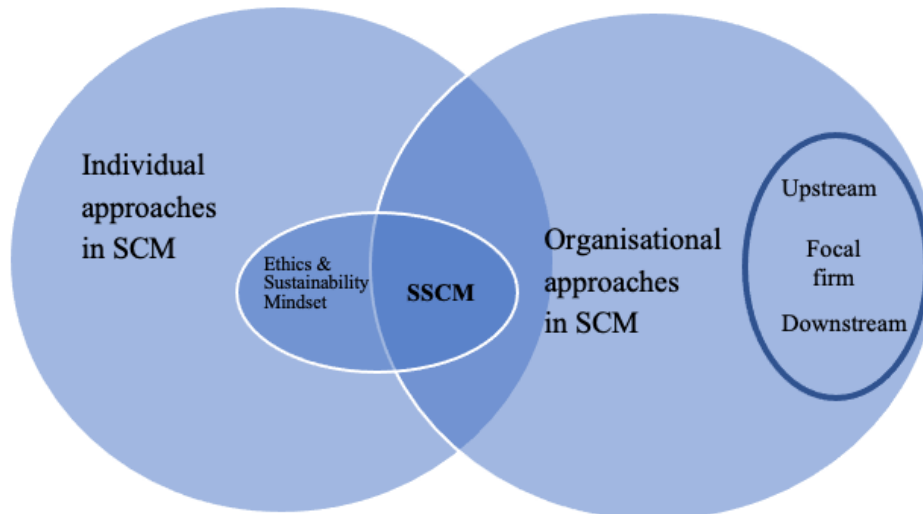


Figure 20: Conclusive illustration

The limited number of contributions taking into account the individual dimension may explain the fact that we have not yet succeeded in building sustainable SCs. By mobilising the concepts of business ethics and related theories, and by considering the relationships between different departments within a focal company, I believe that we can get closer to the development of sustainable SCs. Indeed, being ethical can be summarised as making decisions and behaving in a way that is acceptable to society (Bowen, 1953). Given the increasing importance of sustainability issues for society, we can deduce that in order to make a SC sustainable, firms have an interest in understanding and meeting society's ethical expectations. In order to truly develop sustainable SCs, it seems necessary to practice holistic thinking to understand and anticipate the economic, environmental and social consequences of SC-related decisions. In addition, each individual is influenced in their decision-making by their personal and professional environment. In these two environments (personal and professional), the individuals develop their own ethics made up of norms, values, and beliefs, resulting in behaviors and decisions. Thus, I consider that the sustainability of SCs is the result of individuals taking ethical decisions individually or collectively that support, improve or deteriorate the sustainability of SCs. I questioned the role of ethics in the development of sustainable SCs and propose to study how to develop this ethics through the “Sustainability Mindset” concept. The lack of research on ethics in SC and the ethics of individuals from different departments who participate in SC activities, or who affect or are affected by SC activities, is perhaps one of the reasons why there are no real sustainable SCs yet. A sustainable SC may never exist if the business model of a focal company and its SC is not designed to

address the ethical dilemmas of prioritizing human and environmental safety over benefit. Hence, the development of sustainable SCs requires the development of individuals' ethics.

The main limitation of this work is the need to develop a sustainability mindset not only within the focal companies and their SCs but also with external stakeholders. Here, the role of management educators and higher education (universities, business schools, deans of faculties, research laboratories) is to be taken into account as they are the stakeholders who train the managers of tomorrow. Furthermore, the role of policymakers and civil society is to be underlined since some conditions need to be met to develop socioeconomic context favourable to ethical and sustainable SCM such as pricing, awareness raising, consideration of the wide spectrum of sustainability challenges beyond climate change, to give a few examples of gaps to be field in research and practice. As stated by Professor Mette Morsing, Head of PRME Principles for Responsible Management on 1st September 2023: *“We know the world is in urgent need of economic, environmental, and social governance! And we know that education at all levels is proven to be the most important mechanism to create the world that we want [...]. If you want to change business, you want to change how business is taught.”*

In conclusion, in this HDR I outlined a holistic perspective on the development of sustainable SCs. I emphasize the need to address sustainability at multiple levels, including upstream, within the focal company, and downstream, while involving a wide range of stakeholders, both internal and external to the SC. Furthermore, I emphasized the importance of individual ethics in decision-making within SC management, recognizing that ethical decisions are crucial to meeting society's expectations for sustainability. I also support the need for a holistic approach that takes into account the micro, meso and macro levels of SCM. Furthermore, I emphasized the role of management educators and higher education institutions in promoting a sustainability mindset among current and future managers. To conclude, I propose to define sustainable SC management as:

a process which consists of cultivating a sustainability mindset among managers and employees of all organizations that are part of the SC, in order to make the most ethical decisions for the environment and the societies that surround each stakeholder of the SC.

This definition highlights the idea that ethical decision-making is central to achieving sustainability in SCs. Overall, through this HDR, I call for an increased use and application of a holistic approach to SCM in research and practice, which is ethically focused, to create truly sustainable SCs.

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Appendices

Appendix n° 1: Summary of the five selected research works

1. Boruchowitch, F., Fritz, M.M.C. (2022). Who in the firm can create sustainable value and for whom? A single case-study on sustainable procurement and supply chain stakeholders. *Journal of Cleaner Production*, 363, 132619. FNEGE 3, HCERES B, ABS 2.

Summary:

Sustainable value creation is a widely used term in the literature on sustainable business models, and is gaining importance in other areas of management. While there is still confusion about the meaning of this concept, researchers are encouraging studies that adopt a network perspective to generate new knowledge and a better understanding of the concept. In this article, we respond to this call by adopting a supply chain perspective, which is a type of network, and focusing on a specific supply chain activity: purchasing. Through a single case study of a French multinational, we investigate who creates sustainable value and for whom, adopting stakeholder theory. The case study is based on an inductive and qualitative mixed-methods approach, including interviews with key purchasing and sustainability staff, ethnographic observation and content analysis to provide new insights into the areas of sustainable business models and sustainable supply chain management. The results provide empirical evidence that shows, in the case of the study company, that the procurement function has a key role to play in creating sustainable value for multiple stakeholders within and outside the company. Sustainable procurement creates sustainable value for the company, suppliers, customers, investors, municipalities, schools, NGOs and associations. This value is linked to economic, social, environmental and ethical dimensions. To our knowledge, this is the first study that clearly highlights the role of sustainable procurement in creating sustainable value, which is relevant for guiding researchers to further investigate the importance of the procurement function in the field of sustainable business models. The results also highlight the need for senior management and support functions, such as finance, to build the capacity of the procurement department to develop sustainable procurement practices as, in a long-term perspective, this improves the sustainability performance of the company and its supply chain partners. Overall, this study calls on companies to integrate buyers and procurement officers into the core of their strategy to facilitate the operationalisation of their sustainability objectives.

2. Kuzey, C., Fritz, M.M.C., Uyar, A., Karamand, A.S. (2022). Board gender diversity, CSR strategy, and eco-friendly initiatives in the transportation and logistics sector. *International Journal of Production Economics*. 108436. CNRS 1, FNEGE 1, ABS A.

Summary:

Criticism of the environmental externalities of the transport and logistics sector is growing. Therefore, the objective of this study is to determine whether gender diversity on boards stimulates green practices and to test whether a CSR strategy moderates this relationship in this sector. The data for the study were extracted from the Thomson Reuters Eikon database between 2002 and 2019 and a fixed-effects regression analysis was performed. The results indicate that the pursuit of a CSR strategy favours the sector's commitment to eco-responsible practices, particularly through eco-innovation. Furthermore, the moderation analysis revealed that while the CSR strategy moderates the association between board gender diversity and eco-innovation, the moderation is not significant for resource use and emission reduction. However, when using the Shannon and Blau indices, we found stronger evidence of the moderating effect of CSR strategy between board gender diversity and green practices. Additional tests indicated the existence of some quadratic relationships between the test variables and green practices. The originality of the study stems from several aspects such as focusing exclusively on the transport and logistics sector, adopting three indicators of board gender diversity (i.e. proportion of women on the board, Shannon index and Blau index), exploring the interaction effect of two governance mechanisms on green practices and testing quadratic relationships between gender diversity, CSR strategy and green practices. Finally, this work studies very specific environmental topics (i.e., eco-innovation, resource use and emissions) rather than CSR performance in general.

3. Fritz, M.M.C., Ruel, S., Kallmuenzer, A., Harms, R. (2021). Sustainability Management in Supply Chains: The Role of Familiness. *Technological Forecasting & Social Change*. 173. CNRS 2, FNEGE 2, ABS A.

Summary:

Research and practice show a growing interest in the development and sustainable management of supply chains. Considering that globally, the majority of businesses are family-owned, this study aims to explore the role of family dynamics regarding the economic, environmental and social dimensions of sustainability in supply chains. Family businesses are generally attributed

with a longer-term perspective, greater social responsibility and environmental awareness. The results of a comparative study of twelve cases of six family and six non-family businesses show that there are differences in the focus on sustainability upstream, downstream and at the focal company level. These differences are examined from the perspective of institutional theory and are due to several coercive, normative and mimetic pressures. The results show that upstream, family firms tend to focus more on social aspects, while non-family firms ignore them. Within the company, family businesses take all three dimensions of sustainability into account and non-family businesses minimise the social dimension but emphasise the environmental dimension. Downstream, family businesses address the same sustainability dimensions as non-family businesses. The reasons for these differences are due to a number of factors, including the company's culture, values and management involvement. The practical implications lie in the role that family businesses can play in making the supply chain more sustainable.

4. Ruel, S., Fritz, M.M.C. (2021). Gender diversity in supply chains: towards more sustainable decisions? evidence from interviews. *Supply Chain Forum: An International Journal*. CNRS 4, FNEGE 3, ABS B.

Summary:

Gender diversity (GD) has become an open topic of discussion, with a focus on gender gaps in wages and access to education. Little research has highlighted the active role that women can play in sustainable decision-making. This study fills this gap by considering the case of supply chain management (SCM), a function mainly led by men and where several sustainability issues prevail. It aims to determine whether DM has an impact on sustainability-related decisions made in SCM. An exploratory and qualitative approach was adopted to examine managerial, operational and hybrid skills and practices. The results reveal three main opinion groups and show that DM would bring softer skills such as empathy at the managerial level, or more socially responsible supplier selection at the operational level. More SM in SCM would improve social relations, communication, compliance and health and safety issues. This study contributes to filling the gaps in the social dimension of sustainability.

5. Fritz, M. M. C., Rauter, R., Baumgartner, R. J., Dentchev, N. (2018). A supply chain perspective of stakeholder identification as a tool for responsible policy and decision-making. *Environmental Science & Policy*, 81, 63–76. CNRS 3, HCERES B.

Summary:

Traditional stakeholder research is generally based on organisation-centred or organisational problem-centred approaches. However, the use of these approaches to stakeholder identification lacks rigour and comprehensiveness, as these approaches cannot be used to embrace the complexity and dynamics of organisational constituents. To address this gap, we propose to adopt a supply chain perspective for stakeholder identification and describe the process in more detail using two cases, mercury trading and energy distribution. Adopting a supply chain perspective reveals the direct and indirect influences of stakeholders, allowing us to study their interrelationships, and clearly shows the role of each component in the stakeholder linkage. This process can be used as a tool to help governments, companies, researchers, and non-governmental organisations to identify stakeholders related to services or goods in a more rigorous and comprehensive way. In turn, in terms of improving stakeholder understanding and engagement, policy and decision-makers can adopt this process to improve their chances of achieving sustainability objectives. The focus here is on environmental strategies and policies, but the approach can be applied in other contexts where supply chain stakeholders need to be identified in relation to a good or service.

Appendix n° 2: Teaching activities (2018 – 2023)

For my activities as Associate Professor at Excelia Business School, please refer to Table 9. Beyond Excelia, I was invited as guest lecturer at several universities all around the world, as presented in **Error! Reference source not found.**10. Also, I would like to point out the importance of pedagogical innovation and my contributions to that, which are illustrated in Figure 21.

Table 9: Teaching activities at Excelia

Programme	Course	Language	Hours / year
Master 1, General programme	Business Ethics and CSR (2018 - 2019)	French	20h
Master 1, English programme	Strategic management and CSR (2018 - today)	English	12h
MSc. Purchasing & supply chain	Digitalization of procurement and supply chains (2018 - today)	English	10h
	Sustainable Procurement (2018 - today)	English	21h
	Qualitative research methods (2018 - today)	French	12h
MSc. Sustainable supply chain management	Ethical supply chain management (2023 – today, own creation)	French & English	21h
Bachelor Business 4	Supply chain and sustainable development (2019 - 2020)	English	8h
Bachelor Business 1	Introduction to logistics (2018 – 2020)	English	16h

Master 2, General programme	Qualitative research methods (2018 - today)	French	10h
	Research methods (2018 - today)	English	12h
	Sustainability & Digitalization (2021 – today, own creation)	English	15h
	Research projects in supply chain (2020 – today, co-creation)	French	15h
MSc. Digital	E-supply chain management (2018-2019)	French	21h
MSc. Luxury Cognac	Research methods (2020 - 2022)	English	12h

As assistant Professor, I taught 180h/year (2018 – 2019) and as Associate Professor 150h/year (2019 – today.). In addition, I supervised Master dissertations that represent 7h of work each, that is to say a total of 231h between 2018 and 2023.

Table 10: Teaching activities as guest lecturer (approx. 30h from 2020 to 2023)

University / business school	Topic	Language	Year	Duration
Universidad Pontifica del Peru, PERU	Sustainable Supply Chain Management	Spanish	2023	8h
Universidad de La Costa, COLOMBIA	Sustainable Supply Chain Management	Spanish	2023	1h
Binus Business School, INDONESIA	Sustainable Supply Chain Management: A Key Business Activity for a Sustainable Future	English	2022	2h
Universidad Pontifica del Peru, PERU	Sustainable Supply Chain Management	English	2022	1h30

Graz University, Graz, AUSTRIA	Sustainable Supply Chain Management: A Key Business Activity for a Sustainable Future	English	2022	1h
Universidad Pontifica del Peru, PERU	Sustainable Supply Chain Management	English	2021	1h30
Graz University, Graz, AUSTRIA	Sustainable Supply Chain Management	English	2021	1h30
Mirror class organized by Excelia for 6 partner universities (FRANCE, online)	Digitalization & Sustainability	English	2021	2h
Universidad del CEMA, ARGENTINA	Open conference: Sustainability and Business	English	2021	2h
ESLI - Campus ESPRIT Industries, Redon, FRANCE	Ethics in Supply Chains	English	2020	7h
Graz University, Graz, AUSTRIA	Trace your Tech - Hardfacts of Hardware	English	2020	1h

Through Excelia partners, I was invited in 2020 to the international week on supply chain and logistics of the Ecole Supérieure de Logistique Industrielle (ESLI) located in Redon, which is a school specialised in logistics, purchasing, electronics and other technical management fields. I gave a course on the topic of ethics in SC in English for a day to about sixty students in the second year of their Master's degree. I noticed that students were missing some notions of business ethics and mixing it with sustainability. I made similar observations in other classes I had at Excelia in CSR for instance, whatever the level (undergraduate or Master). These observations motivated me to create the course "Ethical supply chain management" and to clarify ethics and sustainability further in courses like "Business ethics and CSR".

Most of the guest lectures I gave however were thanks to my research network. I had the opportunity to be invited as a guest lecturer for Master or Bachelor level students on the topic of sustainable supply chain management. For example, I have been invited twice in 2021 and 2022 to Universidad Pontifica del Peru (PUCP) in Lima, Peru (online) via my co-author Miguel Cordova, with whom we are working on the subject of sustainability mindset in supply

chain. We are both part of the PRME group on the subject and also teach the same discipline. Each time there were about forty students at Bachelor level. I used the example of Fairphone, a Dutch company, since they buy gold from a Peruvian mine, and this example inspired students about what a sustainable supply chain could look like. In 2023, this cooperation led me for the first time to be invited as guest speaker and lecturer at PUCP (face to face) to present the topic of SSCM to different groups of students, as well as a workshop for writing academic papers directed to researchers and Ph.D candidates of this university, in addition to research activities with my colleague Dr. Cordova. This invitation gave me the opportunity to present my research in Spanish and interact with students and professors who enriched my vision of SSCM, Peru's economy being highly informal.

In 2021, I also did a guest lecture with about twenty Bachelor students in supply chain management at the University of Graz via Gernot Lechner, a former colleague with whom I developed a research project on the circular economy in the supply chain of French-speaking companies in Western Africa. I made them draw a traditional supply chain for a product of their choice and then asked them to revise it with the use of the "Supply Chain View of Sustainability Management" that I developed (Fritz, 2022b). When asking them about the differences, several of them were surprised about the number of sustainability issues they could identify with the SCV, validating further my approach.

In October 2022, I also had the opportunity to interact with teachers and students from Binus Business School in Indonesia, a country located on a continent I did not have interactions with before. I was invited through the network of Valérie Fernandes, the Dean of Excelia Business School and Alejandro Escudierro, the responsible person for international partnerships. It was impressive to me because of: 1) the way it was organised: very structured and formal, with pre-meetings and several persons to assist me from Binus side; 2) the welcoming words on the D-day with the national anthem being played; 3) the attention and participation of students online with very relevant questions; 4) the impressive total number of participants (445); and 5) the recognition of my work with a "Certificate of Appreciation" for "sharing valuable knowledge as a Guest Lecturer" signed by the Dean of Binus Business School, Dr. Ir. Hardijanto Saroso.

Following these experiences, I feel like continuing giving guest lectures on the topic of sustainable and ethical supply chain management because it is a way to develop the critical thinking of various student groups all over the world and to further test how my ideas and methodological approaches are understood and valued. I would particularly like to go on with guest lectures for business schools or universities in developing economies and of different

cultural backgrounds to observe and understand differences in students' and colleagues' reactions.



Figure 21: My contributions to pedagogical innovation

Finally, within Excelia, I contribute in different ways to the development of pedagogical innovations. Mirror classes are a way to link students from different universities in a course. In 2021, I developed a mirror class with 6 universities including about 110 students on the subject of sustainability and digitalization. This was a way to see how digitalisation can contribute to sustainable development in different contexts (Pakistan, Slovenia, Germany, Kazakhstan...) and to create relationships between Excelia and the universities involved (e.g., a joined Master programme followed with the University of Ljubjana).

Through the PRME group on sustainability mindset, I discovered Aim2Flourish which I use in my CSR course in English. The idea is to stimulate students to interview companies that contribute positively to the Sustainable Development Goals. This was followed by an international competition for the best stories reported by the students on the platform.

Via my colleague Gernot Lechner from the University of Graz I also introduced the “Beer game” to my students in the Supply Chain Research Project. This game aims to make the students experience stock-out situations and the importance of communication in supply chain by giving different groups a stock of products to manage via an online platform.

Moreover, I am currently working with my co-author Ulla Saari from the University of Tampere in Finland and my colleague Liliane Carmagnac on the development of a simulation game via an online platform for our courses on Sustainable Procurement and Sustainable Supply Chain Management. A prototype is ready in French and English. The objective is to develop a sustainable smartphone by choosing all partners needed to form a supply chain from raw materials to end consumers, and also the possibility to recycle the smartphone. This project has both a pedagogical and an academic aim (to measure the effectiveness of the game in teaching responsible purchasing compared to a written case-study and to publish an academic paper).

Finally, the use of the technique “cadavre exquis” to develop theatre pieces in my course “Ethical supply chain management”, as well as a diary on students’ reflections on ethics in SC and the creation of the “speed story telling” group work are also innovations that aim at creating emotions among learners, which are one of the most effective ways to learn.

Appendix n°3: Administrative activities (2018 – 2023)

My administrative activities are summarised in Table 11 and Table 12. These activities comprise the coordination of national and international research projects, coordination of courses, the development of training programs for the faculty, participation in strategy meetings, and being a referee for pedagogical case studies in SCM.

Table 11 : Administrative activities (2018 – today)

Period	Role	Description
2023	Reporting on environmental and social transition teaching in SC	In charge of identifying and developing knowledge among the Supply Chain, Purchasing, and Project Management Department at Excelia on the environmental and social transition in SC-related courses.
2022 - today	Referee for pedagogical case-studies in SCM	Within Excelia, I support colleagues in writing pedagogical case-studies by giving them advice and feedback. Outside Excelia, I contribute to the development of pedagogical case-studies among the SC community via conferences. I organise special sessions to explain what it is and how to write a good case. This is supported by the partnership between Excelia Case Centre and The Case Centre, which I developed since 2021 via EurOMA Forum conference.
2020 - 2022	Pedagogical coordinator for the course “Business Ethics”	Development of the syllabus and coordination of the content of the course with six (6) teachers.
2021 - 2022	Participant to the creation of the MSc. “Sustainable supply chain management”	I proposed content and created a new course entitled “Ethical supply chain management”. In addition, I supported and contributed to the development of the double diploma with the University of Ljubjana, Slovenia (exchange of

		content regarding programmes and development of the relationships with the SC department manager at Excelia.
2021 - 2022	Development and implementation of a training programmes for teachers on the “Sustainability Mindset”	Together with the Dean, Valérie Fernandes, we designed a training programme on the “Sustainability Mindset” led by Isabel Rimanoczy and targeting 40 teachers at Excelia. This was possible thanks to my involvement in the PRME working group on the sustainability mindset since 2019.
2020 - 2021	Participant to the working group on Excelia sustainability strategy	Invited by the dean, Valérie Fernandes, I participated in meetings to develop the sustainability strategy of Excelia.
2019 - today	Founding member of the Global Movement Initiative	I created this global working group on sustainability in management education together with James Stoner, Fordham University, USA. We meet once a week, participate in international conferences on sustainability in higher education, organize open houses and edit books with chapters from teachers worldwide who are willing to share their story about transforming business education for a sustainable world.
2018 - 2022	Communication manager for the IRSI	Intermediate between IRSI and Excelia Communication department, website maintenance and update, valorisation of IRSI researchers’ publications on the website and on LinkedIn.
2018 - 2019	Co – referee for managing students’ Master Dissertation assessment process	Presentation of assessment criteria to students, development of a guideline (“Vademecum”) for teachers on how to assess students’ Master

		Dissertation (criteria to define a what is a “good” qualitative and quantitative research).
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The following Table 12 gathers all administrative activities related to the coordination of national and international research projects. Management and coordination activities refer to managing partners' outcomes and collaboration, research coordination and budget follow-up activities with the finance department for reporting purposes. I participated in the writing of intermediary and final reports regarding academic, administrative, and financial matters and presented them to the funding institutions, including the European Commission.

Table 12: Research projects I participated to or coordinated

Project	Role	Participants*	Total budget	Status
ETHICO-CREA (H2020 – RIA, 2-step assessment process)	Development, coordination, writing the proposal, submission of the proposal	Excelia Business School , Graz University (Austria), Cap Digital (France), Jonköping Business School (Finland), Tampere University (Sweden), University Cork College (Ireland), Barksanem (Burkina Faso), University of Basel (Switzerland), Aarhus University (Denemark), Infracres (Germany), Universidad Nova de Lisboa (Portugal), Politecnico di Milano (Italy), Euronovia (France)	€ 3,894,987	Submitted in 2021, passed the first stage, rejected at the second stage. Currently under revision for the development of a Marie Curie project.
Family-Firms & Sustainable Development – a Supply Chain Perspective (FASD). Bilateral	Development, coordination,	Excelia Business School (France) Salzburg University (Autriche)	€ 284,804.39	Submitted twice in 2020 and 2021 with positive assessment

research project between ANR (France) and FWF (Austria)	writing the proposal, submission of the proposal			but rejection. To resubmit in 2024.
Transmitting Sustainable Purchasing Values Along the Supply Chain: Challenges and Opportunities. Research visit project under Ulysses funding scheme.	Development, coordination, writing the proposal, submission of the proposal	Excelia Business School (France), University Cork College Ireland (Ireland)	€ 2,300	Submitted in 2019 but rejected. Integrated into ETHICO-CREA.
COROLO (2019 – 2022) (3 years)	Managing the convention between the company COROLO and IRSI – Excelia Business School, research based on the firms' business problems and presentation of the outcomes, managing the budget.	Excelia – IRSI (France) and COROLO (Compagnie Rochelaise du Logiciel), La Rochelle (France)	€ 30,000	Finished.

<p>Responsabilité, efficacité et durabilité des chaînes logistiques devant des crises et événements inattendus – RESCUE <i>(responsibility, efficiency, and sustainability of logistics chains facing unexpected crisis and events)</i>. Action Research, COVID-19, ANR funding.</p>	<p>Participated to the proposal writing</p>	<p>Excellia Business School (France), Kedge Business School (France), Kyoto University (Japan)</p>	<p>€ 240,000</p>	<p>Submitted once in 2021, being rewritten for new submission.</p>
<p>« Aufbereitung von Kritischen Rohstoffen aus speziellen Abfallströmen » - <i>Recycling critical raw materials from industrial waste streams</i> – AKRoSA (2015-2018) (4 years)</p>	<p>Member of the research team from 2015 to 2016</p>	<p>Graz University (Austria), Montanuniversität Leoben (Austria), ARGE Shredder GmbH, BT-Wolfgang Binder GmbH, D. Swarovski & Co, IFE Aufbereitungstechnik GmbH, IUT – Ingenieurgesellschaft Innovative Umwelttechnik GmbH.</p>	<p>€ 728,833</p>	<p>Financed and finished.</p>
<p>Developing a sustainable energy supply for Bruck an der Mur city, Styria, Austria - Energieschwamm Bruck</p>	<p>Co-responsible for the project management and</p>	<p>Graz University (Austria), Montanuniversität Leoben (Austria), Stadtwerke Bruck an der Mur GmbH (Austria), Brucker BIO Fernwärme</p>	<p>€ 68,650</p>	<p>Financed and finished.</p>

(2015-2016) (1 year)	member of the research team.	GesmbH (Austria), Stadtgemeinde Bruck an der Mur (Austria) https://nachhaltigwirtschaften.at/en/sdz/projects/energy-sponge-bruck-energieschwamm-bruck-an-der-mur.php		
Assessing the intangibles: the socioeconomic benefits of improving energy efficiency - IN-BEE. H2020 2014-2016 (3 years)	Project manager for the University of Graz and researcher	Universita Degli Studi del Piemonte Orientale Amedeo Avogadro (Italy), Graz University (Austria), University of Oxford (United Kingdom), Deloitte Advisory (Spain), Instytut Energetyki (Poland), Sofia Energy Centre Ltd (Bulgaria), Teknologian Tutkimuskeskus VTT OY (Finland). https://cordis.europa.eu/project/id/649619	€ 1,020,688	Financed and finished.
Sustainability Data Exchange Hub – SustainHub. H2020 2012-2015 (3 years)	Researcher and co-manager of the project for the University of Graz	Fraunhofer Gesellschaft zur Forderung der Angewandten Forschung EV (Germany), Graz University (Austria), Ulm University - Institute of Databases and Information Systems (Germany), Coresource (Sweden), Intertek (Sweden), Board of Innovation (Belgium), Denkstatt	€ 3,500,000	Financed and finished. SustainHub became a company managed by iPoint.

		(Austria), iPoint (Germany), Microelectronica (Romania), Johnson Controls (Germany), Agfa Healthcare (Belgium), Continental (Germany), IDEA (Switzerland), Tecnoimprese (Italy), Rapid- Miner (Germany) https://cordis.europa.eu/project/id/283130		
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* in bold is the coordinating institution of the whole project

Appendix n°4: Supervision of Ph.D. and Master thesis

Appendix n°4.1.: Ph.D. thesis supervisions

Thesis supervision activities in section 06 of the National University Council (CNU) are limited to holders of a Habilitation à Diriger des Recherches (HDR), which is one of the main motivations for my application for an HDR at CEREFIGE. However, it is possible to co-direct theses according to the rules of each university. For example, this is not possible at the University of Graz in Austria, but it is possible at the University of Basel in Switzerland or at the University of Ljubljana in Slovenia.

Thus, through my activities in setting up European research projects and organising a mirror class in 2020, I had the opportunity to meet PhD supervisors who offered me co-supervision on topics related to my research. Between 2020 and 2023, I have been co-supervising Ms. Darja Mihailova with Prof. Paul Burger from the University of Basel. Darja conducted a thesis funded by SMART-BEEjS, a European Horizon 2020 project. The title of her thesis is "Users as change agents in Positive Energy Districts (PEDs)" and her defense took place in April 2023. I accompanied Darja in identifying the management theories and concepts to be mobilised in her work as well as her post-doctoral professional orientation. One part of the thesis resulted in the co-publication of the following article:

Mihailova, D., Schubert, I., Burger, P., Fritz, M.M.C. (2022). Exploring modes of sustainable value co-creation in renewable energy communities. *Journal of Cleaner Production*, 330, 129917.

Since 2019, I have also been working on the COROLO project with Nicola Scenci, a teacher at Excelia Business School, who asked me to accompany him in the development of his article-based thesis project. COROLO project is about understanding the drivers and barriers for supermarkets' recall and withdrawal of dangerous goods to protect final consumers. We have been working on his Ph.D. project since 2020 and together we have developed his research plan, the draft of a research article as well as a case study. I also supported and accompanied him in the development of interview guidelines and data collection. With an HDR, we will be able to bring to life this project and Nicola will be able to register to a doctoral school.

I have also been proposed to co-supervise Luka Kobal, a student of the University of Ljubljana, with Associate Professor Jure Erjavec in order to accompany Luka on the subject of sustainable management of digitalisation and supply chains. I accepted this proposition, which was made

possible by the rules of the University of Ljubljana which do not require an HDR. The co-supervision started in September 2022.

In addition to co-supervisions of Ph.D. candidates, I had the opportunity to assess and participate in juries for the delivery of the Ph.D. diploma of two candidates in 2022, Dr. Erik Siems and Dr. Karen Meza-Peralta:

- For Dr. Erik Siems - University of Kassel, Germany. Title: “*Stakeholder management in sustainable supply chains*”. Thesis supervisor: Stefan Seuring (one of the most renowned and cited researchers in the field). Evaluation of the written work and participation in the thesis jury (online). Thesis defended on 25 February 2022, in Kassel and obtained with honours. Language: English.

- For Dr. Karen Meza-Peralta - University of La Sabana, Colombia. Title: “*Towards the Configuration of Urban Logistics Spaces (ULS) networks*”. Thesis supervisors: Jairo Montoya and Jesus Gonzalez-Feliu. Evaluation of the written work and participation in the thesis jury (online). Thesis defended on 5 April 2022, in Chia. Language: Spanish.

Thus, with this request for authorisation to register for an HDR at CEREFIGE and the SJPEG doctoral school, I wish to open myself up to more doctoral supervision, particularly in France where having an HDR is required. This desire to supervise theses is today slowed down by the absence of HDR. Indeed, I receive requests for supervision that I cannot answer favourably without an HDR. Through my current experiences of co-supervision, I wish to accompany more Ph.D. students and contribute to their integration into academic life. There is now more than ever a real need to understand sustainable supply chain management, to teach it, and to develop tools accessible to professionals in this field.

Appendix n°4.2.: Master thesis supervisions

In total, I have supervised 39 Masters theses between 2018 and 2023 in the programmes of Master in Management, Master in Strategy and CSR and Master of Science specialised in Purchasing & Supply Chain Management. All of them are Excelia students' theses, except for Sonia Debicki's thesis at the University of La Rochelle and Niklas Tessman's thesis at the University of Graz.

Table 13: Master thesis supervisions (N=39)

Academic year	Student name	Title of the Thesis
2022-2023 (5 thesis)	Andrieux Lise	<i>Les tensions liées à la démarche durable dans les petites entreprises.</i> Excelia Business School.
	Fontaine Maelle	<i>La Décarbonisation de la chaîne d'approvisionnement d'une organisation.</i> Excelia Business School.
	Rakotonirinat Jean-Luc	<i>La lutte contre le gaspillage de fruits et légumes dans la grande distribution: enquête terrain LIDL.</i> Excelia Business School.
	Mariage Victor	<i>Le contexte durable de l'entreprise comme moyen d'évolution de nos modes de consommation: Le marketing et la Supply Chain au service de la politique durable de l'entreprise.</i> Excelia Business School.
	Mackowiak Luc	<i>Sustainable Management of Electronic Devices at the End of the Product Life Cycle.</i> Excelia Business School.
2021-2022 (6 thesis)	Dagorn Clément	<i>L'impact environnemental du transport routier de marchandises : une analyse multi-parties prenantes.</i> Excelia Business School.
	Embry Léna	<i>Le rôle de l'éco-conception dans la durabilité de la supply chain.</i> Excelia Business School.
	Simon Gauthier	<i>Les achats responsables : le cas des palettes de bois.</i> Excelia Business School.
	Lacombe Claire	<i>L'impact des entreprises fabriquant des produits agro-alimentaires labellisés : étude sur le comportement du consommateur dans son intention d'achat.</i> Excelia Business School.

	Mackowiak Luc	<i>Sustainable Management of Electronic Devices at the End of the Product Life Cycle.</i> Excelia Business School.
	Perez Louis	<i>L'importance des achats indirects : étude dans le secteur de l'armement.</i> Excelia Business School.
2020-2021 (6 thesis)	Bernard Maxime	<i>Purchasing department in securing the procurement of raw materials in the automotive industry.</i> Excelia Business School.
	Bourlon Martial	<i>L'importance stratégique du service achat pour la mise en place de la politique RSE de l'entreprise.</i> Excelia Business School.
	Didden Laure	<i>L'importance de l'intégration d'une politique RSE dans les PME pour la pérennité de leurs activités face à la pression des grandes entreprises.</i> Excelia Business School.
	Dupenloux Diane	<i>Les achats responsables/durables au sein des entreprises et leurs impacts sur l'environnement.</i> Excelia Business School.
	Kocian Thomas	<i>Les impacts et enjeux du changement climatique dans le domaine des achats en milieux agro-alimentaire.</i> Excelia Business School.
	Marchal- Lachière Jefferson	<i>Faciliter le dialogue du manager RSE avec ses parties prenantes, à l'aide d'une méthode d'écoute inspirée de la Communication NonViolente.</i> Excelia Business School.
2019-2020 (10 thesis)	Bellanger Delphine	<i>Cosmétique premium: l'engagement timide des marques questionné par la naissance du besoin de naturalité du consommateur.</i> Excelia Business School.

	Berthelot Romain	<i>Les stratégies d'adaptation des entreprises aux pénuries de ressources naturelles. L'exemple du secteur de la construction en France.</i> Excelia Business School.
	Dexant Cécile	<i>Les achats responsables et éthiques le long de la Supply Chain.</i> Excelia Business School.
	Dransard Nicolas	<i>Contracting as a tool to improve supplier CSR and sustainability performance.</i> Excelia Business School.
	Guitton Thibault	<i>Integrating Green Purchasing in global manufacturing supply chains.</i> Excelia Business School.
	Huynh Yan	<i>Grands événements (GE) et Responsabilité Sociétale des Entreprises (RSE): étude selon une approche multi-parties prenantes.</i> Excelia Business School.
	Jacquemont Mathilde	<i>L'influence de la politique d'achats durables sur les processus et dispositifs de l'entreprise.</i> Excelia Business School.
	Le Barillec Lucille	<i>Les facteurs nécessaires à la mise en place d'une politique d'achat responsable dans le secteur public.</i> Excelia Business School.
	Naveau Marine	<i>La gestion de l'achat responsable de cacao.</i> Excelia Business School.
	Savouré Pierre-Marie	<i>L'impact des achats responsables sur la performance des industries automobiles.</i> Excelia Business School.
2018-2019 (11 thesis)	Berthelot Romain	<i>Comment les entreprises peuvent faire face à une possible pénurie de pétrole ? L'exemple du BTP en France.</i> Excelia Business School.

Boruchowitch Félix ¹⁶	<i>Les achats responsables, sources de création de valeur pour les parties prenantes internes et externes.</i> Excelia Business School.
Boutrasseyt Céline	<i>Durabilité sociale de la Supply Chain.</i> Excelia Business School.
Cluzel Pierre	<i>L'introduction du concept Amazon Go en France : Facteurs moteurs et barrières.</i> Excelia Business School.
Cosson Benoit	<i>How to develop a waste management system in a context where the priority remains the issue of sustainable economic development?</i> Excelia Business School.
Debicki Sonia	<i>Développement à l'international des microentreprises et petites et moyennes entreprises Françaises du secteur bio.</i> Université de La Rochelle.
Garo Charlotte	<i>L'impact des femmes à la tête de la Supply Chain dans les décisions prises en RSE.</i> Excelia Business School.
Laine Luc	<i>Les mécanismes de lutte contre le gaspillage alimentaire dans la supply chain.</i> Excelia Business School.
Lannes Léa Lucille	<i>Politique d'achats responsables au sein des petites et moyennes entreprises françaises : Les freins au sourcing responsable - Le cas suez.</i> Excelia Business School.
Ravalec Pierre	<i>L'impact d'une démarche RSE dans la Supply Chain des entreprises textiles sur la confiance du consommateur final.</i> Excelia Business School.
Rivollier Alexis	<i>Les stratégies des entreprises face à la pénurie des ressources : Cas du phosphore</i>

¹⁶ This Master Thesis has been valorised in a conference and led to the publication of a research paper in *Journal of Cleaner Production* (Boruchowitch and Fritz, 2022).

		<i>dans l'agroalimentaire. Excelia Business School.</i>
2017 (1)	Tessmann Niklas ¹⁷	<i>Cooperation regarding conflict minerals in the automotive, aviation and electronics industries' supply chains. Graz University, Austria.</i>

¹⁷ This thesis was co-supervised with Professor Baumgartner and valorised in a book chapter for Springer (Fritz and Tessmann, 2017).

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Citizenship: French

Birth date: 13th July 1987

Marital status: engaged

Driving license

Professional social media:



Associate Professor in Sustainable Supply Chain Management

WORK EXPERIENCE

09/2018 – present Associate Professor in Sustainable Supply Chain Management

(5 yrs)

Excelia Business School, Supply, Purchasing & Project Department, La Rochelle, France

- **Research fields:** sustainability management in supply chains, business ethics, digital supply chain management, stakeholder identification and engagement, sustainability performance measurement, sustainable business models, diversity
- **Teaching fields:** Sustainability & supply chain management, sustainable procurement, digitalization of supply chains, sustainability & digitalization, Strategy and CSR, business ethics, ethical supply chain management, research projects in supply chain management, qualitative research methods
- **Guest lecturer:** at the University of Graz, Austria (2021), Pontifical Catholic University of Peru, Peru (2023, 2022, 2021), University of CEMA, Argentina (2021), Universidad de La Costa, Colombia (2023)
- **Guest editor:** International Journal of Physical Distribution and Logistics Management (2021-2022); Supply Chain Forum: an International Journal (2021-2022); International Journal of Productivity and Performance Management (2020-2021); Associate Editor for the “Encyclopedia of the Sustainable Development Goals: Transforming the World We Want”, published by Springer in 2018, as part of the World Sustainability Series. Editor: Professor Walter Leal
- **Conference chair:** EurOMA Forum (2022, 2021), MACCA (2022, La Rochelle), PROLOG (2022, Nantes)
- **Organizing committee:** AIRL-SCM (2024, La Rochelle), PROLOG (2018, Luxembourg), EurOMA Forum (2021, La Rochelle)
- **Reviewer:** *Journal of Cleaner Production* since 2015, *International Journal of Physical Distribution and Logistics Management* since 2019, *Logistique & Management* since 2019, *International Journal of Logistics Management* since 2021, *Business Strategy & the Environment* since 2022, *EurOMA forum conference* since 2018
- **Supervising:** Master students with their Master Thesis (2022-2023: 5; 2021-2022: 6; 2020-2021: 6), PhD students (2 since 2021)
- **Science to public:** radio broadcasting on sustainability teaching in Higher Education (2022, RCF radio), instagram post with students during the international student sustainability week (2021), roundtable on sustainable procurement organized by La Rochelle Chamber of Commerce (2020), radio broadcasting on consumer safety related to agri-food products (2019, RCF radio)

- 02/2018 – 07/2018** **Consultant**
(6 months) *denkstatt GmbH, Vienna, Austria*
- Developed and wrote the sustainability report of a phosphor mining company according to the Global Reporting Initiative standard (GRI)
 - Methods: workshops, individual interviews, materiality analysis, stakeholder identification and assessment
- 09/2017 – 07/2018** **Independent researcher and consultant**
(11 months) Literature reviews and stakeholder identification, analysis and engagement in the mining sector
- 09/2015 – 10/2018** **Lecturer**
(4 yrs) *Excelia Business School, La Rochelle, France*
- Field: information management for supply chain management (24h)
 - Level: MSc. – 16 students
 - Period: June 2018
- Institute for Research in Environment, Civil Engineering and Energy, Skopje, Macedonia*
- Field: sustainable development and sustainable supply chain management (9h)
 - Level: Masters – 20 students
 - Period: May 2018
- Institute of Systems Sciences, Innovation and Sustainability Research University of Graz, Austria*
- Fields: sustainable supply chain management, social sustainability assessment, environmental and social governance, research methods (4 x 22,5h)
 - Level: Masters and Bachelors – 15 to 25 students
 - Supervising 2-7 students on sustainability-related research topics
 - Period: Sep. 2015 – June 2018
- 02/2012 – 09/2017** **Researcher and project employee**
(5 ½ yrs) *Institute of Systems Sciences, Innovation and Sustainability Research University of Graz, Austria*
- 9 peer-reviewed scientific articles published
 - 6 book chapters
 - 11 presentations at international conferences
 - 6 presentations science to public
 - 4 completed research projects at EU level (2) and Austrian level (2)
 - Writing of research proposals and project deliverables (EU and Austrian levels)
 - Methods: structured literature reviews, quantitative and qualitative text analysis, interviews, surveys, participant observation, case-studies, focus groups
 - Development of new methods for sustainability assessment in supply chains and stakeholder identification
 - Member of the Organizing Committee for the New Business Model conference (2017, Graz)
 - Organizing committee of the New Business Model Conference, Graz (June 2017)
- 04/2014 – 07/2014** **Intern in mercury trade for a use in Artisanal and Small-scale Gold Mining (ASGM)**
(4 mths) *United Nations Environmental Programme (UN Environment), Chemical Branch Geneva, Switzerland*
- Undertook a literature review on mercury use in each ASGM country (73 countries)

- Analysed the global trade of mercury towards these countries with the UN Comtrade database
- Carried out a global survey on mercury practices targeting government representatives, mercury experts and other organisations
- Summarised all findings in a report for use by the UN Environment

09/2010 – 08/2011 Business Developer for Recycling and Upgrading Services

(1 yr)

*LAFARGE AGGREGATES Headquarters
Paris, France*

- Assisted the Recycling and Upgrading Director: creation of a newsletter, market studies, participation in internal and external communications, branding of recycled aggregates
- Supported site managers in the development of local business models
- Created a “Recycling Guide” for employees
- Presented my work to the Management Committee

09/2009 – 06/2010 Business Developer for the recycling of bottom ash from municipal wastes

(10 mths)

*INASHCO B.V.
Rotterdam, The Netherlands*

- Analysed the French market of bottom ash and construction wastes producers
- Identified and met potential clients for the technology proposed by INASHCO
- Facilitated the launch of a sustainable construction project with the CERIB (French institute for research on the concrete production industry)
- Summarised potential market opportunities in a report for use by INASHCO

EDUCATION

2012 – 2017 PhD in Sustainability Management in Supply Chains (with high honours)

University of Graz, Graz, Austria

- Focus: Sustainability-oriented Management
- Followed courses and grade (1: excellent, 5: insufficient): Value Chain Management (1), Environmental and Technical Assessment (2), Environmental Decision Making (2), Scientific writing in English (1), Realising Scientific Contribution in Sustainable Business Studies: A Process Approach (1), Scientific article writing and research methodologies for sustainable studies (1), Integration and Evaluation of Systems (1), Networks (1)
- Dissertation: **“Sustainability Management in Supply Chains: developing a supply chain view to operationalise sustainability among multiple stakeholders”**
- Supervisor: Professor Rupert J. Baumgartner
- Trainings:
 - **Career Programme for Women Scholars. Skills, Strategies, and Networking** Organized by the Coordination Centre for Gender Studies and Equal Opportunities (143 hours)
 - **Webinar on Corporate Emissions Reporting** in the framework of the Greenhouse Gas Emissions Protocol. World Resources Institute (10 hours)

2008 – 2011 Masters in Management (MIM)

Clermont Graduate School of Management, Clermont-Ferrand, France

- Focus areas: Geostategy, Business Negotiation, Managerial Behaviour
- Other subjects: Finance, Accounting, Marketing, Information systems, Business ethics
- Thesis: **“Recycling at Lafarge: Communication or real strategy?”**

2009 6-mth exchange programme (in Spanish)

Universidad de Chile, Santiago de Chile, Chile

- Focus areas: Strategy, Social Assessment of Project, Managerial Behaviour, Ecology

2006 – 2008 Undergraduate programme preparing for the competitive entrance examination to business schools. *Lycée Vial, Nantes, France*

IT SKILLS

Microsoft Office: Word - Excel - Power Point – Outlook
Survey: Survey Monkey - Lime Survey – Google forms
Diagramming: Visio - Omni Graffle - yEd
Content analysis: MaxQDA, NVIVO
Other: Basics in Gephi (network analysis) and spi (carbon footprint)

LANGUAGE SKILLS

French: Native
English: Written and spoken fluent
Spanish: Written and spoken fluent
German: Intermediate in written, spoken working knowledge

RECOGNITIONS

- **Expert in sustainable supply chain** for Cap Digital since 2021
- **First stage proposal selected for the “Young Independent Researcher Groups” (Austrian Fund)**
Title: “Transparent supply chains and sustainable consumption” (May 2018)
- **Selected for the workshop on Marie Curie proposal writing**, Aalborg University, Denmark (May 2018)
- **First stage proposal selected for the AXA Post-Doctoral Fellowships 2017**. Title: “Towards Mercury-Free Gold for Artisanal and Small-Scale Gold Miners: Investigating Sustainable Business Models, The Role of Women and Gold Supply Chain Mechanisms” (January 2017)
- **Co-Nominated for the teaching award “Responsible Science”**, University of Graz (January 2017)

INVITED PRESENTATIONS (8)

- Guest speaker at the 10th conference “Congreso Internacional Industria y Organizaciones” on “**Organizational innovation in value chains as a contribution to the Sustainable Development Goals**”, Barranquilla, **Colombia** (9-10 August 2023). Organized by the University of La Costa and the National University of Colombia.
- Speaker at the **roundtable on sustainable procurement** organised by **Scalian** consulting company and targeting practitioners, Toulouse, **France** (6th October 2022)
- Speaker for delivering a talk on the paper “Who in the firm can create sustainable value and for whom? A single case-study on sustainable procurement and supply chain stakeholders” (Boruchowitch and Fritz, 2022) at the **World Conference on Climate Change & Sustainability** (1-3 September 2022), Frankfurt, **Germany**. Presented by co-author (3rd September 2022)
- **4th meeting on Social and Solidarity Economy** on the topic of sustainable procurement, organised by **La Rochelle Chamber of Commerce**, La Rochelle, **France** (19th February 2020)
- LAND.HAUS.GESPRÄCH. *Entwicklungszusammenarbeit - Interessensgeleitete Außenpolitik oder partnergeleitete Entwicklungspolitik?* (“Cooperation for the development of developing countries - Interest-guided foreign policy or partner-led development policy?”). Upon invitation of the **Styrian Government**, Graz, **Austria** (25th April 2018)
- *Environmental protection and social justice in global supply chains – research perspectives and practical solutions*. 7th Austrian Development Conference: SOCIO-ECOLOGICAL TRANSFORMATIONS NOW! Upon invitation of the **Paulo Freire Zentrum**, Graz, **Austria** (17th – 19th November 2017)
- *Stakeholders in the local/regional/global value chains for mercury and gold*. Guest lecture in the Value Chain Management course of **Professor Ralf Aschemann**, University of Graz, **Austria** (16th June 2016)
- *Actors in the local/regional/global value chains for mercury and gold. Sub-regional training workshop on baseline inventories of mercury use in ASGM*. Upon invitation of the **consulting company COWI**, Dar Es Salaam, **Tanzania** (3rd May 2016)

PEER-REVIEWED PUBLICATIONS (26)

Publications	Citations*	Classification
Fritz, M.M.C. , Ruel, S. (2023). What does 'sustainable supply chain management' really mean? A contribution to bridging the gap between research, education, and practice. <i>The International Journal of Logistics Management</i> .		FNEGE 3
Ferrari, G., Fritz, M.M.C. (2023). Durabilité de la supply chain de la filière vins et spiritueux: un besoin d'innovation et de collaboration. <i>Logistique & Management</i> .		FNEGE 3 ABS B
Fritz, M.M.C. , Cordova, M. (2023). Developing managers' mindset to lead more sustainable supply chains. <i>Cleaner Logistics and Supply Chain</i> . Open access.	2	
Silva, M. E., Fritz, M.M.C. , Seuring, S., Matos, S. (2023). Guest editorial: The social sustainability of global supply chains – a critical perspective on current practices and its transformative potential. <i>International Journal of Physical Distribution & Logistics Management</i> , 53(1), 1-12.	2	CNRS 3 FNEGE 2 HCERES A
Lara-Rodriguez, J.S., Fritz, M.M.C. (2023). How does eliminating mercury in artisanal and small-scale gold mining lead to achieve the sustainable development goals? <i>Natural Resources Forum – A United Nations Sustainable Development Journal</i> , 47(2), 214-228.		CNRS 3 HCERES B
Fritz, M.M.C. (2022). A Supply Chain View of Sustainability Management. <i>Cleaner Production Letters</i> . Open access.	7	
Fritz, M. , Silva, M., Touboulic, A. (2022). Practicing sustainability in operations and supply chain management. <i>Supply Chain Forum: An International Journal</i> , 23(4), 323-328.	2	CNRS 4 FNEGE 3 ABS B
Boruchowitch, F., Fritz, M.M.C. (2022). Who in the firm can create sustainable value and for whom? A single case-study on sustainable procurement and supply chain stakeholders. <i>Journal of Cleaner Production</i> , 363, 132619.	21	FNEGE 3 HCERES B ABS 2
Silva, M.E., Fritz, M.M.C. , El-Gahaihy, W. (2022). Practice theories and supply chain sustainability: a systematic literature review and a research agenda. <i>Modern Supply Chain Research and Applications</i> .		
Kuzey, C., Fritz, M.M.C. , Uyar, A., Karamand, A.S. (2022). Board gender diversity, CSR strategy, and eco-friendly initiatives in the transportation and logistics sector. <i>International Journal of Production Economics</i> . 108436	28	CNRS 1 FNEGE 1 HCERES A
Mihailova, D., Schubert, I., Burger, P., Fritz, M.M.C. (2022). Exploring modes of sustainable value co-creation in renewable energy communities. <i>Journal of Cleaner Production</i> , 330, 129917.	31	FNEGE 3 HCERES B ABS 2
Fritz, M.M.C. , Lara-Rodríguez, J.S. (2021). Mercury-free artisanal and small-scale gold mining: Proposing a community-business model canvas. <i>The Extractive Industries and Society</i> . 101039	1	Impact factor: 3.586
Fritz, M.M.C. , Ruel, S., Kallmuenzer, A., Harms, R. (2021). Sustainability Management in Supply Chains: The Role of Familiness. <i>Technological Forecasting & Social Change</i> . 173	26	CNRS 2, FNEGE 2, HCERES A
Ruel, S., Fritz, M.M.C. (2021). Gender diversity in supply chains: towards more sustainable decisions? evidence from interviews. <i>Supply Chain Forum: An International Journal</i> .	9	CNRS 4, FNEGE 3, B
Del Pilar Quiroz Galvan, M., Fritz, M.M.C. , Šimunović, N., Stern, T., Rauter, R. (2021). Overcoming sustainability challenges with non-profit organisations? Insights from the apparel supply chain. <i>Supply Chain Forum: An International Journal</i> 22(2), 115-135.	5	CNRS 4, FNEGE 3, HCERES B
Vlachos, I., Fritz, M. , Ruel, S. and Kumar, V. (2021). Editorial. <i>International Journal of Productivity and Performance Management</i> , 70(5), pp. 985-987.		
Ruel, S., Fritz, M.M.C. , Nachiappan, S. (2020). Gender diversity for sustainability management: developing a research agenda from a supply chain perspective. <i>Logistique & Management</i>	12	FNEGE 3, HCERES B
Bartoszewicz-Burczy, H., Baumgartner, R.J., Fawcett, T., Fritz, M.M.C. , Killip, G., Valladolid, T., Violi, C. (2019). Assessing the intangibles:	2	

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Ferrari, G., **Fritz, M.M.C.** (2021). Sustainability in the cognac supply chain. The Case Centre.

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- Damberg, S., Fritz, M.M.C., Bozic, K., Saari, U.A., Dlugoborskyte, V. (2023). Consumers' purchasing behavior of Cradle to Cradle Certified® products – The role of trust and supply chain transparency. *Business Strategy and the Environment* (Major revisions). FNEGE 3.
- Fritz, M.M.C., Matthews, L., Anand, A. (2022). Where is ethics in sustainable supply chain management? A structured literature review. *Journal of Business Ethics*. FNEGE 1.
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- Fritz, M.M.C., Carmagnac, L., Silva, M. (2022). Contributions of Logistics and Supply Chain Management research to the Sustainable Development Goals: a Meta-Synthesis. *Business Ethics, the Environment & Responsibility*.
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- Fritz, M.M.C., Bozic, K., Damberg, S., Saari, U. (2022). Consumer perception of supply chain sustainability practices. *International Journal of Production Economics*. FNEGE 1.
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OTHER TYPES OF PUBLICATIONS (3)

- Fritz, M.M.C., McQuilken, J., Collins, N., Weldegiorgis, F. (2018). Global Trends in Artisanal and Small-Scale Mining (ASM): A Review of Key Numbers and Issues. © 2017 *International Institute for Sustainable Development (IISD)*. [54 citations](#) on Google Scholar as of 31st August 2022.
- Fritz, M.M.C. (2017). Sustainability Management in Supply Chains: Developing a Supply Chain View to operationalise sustainability among multiple supply chain stakeholders. *PhD Thesis, University of Graz, Austria*. 3 citations.
- Baumgartner, R.J., Damert, M., Fritz, M.M.C., Schöggel, J.-P. (Eds.) (2017). IP Sustainability in Global Supply Chains – A stakeholder perspective. In: *Rupert J. Baumgartner, Manfred Fuellsack, Ulrike Gelbmann, Series Eds., Reports #9, ISSN 2305-2511/print/, ISSN 2308-1767/online/, SIS, Graz, Austria*.

RESEARCH PROJECTS (5)

Name, duration, fund, budget	Research activities	Administrative activities
Sponsorship Convention, Compagnie Rochelaise du Logiciel (COROLO) – Institut de la Responsabilité Sociétale par l’Innovation (IRSI - Excelia) 2019-2022 Budget: €30,000	<ul style="list-style-type: none"> ➤ Literature review on products recalls and withdrawals ➤ Data collection from COROLO and its stakeholders (interviews) 	<ul style="list-style-type: none"> ➤ Project management ➤ Dissemination
IN-BEE Assessing the intangible benefits of energy efficiency. 03/2015 – 03/2017 (2 yrs). Funds : UE. Budget: €60,313 (whole project : 1,020,688 €)	<ul style="list-style-type: none"> ➤ Literature review on intangible benefits of energy efficiency ➤ Case-study on Austrian Energy Regions development plans for renewable energies and questionnaire to the directors of these regions ➤ Analysis of measures taken in Austria to improve energy efficiency 	<ul style="list-style-type: none"> ➤ Project management: time management, cost planning and reporting ➤ Deliverables ➤ Dissemination
Energieschwamm Bruck Developing a sustainable energy supply for Bruck an der Mur city, Styria, Austria. 06/2015 – 05/2016 (1 yr). Fonds: FFG (Austria) Budget: €40,225€ (whole project : €68,650)	<ul style="list-style-type: none"> ➤ Identification of local energy stakeholders and validation with project partners in a workshop ➤ Development of sustainable business model scenarios ➤ Creation of a guide for the development of renewable energies in cities of 10,000-25,000 inhabitants 	<ul style="list-style-type: none"> ➤ Project management: time management, cost planning and reporting ➤ Deliverables ➤ Dissemination
AKRoSA Recycling critical raw materials from industrial waste streams. 02/2015 – 02/2016 (1 yr). Fonds: FFG (Austria)	<ul style="list-style-type: none"> ➤ Literature review on recycling critical raw materials from industrial waste streams in Austria 	<ul style="list-style-type: none"> ➤ Project management: time management, cost planning and reporting ➤ Dissemination

Budget : €50,000 (whole project:
€728,833)

SustainHub

Developing a Sustainability Data
Exchange Hub for the electronics
and automotive supply chains.
02/2012 – 01/2015 (3 yrs).

Funds : UE.

Budget: €256,880 (whole project:
€3,500,000)

- Literature review on sustainability aspects for sustainability reporting along the supply chain
- Organisation of workshops to validate these aspects with representatives of industrial partners
- Development of a method to measure a supply chain sustainability performance
- Project management: time management, cost planning and reporting
- Deliverables
- Dissemination

HOBBIES

Hiking, climbing, biking, gardening

La Rochelle, 18th October 2023

