CRANFIELD UNIVERSITY

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INSTITUTIONAL PLURALISM AND THE SEARCH FOR SUSTAINABILITY-ORIENTED INNOVATION OPPORTUNITIES IN HYBRID ORGANISATIONAL FORMS

CRANFIELD SCHOOL OF MANAGEMENT

PhD
Academic Year: 2012 - 2016

Supervisor: Dr Palie Smart
April 2017

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Institutional pluralism and the search for sustainability-oriented
innovation opportunities in hybrid organisational forms

PhD Thesis
Abstract

Abstract

Organizational search is an inherent part of innovation and enables the creation of new knowledge combinations. It precedes the selection and implementation stages of the innovation management process, which is often concerned with ideas that have commercial potential. There is extensive evidence of global trends that require organisations to innovate in pursuit of sustainable development aims. This transpires a sense of urgency associated with a loss of ecosystem, depletion of natural resources and minerals, climate change and high rates of unalleviated poverty. Such contextual changes call for investigative inquiry into organizations search behaviours for sustainability-oriented innovations (SOI) that privilege open exploration and exploitation of novel sources of value.

This more distributed approach to organisational search illustrates venturing in 'unfamiliar' territories with so-called 'unusual partners'. Examples include not-for-profit, no-governmental agencies, civil society and public administrative governmental bodies – as a broader set of stakeholders engaged to identify valuable opportunities for innovation. Search in such collaborations is distinguished from traditional experience, as multiple institutional boundaries are spanned to source new knowledge inputs. These collective endeavours create hybrid organizational forms in which a variety of institutional orders and logics perform. Moreover, they have the capacity to coalesce seemingly competing and antagonistic missions to deliver social, environmental and economic progress. These efforts foster creativity by accessing knowledge and resources from beyond 'familiar' territories and boundaries to enhance levels of innovativeness. Recent studies in the field of organizational search have begun to focus on this phenomenon of 'variety creation'. Such works proffer the merits of organisational boundary spanning behaviours, but to date have been limited to transcending disciplinary, departmental, organisational and sectoral boundaries and knowledge territories.

This doctoral study deploys an exploratory detailed case study approach in a market leading multi-national automotive organisation that engages multiple institutional partners for the purposes of innovation. The findings from ten case projects demonstrate that 'institutional pluralism' affects the search for SOI opportunities in five major ways. First of all, institutional pluralism provides slack and second, it triggers both local and non-local search types. Third, the relationship between distinct institutional logics promotes different levels of (knowledge) variety creation. Fourth, 'aligned' logics have a more positive effect on both variety creation and levels of radicalness. Finally, as the number of logics engaged increases, the range and scope for innovation broadens. The overall theoretical contribution is to the organisation search literature and proposes institutional pluralism as a further mechanism for variety creation. This general contribution has led to further insights concerning the role of slack in local and non-local search variants and logic relationships during the search for innovation opportunities with so-called unusual partners.

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innovation opportunities in hybrid organisational forms

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Keywords

Keywords

Organisational search, institutional logics, sustainability-oriented innovation, variety creation, hybrid organisational forms

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Abbreviations

List of abbreviations

Abbreviation	Description
CSR	Corporate social responsibility
HQ	Headquarter
HOF	Hybrid organisational form
IP	Institutional pluralism
NGO	Non-governmental organisation
OEM	Original equipment manufacturer
Search	Organisational search
SME	Small and medium enterprise
SOI	Sustainability-oriented innovation
SOI opportunities	Sustainability-oriented innovation opportunities

Conferences

Hemel, S., Smart, P., Macdonald, E., and Pilbeam, C. (2016) 'Institutional pluralism and the search for sustainability-oriented innovations', *R&D Management Conference 2016.* Cambridge University, Cambridge, UK, 3-6 July 2016.

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Institutional pluralism as a mechanism for variety creation in the search for sustainability-oriented innovation opportunities (working title). Academy of Management Journal

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Glossary of terms

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Term	Description
Activity	"A thing that a person or group does or has done" (OED, 2017)
Actor	"A participant in an action or process" (OED, 2017)
Agent	"A person or thing that takes an active role or produces a specified effect" (OED, 2017)
Aim	"A purpose or intention; a desired outcome" (OED, 2017)
Aligned logic	Indicates that "the core of the organisation is united, even as it reflects the goals, values, identities, and practices associated with multiple logics" (Besharov and Smith, 2014, p.373)
Aspiration level	Describes "a reference point that identifies the boundary between perceived success and failure" (in Baum, Rowley and Shipilov, 2005, p.538; based on Cyert and March, 1963; March and Simon, 1958)
Aspiration performance	Describes whether an a hope or ambition of achieving a particular goal has been realised (OED, 2017)
Boundary-spanning	Interfacing with other organisations across technological, organisational, and institutional boundaries to access resources, share information, or work collaboratively to produce goods and services (based on Pilbeam and Jamieson, 2010)
Contested logic	"High centrality leads multiple logics to vie for dominance, with no clear guide between them. As a result, the core of the organisation is contested" (Besharov and Smith, 2014, p.371)
Corporate social responsibility	"Corporate sustainability and Corporate Social Responsibility relate to company activities—voluntary by definition—demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders" (van Marrewijk, 2003, p.102)
Corporate sustainability	See corporate social responsibility
Critical incidents	"Extreme behaviour, either outstandingly effective or ineffective with respect to attaining the general aims of the activity" (Flanagan, 1954, p.10)
Cross-sector collaborations	Collaborations relating to, or affecting, more than one group, area, or section (OED, 2017)
Discrete organisational form	Enterprises with a legally integrated form and profit destination, as well as clear ownership and governance structures (Battilana and Dorado, 2010; Haigh and Hoffman, 2012; Pache and Santos, 2013)
Dominant logic	"A prevailing logic is reinforced by one or more subsidiary logics" (Besharov and Smith, 2014, p.374)
Eco-innovation	Eco-innovations improve material resource productivity and create a positive environmental impact; based on definitions of sustainable innovation (Carrillo-Hermosilla, del Río and Könnölä, 2009), environmental innovation (Horbach, 2008), and green innovation (Schiederig, Tietze and Herstatt, 2012)

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Economic sustainability	"Economically sustainable companies guarantee at any time a cash flow sufficient to ensure liquidity while producing a persistent above average return to their shareholders" (Dyllick and Hockerts, 2002, p.133)
Engagement	"The action of engaging or being engaged" (OED, 2017)
Ecological sustainability	"Ecologically sustainable companies use only natural resources that are consumed at a rate below the natural reproduction, or at a rate below the development of substitutes. They do not cause emissions that accumulate in the environment at a rate beyond the capacity of the natural system to absorb and assimilate these emissions. Finally they do not engage in activity that degrades eco-system services" (Dyllick and Hockerts, 2002, p.133)
Estranged logic	"These organisations exhibit less ambiguity and complexity about which logic guides organisational action, but they must still contend with one or more subsidiary logics that are at odds with the dominant logic" (Besharov and Smith, 2014, p.372)
Exploitation	Building on known certainties, such as previous knowledge and organisational routines, and includes factors such as "refinement, choice, production, efficiency, selection, implementation, [and] execution" (March, 1991, p.71)
Exploration	Identifying new possibilities, such as "search, variation, risk taking, experimentation, play, flexibility, discovery, [and] innovation" (March, 1991, p.71)
Guiding principle	A fundamental truth or proposition that serves as the foundation for a system of belief or behaviour and directs the motion or positioning of these truths (based on OED, 2017)
Hybrid organisational form	Organisational structures and practices that "draw on at least two different sectoral paradigms, logics and value systems" (Doherty, Haugh and Lyon, 2014, p.2)
Hybrid organisations	Hybrid organisations "adopt social and environmental missions like non-profits, but generate income to accomplish their mission like for-profits" (Haigh and Hoffman, 2012, p.126)
Innovation	Innovation is the "production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and the establishment of new management systems. It is both a process and an outcome" (Crossan and Apaydin, 2010, p.1155)
Institutional field	A group of people that is organised around shared values and norms and which produces consistent behaviours and actions (based on Fligstein, 2001)
Societal level	The societal level is a field that aims to understand how "organised groups of actors" shape the attention and structure of organisational fields (based on Thornton, Ocasio and Lounsbury, 2012)
Idea	"A thought or suggestion as to a possible course of action" (OED, 2017)

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Term	Description
Innovation opportunity	A point in time or a set of circumstances that makes it possible to deliver a new method, idea, or product (based on OED, 2017)
Institutional logics	"Socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organise time and space, and provide meaning to their social reality" (Thornton and Ocasio, 2005, p.101)
Institutional pluralism	"Institutional pluralism is the situation faced by an organisation that operates within multiple institutional spheres" (Kraatz and Block, 2008, p. 243). Thus, institutional pluralism reflects two or more logics in a hybrid organisational form (Doherty, Haugh and Lyon, 2014)
Local search	Searches within or near an organisation's current knowledge base (Fleming and Sorenson, 2004; Helfat, 1994; Stuart and Podolny, 1996)
Logic centrality	"The extent to which (institutional) logics manifest in core features that are central to organisational functioning" (Besharov and Smith, 2014, p.365)
Logic compatibility	"The extent to which instantiations of multiple logics within an organisation imply consistent organisational actions" (Besharov and Smith, 2014, p.365)
Mission purpose	Refers to a strongly felt core philosophy of an organisation or a hybrid organisational form that is the reason for which something is done or created (based on OED, 2017)
Non-discrete organisational form	Enterprises with no clear legal status, multiple profit destinations, and decentralised ownership and governance structures (Battilana and Dorado, 2010; Haigh and Hoffman, 2012; Pache and Santos, 2013)
Non-local search	"A conscious effort to move away from current organisational routines and knowledge bases" (Katila and Ahuja, 2002, p.1184); other terms include exploration (Lavie and Rosenkopf, 2006) and boundary-spanning (Rosenkopf and Nerkar, 2001)
Norm	A standard or pattern, especially of social behaviour, that is typical or expected (OED, 2017)
Objectives	"A thing aimed at or sought; a goal" (OED, 2017)
Opportunity	"A time or set of circumstances that makes it possible to do something" (OED, 2017)
Organisation	"An organised group of people with a particular purpose, such as a business or government department" (OED, 2017)
Organisational ambidexterity	An organisation's ability to demonstrate alignment and efficiency in the management of today's business demands while simultaneously adapting to changes in the environment (Raisch and Birkinshaw, 2008, p.375)
Organisational field	The organisational field refers to the organisation as a stable entity organised around values and norms (Greenwood et al., 2011)

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Term	Description
Organisational search	Finding "new ideas that have commercial potential" (Laursen and Salter, 2006, p.131); organisational search is part of the innovation process and describes a front-end stage that precedes selection and implementation (Tidd and Bessant, 2009). It is a search for both knowledge and innovations.
Organisational slack	Cumulated excess resources used for discretionary exploration, as slack resources "are not committed to a necessary expenditure" (Dimick and Murray, 1978). This study also considers donations, in-kind contributions, voluntary engagements, and financial investments as slack resources.
Partner	"A person who takes part in an undertaking with another or others, especially in a business or firm with shared risks and profits" (OED, 2017)
Partnership	"An association of two or more people as partners" (OED, 2017)
Potential innovation opportunity	A point in time or a set of circumstances that illustrate the firm's capacity to develop a new method, idea, or product in the future (based on OED, 2017)
Practice	The customary, habitual, or expected procedure or way of doing something (OED, 2017). In the context of this work, this term refers to meaningful activities informed by wider cultural beliefs (Engeström, 1999)
Problemistic search	A direct response to the prior organisational performance (Greve and Taylor, 2000), problemistic search prevents the decline of existing core practices.
Project	A collaborative enterprise that is carefully planned to achieve a particular aim (OED, 2017)
Realised innovation opportunity	A point in time or a set of circumstances that delivered a new method, idea, or product (based on OED, 2017)
Search aspiration	A search that follows discrete performance aspiration targets (based on Levinthal and March, 1981)
Search breadth	"The number of different search channels that a firm draws upon in its innovative activities" (Laursen and Salter, 2004, p.135); this definition is linked to the search scope.
Search depth	Describes "how deeply a firm reuses its existing knowledge" (Katila and Ahuja, 2002, p.1183) and "the extent to which firms draw intensively from different search channels or sources of innovative ideas" (Laursen and Salter, 2004, p.136)
Slack search	An "irresponsible" search that uses discretionary resources to experiment or explore activities (Laursen, 2012; Levinthal and March, 1981)
Search scope	Describes "how widely a firm explores new knowledge" (Katila and Ahuja, 2002, p.1183)
Social innovation	"Innovative activities and services with a primary social purpose that are motivated by the goal of meeting a social need and that are predominantly developed and diffused through organisations whose primary purposes are social" (Mulgan et al., 2007, p.8).

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Term	Description
Social sustainability	"Socially sustainable companies add value to the communities within which they operate by increasing the human capital of individual partners as well as furthering the societal capital of these communities. They manage social capital in such a way that stakeholders can understand its motivations and can broadly agree with the company's value system" (Dyllick and Hockerts, 2002, p.133)
Sustainability-oriented innovation	"Sustainability-oriented innovation (SOI) involves making intentional changes to an organisation's philosophy and values, as well as to its products, processes or practices, to serve the specific purpose of creating and realizing social and environmental value in addition to economic returns" (Adams et al. 2016, p.180)
Sustainable	Reflects the aim of achieving a positive ecological, social, and economic impact; based on the notion of the triple bottom line (Elkington, 1997)
Variety	The quality or state of being different or diverse; the absence of uniformity or monotony (OED, 2017)
Variation	A different or distinct form or version of something (OED, 2017)
Variety creation	Refers to the process of recombining different pools of knowledge and to the ideas and opportunities generated from search triggers and types (Laursen, 2012; Patel and Pavitt, 1997)
Variety inputs	Sources of knowledge used to identify knowledge (based on Laursen, 2012; Laursen and Salter, 2004)
Variety outputs	Refers to identified ideas and opportunities.

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Introduction

1 Introduction

This chapter introduces the phenomenon of interest and provides an overview of the research on the basis of both theoretical and empirical observations and analyses. The chapter concludes by outlining the remainder of this thesis.

1.1 The phenomenon of interest

This thesis explores the organisational search for sustainability-oriented innovation (SOI) opportunities in multiple institutional contexts, motivated by the assertion that organisational search, or simply "search", is often concerned with finding "ideas that have commercial potential" (Laursen and Salter, 2006, p.131). Thus, search enables organisations to discover new ideas and opportunities (Levinthal and March 1981), and it precedes the "selection" and "implementation" phases of the innovation process (Bessant et al., 2005). Identifying ideas and opportunities is therefore one of the cornerstones underlying innovation.

Global climate-change pressures, resource scarcity, and poverty make the search for SOI opportunities increasingly significant (Adams et al., 2016; Bessant, 2013; Seebode, Jeanrenaud and Bessant, 2012; Smart et al., 2017, forthcoming). Hence, sustainable value creation is an important activity (Hart and Milstein, 1999), as it triggers opportunities both inside and outside organisational boundaries (Bessant, 2013). For example, companies such as Marks and Spencer, Unilever, and Toyota have embraced the issue of sustainability and have strengthened their relationships with a range of stakeholders on matters related to overconsumption (Sheth, Sethia and Srinivas, 2011), environmental degradation (WWF, 2013), and social inequity (Marks & Spencer plc, 2017; Toyota Motor Corporation, 2017; Unilever, 2015). These projects connected to corporate social responsibility (CSR) essentially reflect a search for intentional changes that add "social and environmental value in addition to economic returns" (Adams et al., 2016, p.180). Sustainability-sensitive organisations need to address an increasing range of commercial, social, and environmental objectives to meet their aims, and so they must seek innovation opportunities that satisfy their current and future demands.

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Large organisations commonly undertake multiple CSR-related efforts to locate opportunities for optimising and transforming business in society (Adams et al., 2016). These searches often require multiple engagements partners such as universities, governments, professional organisations, and communities because such aims are "impossible to achieve alone" (Adams et al., 2016, p.186). This diversity of stakeholder backgrounds and interests not only reflects the different contexts in which organisations conduct their searches but also a hybrid organisational form encompassing a diversity of sectoral paradigms, logics, and value systems with potentially conflicting objectives (Doherty, Haugh and Lyon, 2014). This so-called institutional pluralism—"the situation faced by an organisation that operates within multiple institutional spheres" (Kraatz and Block, 2008, p.244)—therefore describes both the setting and the potential sources of knowledge by which SOI opportunities can be identified[1]. Indeed, an organisational search for SOIs often requires many engaged (and sometimes unusual) partners that aspire to meet their own distinct aims and that of the collective.

The institutional logics theoretical frame is useful in describing the multiple objectives and aims during organisational search. In fact, the literature on hybrid organisations (Battilana and Dorado, 2010; Jay, 2013; Pache and Santos, 2013) shows that companies are sometimes torn between meeting incompatible and competing demands. There are clear parallels to the case of sustainability-oriented innovations, and it should be clearly noted that integrating social and environmental ambitions often result in commercial tension and conflicts (Hahn et al., 2015).

These observations illustrate the notion of corporations engaging nonmarket partners such as non-profit organisations (NGOs) to search for novel sources of innovation as a phenomenon of research interest in more distributed contexts (Holmes and Smart, 2009; West et al., 2014; West and Bogers, 2014). By implication, exploring partnerships with such unusual stakeholders is a great opportunity to learn about the differences to

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[1] Institutional pluralism is a central attribute of a hybrid organisational form, as two or more discrete logics are involved. However, note that Doherty et als. (2014) implicit description is that sectors contain discrete institutional logics, even if technically speaking sectors may be embedded in the same value system and logic. This study follows Doherty's understanding and understands hybrid organisational forms as containing logics from two or more institutionally discrete sectors.

commercially-oriented innovation engagements, and therefore open innovation scholars call for an examination of open innovation in not for profit contexts (West et al., 2014).

These observations initially led to a review of the discourses on organisational search, sustainability-oriented innovation, and institutional logics, followed by a detailed case study empirical inquiry. Indeed, the literature domains were extensive and to a great extent independent. For instance, open innovation engaging not-for-profit partners in a CSR context was discussed (Holmes and Smart, 2009) but did not consider the implications of multiple institutional logics (i.e. institutional pluralism) on organisational search. Furthermore, the organisational search for innovation literature focused purely on commercial (economic) opportunities (Laursen, 2012; Laursen and Salter, 2006). A particular line of argument in this literature suggests the importance of "variety creation" through boundary spanning practices for organisational search to enhanced innovation outcomes (Laursen, 2012). It was considered that the amalgamation of these literary fields of study might deliver insights about the relationship between organisational search (behaviours), the multiplicity of institutional logics and the scope for innovation opportunities. Broader and deeper engagements with unconventional partners, each with discrete and distinct institutional values, norms, and missions, may provide greater capacity to meet economic, social and environmental aims of future innovations.

1.2 Overview of the research

This study aims to explore the role of *institutional pluralism on the organisational search for SOI opportunities*. Therefore, this work is premised on an exploration of institutional pluralism in relation to (i) organisational search behaviour, and particularly the "triggers" (Greve, 2003a; Laursen, 2012) and "type" of search (Laursen, 2012; Rosenkopf and Nerkar, 2001); (ii) "variety creation" of knowledge (Laursen, 2012); and (iii) "sustainability-oriented innovation" (Adams et al., 2016; Klewitz and Hansen, 2014; Seebode, Jeanrenaud and Bessant, 2012) opportunities - that reflect the effectiveness to which so called hybrid organisational forms (Doherty, Haugh and Lyon, 2014) meet multiple institutional demands. These forms have been defined as organisational structures and practices that "draw on at least two different sectoral paradigms, logics and value systems" (Doherty, Haugh and Lyon, 2014, p.2).

This study proposes embedding (knowledge) variety creation in a hybrid organisational form comprising a multiplicity of institutional logics, thereby contributing to the literature on organisational search, and particularly variety creation (Laursen, 2012), in the field of innovation management.The aim of this work is to demonstrate that institutional pluralism in hybrid organisational forms permits organisations' to span institutional boundaries. In doing so, this work addresses four calls in the literature for further study. First of all, Gavetti et al. (2007) expressed a concern that organisational behaviour and learning have been disintegrating over the past three decades (Gavetti, Levinthal and Ocasio, 2007). Thus, they claimed that researchers should reunite search behaviour and learning, such as by investigating the role of search in an institutionally embedded setting. By implication, this work generates insights concerning the integration of search in a wider institutional context.

Secondly, Laursen (2012) indicated a need for further research on variety creation in search (Laursen, 2012), due to the fact that search behaviour is poorly understood with regards to its radicalness, as are the search triggers and types that to date are argued to lead to more radical innovation opportunities. In addition to this call, West et al. (2014) propose more studies on the application of open innovation to not for profit contexts (West et al., 2014). As a result, this work addresses and investigates the features that contribute to variety creation in such settings. Such features to date have been limited to crossing disciplinary, functional and organisational boundaries and have not considered the transcendence of institutional boundaries.

Third, this thesis responds to calls for more empirical research on SOI (Adams et al., 2016; Klewitz and Hansen, 2014; Seebode, Jeanrenaud and Bessant, 2012), as many studies in this domain have been theoretical in nature. Thus, this dissertation provides an empirical account of sustainable value creation. Indeed, although this thesis helps to fill multiple gaps in the literature, it specifically focuses on organisational search. Figure 1 gives an overview of the research domains addressed in this study and their relationships with each other.

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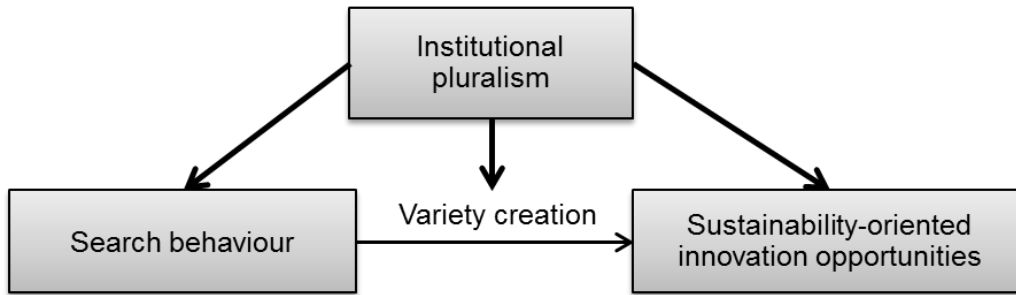
Figure 1: Overview of the research

The illustration above indicates the relative importance of institutional pluralism. What it doesn't show, however, is that institutional pluralism is a feature of a hybrid organisational form (Doherty, Haugh and Lyon, 2014) that can affect search behaviour, variety creation, and the resultant innovation opportunities generated. For this reason, the study of institutional pluralism is a central cornerstone of this study on organisational search that implies the context of a hybrid organisational form. Therefore, the research question states as follows:

What is the impact of institutional pluralism on the search for sustainability-oriented innovation opportunities?

Note that this question addresses *both* search behaviour and variety creation in the context of a hybrid organisational form. This work will therefore explore behavioural features of organisational search and the resultant impact on variety creation, which can be understood as the opportunities that meet discrete institutional logic missions.

The approach of this study is an exploratory and embedded case-study design (Yin, 2009) that investigates 10 hybrid organisational forms in an automotive organisation. The central objective is a comparison of institutionally diverse engagements and an examination of organisational search, including invested resources, the types of search, the relationship between logics and the types and scope of opportunities. This study uses 33 interviews and provided an in-depth understanding of 13 projects embedded in 10 hybrid organisational forms.

The findings of this thesis illustrate a number of effects associated with institutional pluralism on the search for SOI opportunities.

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Firstly, this study indicates that slack is an important antecedent to identifying sustainability-oriented innovation opportunities. This particularly concerns discretionary slack resources, including resource, volunteer, and financial slack. Secondly, whereas previous studies have made tenuous associations between slack and non-local search, this study shows that slack search triggers lead to both local and non-local searches for SOI opportunities. Thus, slack resources were used as means to search within a discrete logic or across multiple ones. Thirdly, the findings reveal that the number of central institutional logics impacts the search, as does their compatibility. Partners with distinct logics were not always able to draw from each other's knowledge with ease and traction. Indeed, the fourth finding shows that particularly hybrid organisational forms characterised by high levels of alignment delivered more SOI opportunities. So hybrid organisational forms with multiple compatible and central logics could both access each other's knowledge pools and make use of innovative outcomes. Lastly, the fifth finding shows that a greater number of logics also increased the scope for innovation opportunities as the potential for a range of product, process, business model, and system-level opportunities increased as well.

Following these findings, this study contributes to the organisational search "variety creation" discourse in six ways. First, it unites the research streams on search, institutional logics, and SOI and therefore responds to multiple calls to examine sustainable opportunities with unusual partners in institutionally embedded contexts (Adams et al., 2016; Bessant, 2013; Gavetti, Levinthal and Ocasio, 2007; Laursen, 2012; Seebode, Jeanrenaud and Bessant, 2012). Secondly, it contextualises variety creation within hybrid organisational forms. This approach moves forward contributions on adaptive organisational search (Levinthal and March, 1981), as it permits the study of multiple institutional logics and their effect on variety creation. This study thirdly facilitates a discussion on the role of institutional pluralism in variety creation. This finding therefore adds to the search literature that institutional pluralism can be a source for variety (Besharov and Smith, 2014; Laursen, 2012). Fourthly, this study identifies both local and non-local slack search variants, which moves forward previous contributions on commercially-oriented search (Greve, 2003a; Laursen, 2012). Indeed, slack in SOI searches is used to support *both local and non-local search* that result in radical and incremental innovation opportunities. Fifth, it explores the key role of logic

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relationships in variety creation. This work therefore emphasises the role of specific relationships between logics as opposed to prior studies that have studied the exchange of knowledge across social groups (Kogut and Zander, 1996; Laursen, 2012). The proximity of knowledge, as well as the centrality and compatibility of logics also had a particular influence on this exchange, as did the number of logics in hybrid organisational forms. More logics also increased the partnerships' potential for SOI opportunities. Lastly, this work demonstrates that hybrid organisational forms are capable of delivering SOI opportunities. This is a contribution to the sustainability-oriented innovation literature as it adds that hybrid organisational forms have the capacity to produce SOI opportunities (Adams et al., 2016).

Certainly, variety creation depends on the range of institutional values, norms and mission active in a hybrid organisational form. By implication, this research project's overall contribution to theory is that institutional pluralism enables variety creation in the organisational search for innovation discourse.

1.3 Structure of the thesis

This thesis is composed of seven chapters. This chapter introduced the topic of interest, namely, sustainability-oriented organisational searches in multi-institutional environments. Chapter 2 continues by positioning the relevant literature domains and providing a theoretical foundation for this study.

Afterwards, chapter 3 uses this theoretical basis to establish a conceptual framework, aggregating the relevant explanatory concepts into a composite framework. Chapter 3 therefore frames this study, providing the research question that is further investigated in chapter 4.

Chapter 4 explains the methodology used to answer the research question. It first discusses the research philosophy and design and then elaborates on the data collection and analysis processes. It thus provides a thorough account of the empirical approach.

Chapter 5 presents the research findings, including 10 case narratives. As a result, it identifies behavioural patterns that affect variety creation in hybrid organisational forms.

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Chapter 6 discusses these patterns, linking the observations back to the relevant literature domains and knowledge gaps. Indeed, this chapter describes the study's contributions to knowledge.

The last chapter summarises the study and its theoretical and practical contributions, then turning to its limitations, the dissemination of further work, and suggestions for future research. It concludes with a personal reflection on the research process.

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2 Positioning the research

This chapter positions this research project within the existing literature. By doing so, it
sheds light on both the roots of this analysis and the current state of the fields under
study. As Figure 2 illustrates, this study focused on the overlap of three discourses:
organisational search, *institutional logics, and sustainability-oriented innovation (SOI)*.
While chapter 3 explores this intersection in greater detail, an explanation of each
distinct body of literature and its specific research interests is first required. This chapter
fulfils that task.
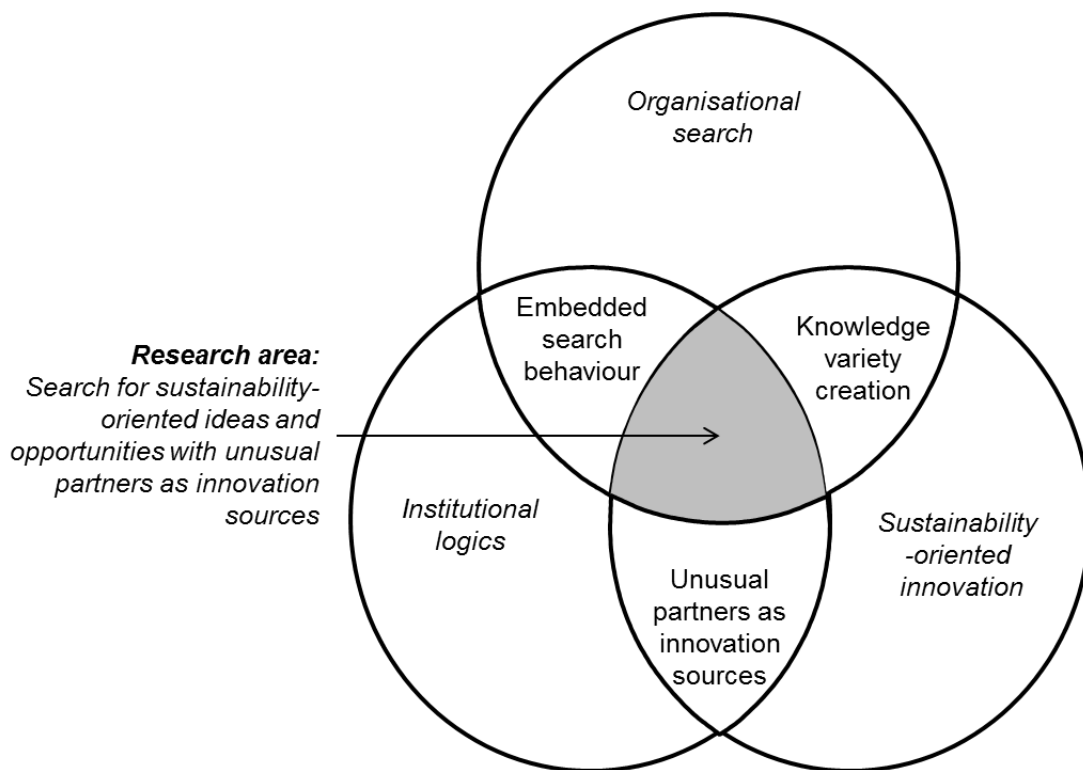
Figure 2: Research positioning

Broadly speaking, the *organisational search literature* addresses topics around
organisational search behaviour and learning. More specifically, it explores how
organisations search for new innovations and opportunities (Gavetti, Levinthal and
Ocasio, 2007; Greve, 2003b; Laursen, 2012). Organisational search is therefore
interested in the behavioural features that create ideas and opportunities (Cillo and
Verona, 2008; Day and Schoemaker, 2005; Laursen and Salter, 2006).

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The *institutional logics literature*, on the other hand, addresses the role of different norms and practices, and it is especially concerned with discrete logics and their behavioural impacts at the societal, organisational, and individual field levels (Thornton, Ocasio and Lounsbury, 2012; Thornton and Ocasio, 2005). Hybrid organisations, for example, often embody competing values at the organisational level and are therefore popular arenas for exploring competing logic relationships (Hockerts, 2015; Murray, 2010; Pache and Santos, 2013). Other studies are interested in interactions across levels (Greenwood et al., 2011) and the proactive manipulation of logics (Greenwood and Suddaby, 2006; Tracey, Phillips and Jarvis, 2011). Hence, the institutional logics literature focuses on the sociological dynamics between or within individuals, organisational forms, sectors, and societies.

Lastly, the *SOI literature* focuses on possibilities for creating sustainability-oriented businesses. It is linked to the strategic innovation literature, which is concerned with the search for sustainable product innovations (Hansen, Grosse-Dunker and Reichwald, 2009) and the use of unusual sources to achieve sustainability-oriented innovations (Adams et al., 2016; Bessant, 2013; Seebode, Jeanrenaud and Bessant, 2012). This branch of the literature therefore focuses on uniting seemingly incompatible objectives through innovation and opportunity (Bessant, 2013; Hahn et al., 2014, 2015; Seebode, Jeanrenaud and Bessant, 2012).

One should note that these three domains also share overlapping sub-domains. For example, the literature on both search and institutional pluralism literature, both share an interest in the search-related behaviour of organisations (Gavetti, Levinthal and Ocasio, 2007). Likewise, both the organisational search and SOI research streams focus on the variety creation of sustainability-oriented innovation opportunities (Adams et al., 2016). Lastly, the institutional pluralism literature overlaps with the discourse on SOI, as both perceive unusual partners as alternative sources of innovation (Holmes and Smart, 2009; Jay, 2013; Seebode, Jeanrenaud and Bessant, 2012). Both discourses imply that partners from different sectors bring their logics and establish a hybrid organisational form (Doherty, Haugh and Lyon, 2014; Dunn and Jones, 2010; Tracey, Phillips and Jarvis, 2011). This thesis, however, integrates all three literature domains, and so its research area represents an amalgamation of all three. It thus follows that this

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study's central interest is the *search for sustainability-oriented ideas and opportunities, with unusual partners such as NGOs, governments, or community groups as innovation sources.*

The next section introduces the theoretical context in which these three research streams are positioned.

2.1 Theoretical context

The theoretical context reflects the underpinnings of each discourse. This section therefore explores the paradigms upon which these literature domains (i.e., organisational search, institutional logics, and SOI) are founded.

Three central concepts exert an influence on all three literature domains: theories of behaviour and learning; theories of sustainability and CSR; and institutional theories, and particularly the institutional logics perspective. Akin to a patchwork rug, all of these research streams draw from multiple sub-strands of these theories (Mellahi and Frynas, 2016), with discrete theoretical elements influencing them. The following sections describe the influence of these theories.

2.1.1 Theories of behaviour and learning

Theories of behaviour and learning describe how organisational behaviour drives learning. The Chicago-based *Carnegie school* (Gavetti, Levinthal and Ocasio, 2007) has played a key role in shaping these models, describing the foundations of organisational search (Cyert and March, 1963; Levinthal and March, 1981; March, 1991; March and Simon, 1958). The intellectual foundation of behaviour and learning theories originate from three key works: *A Behavioural Theory of the Firm* (Cyert and March 1963); *Organisations* (March and Simon, 1958); and *Administrative Behaviour* (Simon, 1997). According to Gavetti et al. (2007), these works highlight three key premises of behavioural and learning theories: (i) firms are the ultimate object of study; (ii) decision-making offers a means of studying organisations, and; (iii) behavioural plausibility is a core principle underlying theory. Drawing on these premises, these works have influenced numerous fields (Gavetti, Levinthal and Ocasio, 2007), such as the decision-making literature, as well as the literature on evolutionary economics, both of which remain relevant (Nelson and Winter, 1982). The following paragraphs briefly

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introduce these two literature domains, as they shed light on the various cognitive and structural elements that permeate this theoretical domain.

The *decision-making literature* addresses, for example, boundedly rational cognition, which is concerned with managerial decisions made under uncertainty (Simon, 1997). This field has emerged as a reaction to rational choice models (Gavetti, Levinthal and Ocasio, 2007) and claims that managers optimise a known choice set of alternatives in a search (i.e. Radner and Rothschild, 1975). Interestingly, this approach has also been applied to the case of rational search—a term used to describe a search strategy based on a sequence of activities (Mahdi, 2003). By implication, managers adhere to a set of sequential problem-solving steps (as exemplified by Brunswicker and Hutschek, 2010; Garvin, 1993). Simon, however, disputed this notion of rational search and argued that such a characterisation was incomplete. In fact, he claimed that the discovery of alternatives was subject to a *search process*. More specifically, he posited that *satisficed decisions*—a term used to describe the behaviour of managers who stop a search upon identifying a seemingly appropriate alternative capable of satisfying organisational performance criteria—determined the types of organisational options (Simon, 1997). By implication, satisficing is an alternative to rational models, as it assumes incomplete information during a search for innovation opportunities. This concept is also known as *bounded rationality* (Amit and Schoemaker, 1993; Gavetti, Levinthal and Ocasio, 2007).

Undeniably, bounded rationality provides an explanation of how organisations search for new opportunities and alternatives, as their lack of information moderates their ability to adapt to desired performance targets (Levinthal and March, 1981). This description of bounded rationality also inspired Nelson and Winters' (1982) interpretation of routine-based behaviour. In their view, search is not simply a decision-making process. Rather, it is also reflected in *organisational routines*—the "behavioural and predictable behaviour patterns of firms" (Nelson and Winter, 1982, p.14). Akin to Simon's description of bounded rationality (1997), Nelson and Winter argued that organisational routines are *adaptive in response to performance feedback and subsequent search processes*. Thus, organisations seek to fulfil discrete performance targets, that will be termed *search aspirations*. These aspirational targets succeed or fail

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to meet aspiration level objectives. In the case of successfully met objectives, existing routines trigger a search for modifications for those routines, whereas failed objectives trigger a search for further innovations (Nelson and Winter, 1982). This adherence to, or deviation from, search routines therefore identifies refinement or innovation opportunities depending on whether search aspirations are met.

The idea that organisations seek to boost their performance by adapting to current and future market conditions resulted in another influential description of the term "search", namely, that it addresses the relationship between the *exploration* of new possibilities and the *exploitation* of existing certainties (March, 1991). *Exploration* describes "search, variation, risk-taking, experimentation, play, flexibility, discovery, [and] innovation" (p.71), as well as the search for, and identification of, new opportunities (Day and Schoemaker, 2004, 2005; Holmes and Smart, 2009; Laursen, Leone and Torrisi, 2010; March, 1991; Nicholas, Ledwith and Bessant, 2013; Sabatier, Craig-Kennard and Mangematin, 2012). In contrast, *exploitation* involves "refinement, choice, production, efficiency, selection, implementation, [and] execution" (March 1991, p.71). Therefore, *exploitation* is concerned with current business improvements based on "old certainties" (March, 1991), whereas *exploration* seeks to secure future business opportunities. This distinction is important, as it suggests that search can be either a routine or experimental, and so learning and behaviour theories rest on this division. This study therefore focuses on exploration and exploitation in the context of innovation management at the organisational level.

This theoretical foundation illustrates that bounded rationality and the distinction between exploration and exploitation are important attributes of search. One should note, however, that these traits have thus far been linked to organisational search, with the goal of maximising organisational performance via innovation and commercial opportunities (Levinthal and March, 1981). This study, however, is also concerned with performance improvements that go beyond commercial opportunities and involve wider institutional contexts. Therefore, in addition to theories of behaviour and learning, institutional theories—and particularly the institutional logics perspective—are relevant to this study.

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2.1.2 The institutional logics perspective

The *institutional logics perspective* (Friedland and Alford, 1991; Thornton, Ocasio and Lounsbury, 2012; Thornton and Ocasio, 2005) describes a set of belief systems and associated practices that define the content and meaning of individual institutions (Friedland and Alford, 1991). Institutions refer to a set of values, norms, practices, and prescriptions at the individual, organisational, and institutional levels (Thornton, Ocasio and Lounsbury, 2012). However, the premise on which this perspective rests contrasts with *institutional theory.* Hence, the below paragraphs briefly describe the foundations of institutional theory.

Institutional theory refers to the institutionalised practices, belief systems, and norms that are treated as legitimate within a given institution (Powell and DiMaggio, 1983). More specifically, it describes the pressures that organisations or institutional fields face in their environments (Boxenbaum and Jonsson, 2008)—pressures that stem from both other institutions and from within— that drive agents towards obtaining legitimacy (Mintzberg, Ahlstrand and Lampel, 2009).

A key interest of institutional theory is the "institutionalisation" of societies and sectors (Meyer and Rowan, 1977). It is concerned with the search for legitimacy, as well as with powerful networks of actors that use their economic and symbolic resources to instil institutional rules. Outsiders aspire to belong to such groups and are pulled towards their norms, with "institutional isomorphism" the result (Meyer and Rowan, 1977). Thus, institutionalised systems pressure others to conform and imitate their practices, with their professional expertise also placing pressure on external actors (Powell and DiMaggio, 1983). Institutional theory is therefore concerned with the sociology of societal, sectoral and organisational institutions and their impact on actors.

In contrast, the *institutional logics perspective* (Friedland and Alford, 1991; Thornton, Ocasio and Lounsbury, 2012; Thornton and Ocasio, 2005) *argues that institutionalisation is not rationalised at the field level.* Instead, institutions are composed of institutional fields—groups of people that organised around shared values and norms and which produces consistent behaviours and actions (based on Fligstein, 2001). These groups contain multiple institutional logics across individual, organisational and field levels and make up an inter-institutional system. Friedland and

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Alford (1991) provided a foundation for this perspective and described an inter-institutional system that comprises five key institutions: the capitalist market, the bureaucratic state, democracy, the nuclear family, and Christianity. Each logic contains distinct practices and institutionalised norms. To date, seven key institutional "orders" have been identified that additionally include a professional and community logic (Thornton, Ocasio and Lounsbury, 2012). Table 1 provides further details on each order.

The theoretical foundations of this domain therefore permit the study of inter-institutional orders as means of describing discrete organisational fields. By their very nature, these fields are composed of distinct institutional logics with an effect on the search for SOI opportunities. Indeed, the knowledge stored within organisational fields is particularly useful when objectives extend beyond organisational boundaries. As this thesis is interested in SOI opportunities, it combines theories of behaviour and learning with the institutional logics perspective.

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Table 1: Inter-institutional system of ideal types (Thornton et al. 2012)

Categories	*Institutional orders*						
	Family	*Community*	*Religion*	*State*	*Market*	*Profession*	*Corporation*
Root metaphor	Family as firm	Common boundary	Temple as bank	State as redistribution mechanism	Transaction	Profession as relational network	Corporation as hierarchy
Sources of legitimacy	Unconditional loyalty	Unity of will; belief in trust and reciprocity	Importance of faith & sacredness in economy & society	Democratic participation	Share price	Personal expertise	Market position of firm
Sources of authority	Patriarchal domination	Commitment to community values and ideology	Priesthood charisma	Bureaucratic domination	Shareholder activism	Association with quality of craft	Board of directions; top Management
Sources of identity	Family reputation	Emotional connection; ego-satisfaction; reputation	Association with deities	Social & economic class	Faceless	Personal reputation	Bureaucratic roles
Basis of norms	Membership in household	Group membership	Membership in congregation	Citizenship in nation	Self-interest	Membership in guild & association	Employment at firm
Basis of attention	Status in household	Personal investment in group	Relation to supernatural	Status of interest group	Status in market	Status in profession	Status in hierarchy
Basis of strategy	Increase family honour	Increase status & honour of members; practices	Increase religious symbolism of natural events	Increase community good	Increase efficiency & profit	Increase personal reputation	Increase size & diversity of firm
Informal control mechanism	Family politics	Visibility of actions	Worship of calling	Backroom politics	Industry analysts	Celebrity professionals	Organisational culture
Economic system	Family capitalism	Cooperative capitalism	Occidental capitalism	Welfare capitalism	Market capitalism	Personal capitalism	Managerial capitalism

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2.1.3 Resource and agency-based theories

While no unified theory of sustainability exists, a wide array of theoretical underpinnings illustrate various strands of the sustainability literature (Connelly, Ketchen and Slater, 2011; Mellahi and Frynas, 2016). This study elaborates on two particular aspects of this discourse: *resource-based theories* and *agency-based theories.*

Resource-based theories stress the relevance of both the *internal* and *external resources* acquired to meet sustainability objectives (Connelly, Ketchen and Slater, 2011). For example, the *resource-based view of the firm* traditionally focuses on the availability of internal resources that lead to a sustained competitive advantage (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). Therefore, this view asserts that firms can possess resources, combining them to shape its organisational capabilities (Karim and Mitchell, 2000; Winter, 2000). These capabilities can be either dynamic and stable (Ambrosini and Bowman, 2009; Eisenhardt and Martin, 2000; Helfat, 1997), depending on the ability to refine, renew, or regenerate organisational resources. On the other hand, *resource-dependency theories* (Pfeffer and Salancik, 1978) stress organisations' reliance on resources, as well as the effects of these resources. By implication, organisational actions result from the demands of various interest groups and the potential scarcity of resources that constrains organisational action (Pfeffer and Salancik, 1978). Resource-based theories therefore highlight both the wealth of internal resources for organisations and the fact that dependence on material resources has an effect on organisational behaviour.

A popular example that illustrates this resource dependency is the natural resource-based view of the firm (Hart and Dowell, 2011; Hart, 1995). This perspective emphasises firms' ability to create a sustained competitive advantage by managing pollution levels, engaging in product stewardship and sustainable development, and relying on their natural resources. Table 2 summarizes these capabilities and dependencies and illustrates the resource-based view's pivotal influence on the sustainability literature.

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Table 2: The natural-resource-based view (Hart 2011)

Strategic capability	Societal driving force	Key resource	Competitive advantage
Pollution prevention	Minimise emissions, effluents, and waste	Continuous improvement	Lower costs
Product stewardship	Lower product lifecycle costs	Stakeholder integration	Reputation/ legitimacy
Clean technology	Make quantum leap improvements	Disruptive change	Future position
Base of the pyramid	Meet unmet needs of the poor	Embedded innovation	Long-term growth

Furthermore, agency-based and stakeholder theories also underpin the sustainability discourse. These closely related theoretical concepts are interested in the divergent interests of managers and shareholders (Connelly, Ketchen and Slater, 2011). In fact, managers can have sustainability-related goals that counter shareholders' interests. Therefore, *agency theories* focus on the potentially divergent interests of managers and corporate stakeholders, monitored by principals – i.e. more senior managers – to both control and incentivise agents to act on their behalf (Donaldson, 2012; Kulik, 2005). Essentially, agency-based theories are concerned with manager's varying degrees of interest in, and bondage to, these more senior managers in a corporate context (Mellahi and Frynas, 2016).

In contrast, *stakeholder theories* focus on the interests of a wider set of stakeholders (Freeman, 1984; Mitchell, Agle and Wood, 1997), such as suppliers, investors, communities, and employees (Donaldson and Preston, 1995). According to this perspective, organisations serve their stakeholders, prioritizing certain stakeholder interests *outside of organisational boundaries*. This view has strategic implications, as it addresses a stakeholder base that extends beyond shareholders alone. Thus, the concept of agency is broadened, raising the question of which actors should be included and which criteria should govern the selection process (Donaldson and Preston, 1995; Mitchell, Agle and Wood, 1997).

Observing these theoretical underpinnings, sustainability-related theories consider both the interests of a wider stakeholder network and the issue of resource consumption. This

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mix suggests that social and ecological activities seek to realise social and ecological objectives that take into account stakeholder interests and natural resources. This study acknowledges and incorporates this diversity.

The first three sections of this chapter have explored the range of theories influencing this work. Clearly, this study does not depart from a unified theoretical base. Rather, it seeks to further develop theory by combining multiple discourses. More specifically, this study focuses on the behavioural implications of undertaking searches with partners from different sectors and the impact on knowledge variety.

The next sections introduce the individual research streams from the three key literature domains, namely, organisational search, institutional logics, and sustainability-oriented innovation. They thus shed light on the literature's diversity, as well as on research gaps, indicating those elements that would support the further development of theory.

2.2 Organisational search literature

As previously mentioned, the *organisational search literature* is an integral part of innovation (Laursen, 2012; Li et al., 2013). Rooted in theories of behaviour and learning (Cyert and March, 1963), its focus is on how firms identify innovative ideas and opportunities (Tidd and Bessant, 2009). Thus, organisational search includes *exploration*—that is, "search, variation, risk taking, experimentation, play, flexibility, discovery, [and] innovation"—and *exploitation,* or "refinement, choice, production, efficiency, selection, implementation, [and] execution" (March 1991, p.71). Search outcomes thus comprise refined business practices and products, as well future business opportunities.

The organisational search literature is well-established and diverse (Laursen, 2012). In particular, it consists of four research streams: (i) local and non-local search (ii) ambidexterity, (iii) search openness, and (iv) adaptive search. The following sub-sections review these four discourses.

2.2.1 The literature on local and non-local search

The local and non-local search literature is concerned with the proximity of knowledge (Fleming and Sorenson, 2004; Laursen, 2012). In this context, "proximity" refers to the

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knowledge overlap between organisations, as well as to the expertise sourced from other innovation sources. Thus, a *local search* identifies solutions related to a firm's current area of expertise (Fleming and Sorenson, 2004; Helfat, 1994; Stuart and Podolny, 1996). *Non-local search*, on the other hand, refers to an exploratory search or boundary-spanning activity (Laursen, 2012; Rosenkopf and Nerkar, 2001) that seeks to move "away from current organisational routines and knowledge bases" (Katila and Ahuja, 2002, p.1184). Organisations therefore conduct local and non-local searches to refine their knowledge or identify opportunities with commercial potential (Laursen, 2012; Laursen and Salter, 2006). Commercial potential often implies a search for technology (Helfat, 1994; Martin and Mitchell, 1998) or organisational process knowledge (Laursen, 2012; Stuart and Podolny, 1996). Indeed, local and non-local search are two key operationalisations of exploration and exploitation in organisational learning, as they focus on enabling the exchange of knowledge (Rosenkopf and Almeida, 2003).

Local and non-local search processes differ in many ways. Local search, for example, emphasises past experiences, routines, and innovation heuristics, creating highly localised search processes with limited opportunities for variation (Dosi, 1982; Nelson and Winter, 1982; Nelson, 1991) but high levels of economic efficiency (Laursen, 2012). In particular, narrowly defined business- or product-related problems require "depth searches" (Katila and Ahuja, 2002; Laursen and Salter, 2006) that support technological refinement (Katila and Ahuja, 2002). At the same time, however, increasing knowledge redundancy gradually reduces an organisation's ability to identify further refinements or ideas (Phelps, Heidl and Wadhwa, 2012). It is for this reason that local search can potentially be damaging (Gavetti and Levinthal, 2000; Levinthal and March, 1993): It fosters cognitive biases and myopic behaviours (Levinthal and March, 1993; March, 1991). Certainly, local search is faster and more cost-efficient than non-local search, but it holds less potential for firms desiring to combine new sources of knowledge (Savino, Messeni Petruzzelli and Albino, 2015). Hence, local search is somewhat limited in terms of its knowledge variety potential.

*Non-local search—otherwise known as boundary-spanning—*responds to these constraints, identifying commercially relevant knowledge beyond organisational and technological boundaries (March, 1991; Rosenkopf and Nerkar, 2001). Indeed,

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boundary-spanning is an important activity, as it encourages firms to recombine various knowledge sources (Fleming and Sorenson, 2004; Lopez-Vega, Tell and Vanhaverbeke, 2016; Rosenkopf and Nerkar, 2001). Depending on the setting, non-local search delivers novel opportunities via technological experimentation (Levinthal and March, 1981; March, 1991) or a shared, peripheral search for new business models and products in technologically or geographically distant contexts (Bessant et al., 2005; Day and Schoemaker, 2005; Laursen and Salter, 2006; Rosenkopf and Almeida, 2003). Experimentation and peripheral search, however, are more costly and resource-intensive (Laursen and Salter, 2006; Lavie, Stettner and Tushman, 2010), as organisations either lack the absorptive capacity to identify such opportunities (Day and Schoemaker, 2004, 2005) or face high experimentation costs (March, 1991). While non-local search is thus less efficient, organisations rely on this activity to ensure continued learning and a constant inflow of knowledge that is relevant for future business.

The discourse on local and non-local search has utility in this context, as boundary-spanning generates knowledge variety for organisations (Laursen, 2012). At the same time, two gaps are present in this branch of the literature. First, local and non-local search have been studied as commercially oriented activities (Laursen, 2012; Laursen and Salter, 2006). Secondly, institutional boundary-spanning has not been addressed as a context for local and non-local search. This study proposes the study of local and non-local search types in multi-institutional fields. Therefore, it addresses the lack of research on institutional boundary-spanning and search in multi-institutional contexts.

2.2.2 The literature on ambidexterity

While local and non-local search essentially reflect organisations' interest in a range of knowledge sources, the literature on ambidexterity discusses the combined pursuit of both local and non-local search types (Cantarello, Martini and Nosella, 2012; Gibson and Birkinshaw, 2004; Raisch et al., 2009; Raisch and Birkinshaw, 2008). Thus, ambidextrous organisations concurrently search for solutions to today's business demands and seek to adapt to tomorrow's changes in the business environment (Duncan, 1976; Gibson and Birkinshaw, 2004; Raisch and Birkinshaw, 2008; Tushman and O'Reilly III, 1996). In other words, they attempt to simultaneously explore and exploit. This strand of the literature is therefore interested in the structural enablers of

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ambidexterity and their ability to help organisations realise their current and future goals.

Lavie, Stettner, and Tushman (2010) differentiated between four structural enablers of ambidexterity in local and non-local search. *Organisational separation*, for example, separates local and non-local search through distinct organisational units, whereas *temporal separation* uses the same organisational units but searches locally or non-locally at different points in time. *Domain separation* implies a balancing across different domains of knowledge, while specialising in either exploration or exploration, while *contextual ambidexterity* describes organisations that do not employ a distinct buffer between local and non-local search, instead fostering an organisational culture that is aligned with, and capable of adapting to, both short-term and long-term demands (Gibson and Birkinshaw, 2004).

Indeed, ambidexterity focuses on the internal, and somewhat paradoxical, allocation of resources (Andriopoulos and Lewis, 2009, 2010; Lavie, Stettner and Tushman, 2010). However, this focus on internal organisational differentiations makes this research stream irrelevant for this study. This study's focus on organisational search suggests a research context centred on institutional pluralism, while studies on ambidexterity do not make use of that lens. Nevertheless, it would be interesting to explore the role of institutional logics within organisational business units and its effect on ambidexterity.

2.2.3 Search openness

The literature on search openness focuses on innovation sources, or on the range of "variety inputs" that organisations employ to identify both organisation-*internal* and *external opportunities* in their open innovation activities (Ahn et al., 2016; Laursen, 2012; Laursen and Salter, 2006; Minshall et al., 2010; West et al., 2014). Innovation sources that are located *within organisations* include a diverse staff with a variety of educational backgrounds and employees' experiences with other organisational practices (Beckman, 2006; Lyles and Schwenk, 1992; O'Reilly, 1993; Priem, 1990). Moreover, internal innovation sources also include team members' educational and occupational backgrounds, CEO characteristics (Ahn, Minshall and Mortara, 2017), firm affiliations (Galunic and Rodan, 1997; Lyles and Schwenk, 1992; O'Reilly, 1993;

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Priem, 1990; Sutton and Hargadon, 1996), and demographic traits including race, geographic origin, and gender (Galunic and Rodan, 1997; Sutton and Hargadon, 1996).

In contrast, innovation sources from *outside of the organisation* also support variety creation and include both formal and informal collaborations (Feller et al., 2013; Narula, 2004; Oxley and Sampson, 2004), user networks (von Hippel, 1976), labour mobility across organisations (Rosenkopf and Almeida, 2003), and scientific institutions (Fleming and Sorenson, 2004; Laursen and Salter, 2004; Perkmann and Walsh, 2007). In fact, the open innovation literature also shows that externally sourced knowledge often complements internal knowledge (Chesbrough, 2003; Chesbrough, West and Vanhaverbeke, 2006; West et al., 2014). Internal and external innovation sources reflect how organisations draw on various sources of knowledge.

Search openness is also characterised by the number of search channels and the degree of engagement with them—concepts also known as "search depth" and "search breadth" (Laursen and Salter, 2004, 2006). Organisations seeking to conduct open innovation often use competitors, suppliers, customers, and universities (Laursen and Salter, 2004; Perkmann and Walsh, 2007) to conduct deep searches for specific solutions, or they seek broader alternatives with the assistance of a range of innovation partners (Laursen and Salter, 2006). Table 3 lists information channels that exemplify the range of input sources.

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Table 3: Sources of information and knowledge (based on Laursen and Salter 2004)

Type	*Source*
Internal	• Within the enterprise
Market	• Suppliers • Clients or customers • Competitors • Consultants • Commercial laboratories & R&D enterprises
Institutional	• Universities • Government research organisations • Public sector links (business relationships & government offices) • Private research institutes
Other	• Professional conferences • Trade associations • Technical/trade press & computer databases • Fairs & exhibitions
Specialised	• Technical standards • Health & safety standards & regulations • Environmental standards & regulations

On the basis of this table, five categories of variety inputs can be distinguished. These categories differ in "hardness" or in terms of the extent to which knowledge from a range of external parties can be sourced "without entering into legally binding agreements" (Laursen and Salter, 2014, p.864). A majority of studies in this specific area have focused on *inter-firm collaborations* in the form of R&D enterprises comprising contractual or equity-based joint-venture arrangements (Li et al., 2008; Link and Scott, 2005; Oxley and Wada, 2009) in which two or more firms remain independent economic agents but share certain research and development (R&D) activities (Hagedoorn, 2002). Often this involves a search for user knowledge (von Hippel, 1976, 1986; von Hippel and Foster, 1988); but also collaborations between inexperienced start-ups and long-established, complex organisations can be sources of variety (Minshall et al., 2010). Indeed, variety inputs predominantly often take the form of commercially oriented external linkages.

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Studies on institutional information sources have also treated universities as commercially oriented partnerships (Fontana, Geuna and Matt, 2006; Hughes, 2012; Laursen and Salter, 2004; Link and Scott, 2005; Perkmann and Walsh, 2007). This categorisation suggests that organisations cross institutional boundaries in order to identify commercially relevant pools of knowledge. Research-intensive partnerships in the pharmaceutical industry or within universities exemplify this phenomenon (Fleming and Sorenson, 2004; Perkmann and Walsh, 2007).

Recent contributions to the open innovation literature have also suggested that NGOs represent innovation sources (Holmes and Smart, 2009; Rondinelli and London, 2003). However, non-profit stakeholders have remained poorly represented in the search openness literature (Holmes and Smart, 2009; West et al., 2014). As a result, it is unclear whether alternative variety inputs create more ideas and opportunities. In addition, the literature has not addressed whether input variety increases with the number of institutional logics.

2.2.4 The literature on adaptive search

The adaptive search literature is concerned with the mechanisms by which lower-level objectives support larger organisational aims. More specifically, the term "adaptation" refers to a performance equilibrium in which neither local nor non-local search is necessary (Levinthal and March, 1981). This equilibrium is defined as a search aspiration target that firms either fail to meet or exceed (Levinthal and March, 1981). These met or exceeded aspiration targets trigger a search that results in greater adaptation to performance aspirations.

Following the literature, there are two adaptive search triggers: *problemistic search* and *slack search* (Cyert and March, 1963; Laursen, 2012; Nelson and Winter, 1982). These differ in their ability to deviate from existing performance. *Problemistic search,* for example, can restore or improve an organisation's market outcome (Antonelli, 1989; Kamien and Schwarz, 1982), keeping performance above the equilibrium. Problemistic search is therefore inspired by a current business problem (Laursen, 2012), and it directly focuses on effects in terms of revenue and potentially declining business payoffs.

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Slack search, on the other hand, uses slack resources, such as *redundant employees*, *unused capacity*, *and unnecessary capital expenditures* (Bourgeois, 1981), to find ideas and opportunities without an immediate or certain payoff (Levinthal and March, 1981). Therefore, slack search is inspired by future business needs and can encourage firms to pursue innovative projects characterised by high levels of uncertainty (Greve, 2003a; Nohria and Gulati, 1996).

Met or unmet organisational goals drive the search for refinements or innovations (Levinthal and March, 1981). Thus, organisations must have slack resources to meet future aspiration targets as they have the potential to enhance innovation opportunities, thus closing the gap between the organisation's current performance and desired performance (Laursen, 2012; Nohria and Gulati, 1996). Problemistic search, on the other hand, seeks to refine existing knowledge and maximise an organisation's performance. By implication, technological experimentation requires slack investments to increase innovativeness, whereas problemistic search uses absorbed resources to maintain or increase the organisation's market position through product refinements (Cyert and March, 1963). Slack can therefore only occur to a certain extent, as both too little and too much slack can have a detrimental effect on both innovativeness and the firm's market position (Nohria and Gulati, 1996). Slack search and problemistic search therefore adapt to existing and future markets by refining existing product portfolios or exploring new commercial opportunities.

Recent contributions to the slack and problemistic search literature suggest that both play an important role in variety creation (Laursen, 2012). However, this role remains unclear in two regards. First, limited consensus exists on whether slack or problemistic search triggers local and non-local search (Laursen, 2012). As stated above, studies have discussed search trigger and types as either problemistic local and slack non-local variants. By implication, other variants between search trigger and types were not considered. Second, there is a need to explore the role of multiple aspiration targets in the form of multiple institutional logics for variety creation. Search aspirations have so far been embedded in a commercial search context.

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2.2.5 The limits of the search literature

The search literature is highly informative and provides insights on organisations' search for innovation opportunities. Yet, this review also revealed a number of related limitations, namely: (i) the commercial orientation of local and non-local search; (ii) the lack of a description of institutional boundary-spanning; (iii) the limited knowledge on whether alternative variety inputs create more ideas and opportunities; and (iv) incomplete information on whether multiple aspiration targets with distinct institutional logics increase the number of variety creation opportunities. Hence, these research gaps suggest a need for studies to incorporate the institutional logics literature. Therefore, the following section reviews the literature on institutional logics, shedding light on multi-institutional environments.

2.3 The literature on institutional logics

The *literature on institutional logics* has become an independent research stream within institutional theory. It is concerned with the "material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organise time and space, and provide meaning to their social reality" (Thornton and Ocasio, 2005, p.102). This social reality is composed of individual-level cognitions and their attention focus, along with macro-level collective identities and practices. By implication, changes in cultural schemas, resources, and power sources within societal-level institutions can affect organisations and industries (Thornton, Ocasio and Lounsbury, 2012; Thornton and Ocasio, 2005). Studies on institutional pluralism have therefore discussed events and social interactions that exemplify the interplay of logics at the individual, organisational, and institutional field levels.

The next sections review the related research fields, summarizing the dynamics of the institutional logics discourse. Specifically, they address four distinct research streams: (i) the micro-foundations literature, (ii) the organisational practices and identity literature, (iii) the institutional pluralism literature, and (iv) the field emergence literature.

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2.3.1 The literature on micro-foundations

The micro-foundations literature studies individual actors, organisational forms, and sectors as part of a wider societal system that influences the organisational and institutional field levels (Thornton, Ocasio and Lounsbury, 2012). *Individual level* studies, for example, focus on human behaviour, including all facets of individuals' social identity, intentions, and embeddedness in wider social, political, and cultural structures. The core question is whether individuals can simultaneously reproduce and transform logics. This "paradox of embedded agency" (Holm, 1995, p.398) pertains to how actors can change institutions when they are simultaneously conditioned by their beliefs and practices. Therefore, individual-level descriptions address both the consequences of macro-level logics for individuals and the micro-level effects on institutional logics. Individual-level actors therefore operate between the poles of institutional embeddedness and agency.

At the *organisational level*, the principle is similar: A field composed of institutional logics influences, and is influenced by, individuals and institutional actors in a top-down or bottom-up fashion. Top-down influences, for example, generate attentional perspectives for processing information and focusing managers' attention (Thornton and Ocasio, 1999). At the same time, organisational actors also recognise certain bottom-up environmental stimuli, such as unexpected behaviours, as salient. US-president Clinton's healthcare reform initiative, for example, illustrates how actors shifted their attention to bottom-up processes that led to a new, previously overlooked logic of managed care that included new organising principles in the hospitals' organisational field (Nigam and Ocasio, 2010).

As a matter of fact, public institutions and *institutional-field level* events can also determine where organisations direct their attention (Nigam and Ocasio, 2010). For example, the 1962 publication of Rachel Carson's *Silent Spring* constituted a critical event that held polluting industries accountable for environmental damages and compelled organisations to focus on related concerns (Hoffman, 1999). Other examples include the banking and healthcare sectors (Lounsbury, 2007; Nigam and Ocasio, 2010), with those industries demonstrating how organisational decision-makers respond

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to field-level changes (Thornton, 2004). These examples illustrate the dynamic relationship between organisations and public institutions.

Micro- and macro-level events and actions can also transform or reinforce logics via *organisational decision-making*, *sense-making processes*, and the *mobilisation of other stakeholders* (Thornton, Ocasio and Lounsbury, 2012). *Organisational decision-making* focuses on the organisational routine shaping the organisation's structure and design. An attentional focus on discrete identities, roles, and schemas therefore represents a gap in the literature and an opportunity for future studies (Gavetti, Levinthal and Ocasio, 2007; Thornton, Ocasio and Lounsbury, 2012). Likewise, *sense-making processes* turn circumstances into explicit verbal descriptions that foster action and rationalise behaviours (Weick, Sutcliffe and Obstfeld, 2005). Consequently, sense-making plays a critical role in the formation of logics, as language and vocabulary can explicitly signal shifts in a given logic (Suddaby and Greenwood, 2005). Moreover, *mobilisation* refers to the diffusion of changes and collective goals via a group or a social movement (McCarty and Zald, 1977).

Following Thornton et al. (2012), the micro-foundations literature seeks to better understand a variety of processes related to individual agency, institutional logics, and its effect on the cognition of individuals. Certainly, this discourse offers many research opportunities touching on the following topics: the reproduction of institutional logics, the cognitive differences between actors, the complexities and differences in institutional logic relationships, the exogenous and endogenous changes within external fields, and micro-interactions and macro-structures. Indeed, the micro-foundations literature is incredibly diverse. However, it does not deliver insights regarding how multiple logics affect the exchange of practices in intra-organisational contexts. Therefore, a review of the discourse on organisational practices and identities follows in the next sub-section.

2.3.2 The literature on organisational practices and identities

Institutional logics can be embodied in organisational structures and symbols reflecting shared practices and beliefs (Thornton, Ocasio and Lounsbury, 2012). Therefore, a relevant research field is concerned with the relationship between organisational practices and identities, on the one hand, and institutional logics, on the other hand. The

term "practice" refers to both a "form or constellation of socially meaningful activities that are relatively coherent and established" (MacIntyre, 1981) and set of meaningful activities informed by wider cultural beliefs (Engeström, 1999). In contrast, "identities" describe an organisation's central, distinctive, and enduring features (Albert and Whetten, 1985). Therefore, practices are both embedded within, and influenced by, identities composed of different institutional logics (Friedland and Alford, 1991). Practices are thus the outcomes of identity structures that reinforce or alter field behaviours.

By implication, institutional logics can (or cannot) both shape organisational identity and provide prescriptive guidance for organisations, groups, and individuals (Albert and Whetten, 1985). Their ability to do so depends on whether they adhere to shared cognitive and normative orientations (Pratt, 2003). By implication, a deviation in terms of identity and practice is also possible and catalyses changes in the underlying logics (Thornton, Ocasio and Lounsbury, 2012). Thus, depending on the organisation's ability to mobilise resources, make decisions, and explicitly describe a situation in alignment with its goals, these alterations can ultimately lead to mission drift (Battilana and Dorado, 2010; Smith, Gonin and Besharov, 2013). Moreover, when guidance is ambiguous or conflicting, the result can lead to organisational break-ups (Besharov and Smith, 2014; Smith, Gonin and Besharov, 2013). Indeed, variations in organisational identity can occur at the organisational level.

Variations in practices can also stem from external shifts or internal political dynamics (Lounsbury, 2001). In most cases, these dynamics do not present problems. However, this literature stream focuses on homogenous—and thus less pluralistic—environments, centring on single-logic intra-organisational interactions (Kraatz and Block, 2008). As a result, studies on organisational practices have examined specific industries, such as the mutual fund industry (Lounsbury, 2007). Therefore, their contributions tend to describe endogenous intra-organisational dynamics, and researchers have not explored in-depth how practices across organisations are constructed in relation to each other (Thornton, Ocasio and Lounsbury, 2012).

Note that this discourse considers endogenous and exogenous changes in practice and seeks to identify multiple institutional field signals and pressures (Greenwood et al.,

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2011). In this context, *institutional complexity* pertains to the exogenous factors with an effect on single-logic organisational identities and practices. This means that organisational practices can be a consequence of institutional fields and their logics consequently also affecting and shaping organisational decisions (Greenwood et al., 2011). This study, however, is interested in the *endogenous* dynamics of hybrid organisational forms during search. In analysing variety creation in organisational search, it thus considers multiple logics embedded in a hybrid organisational form.

To date, no studies have explored how different practices and organisational identities affect search. Therefore, the next section introduces the endogenous dynamics of multiple logics.

2.3.3 The literature on institutional pluralism and hybrid organisational forms

The study of institutional pluralism is concerned with the endogenous dynamics of organisations and discusses "the situation faced by an organisation that operates within multiple institutional logics" (Kraatz and Block, 2008). This discourse therefore takes into account multiple organisational identities reflected in a commitment to the norms, values, and beliefs of various social systems (Kraatz and Block, 2008). This diversity provokes sense-making processes focused on the effects of changing logics, as well as actions aimed at managing potential tensions and conflicts (Dunn and Jones, 2010; Glynn and Lounsbury, 2005; Tracey, Phillips and Jarvis, 2011). This process can affect decision-making, as actors may be willing to defend the status quo (Fligstein, 1996). In fact, firms must decide whether to introduce, maintain, or mix identities and practices together, with this final option the case in hybrid organisations (Battilana and Dorado, 2010; Haigh and Hoffman, 2012). These endogenous changes are capable of more deeply integrating—or fragmenting—identities and practices.

Indeed, *hybrid organisational forms* entail a distinct set of common features (Hannan and Freeman, 2012; Pólos, Hannan and Carroll, 2002), and they require the management of institutionally diverse practices and identities of multiple actors (Thornton, Ocasio and Lounsbury, 2012). Indeed, partnerships, collaborations, and networks can reflect multiple "sectoral paradigms, logics, and value systems" (Doherty, Haugh and Lyon, 2014, p.2). Hybrid organisational forms institutionalise these

paradigms and have the potential to create both deliberate combinations of practices and unintentional amalgamations (Battilana and Lee, 2014). Certainly, the compatibility and centrality of logics provoke changes in organisational identities and practices (Besharov and Smith, 2014). From this follows that hybrid organisational forms have the capacity to host both compatible and conflicting plural logics.

The literature on institutional pluralism is of interest for this study, given its focus on endogenous practice changes in hybrid organisational forms. However, this discourse is limited in two respects. First, it does not explicitly explore the role of innovation opportunities and search. Second, limited evidence exists on whether the search for innovation opportunities in such environments creates more knowledge variety, particularly in the presence of institutionally distinct practices and norms (Laursen, 2012). This study proposes viewing distinct institutional logics as potentially interacting knowledge pools (Laursen, 2012; Levinthal and March, 1981).

2.3.4 The literature on institutional field emergence

This discourse investigates the change mechanisms that lead to the cultural emergence and evolution of single and multiple institutional logics. As described previously, these mechanisms are based on changing vocabularies of practice that determine organisational practices by means of guiding an organisation's focus, decision-making, and mobilisation (Suddaby and Greenwood, 2005). Both single and interactions across multiple logics therefore develop their own distinct practice-related vocabularies (Navis and Glynn, 2005). This outcome is not a strategic response to institutional processes (Oliver, 1991)—rather, it is the result of the change mechanisms responsible for the emergence of culture. Consequently, this discourse is about changes in field-level logics and their discrete orders (Friedland and Alford, 1991).

There are different settings in which multiple field-level institutional logics interact (Heimer, 1999; Reay and Hinings, 2009). Discrete logics, for example, can either coexist or compete in organisational forms through distinct sets of practices, symbolic representations, and vocabularies of practices (Dunn and Jones, 2010; Reay and Hinings, 2009). In both cases, the logics evolve from external and internal micro- and macro-level changes, as described in Table 4.

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Table 4: Typology of change in field-level institutional logics

Forms of change	*Definition*	*Sample Study*
Transformational change		
Replacement	One logic replaces another logic	Rao, Monin and Durand, 2003
Blended	Combining dimensions of diverse logics	Glynn and Lounsbury, 2005
Segregation	Separation of logics with a common origin	Purdy and Gray, 2009
Developmental change		
Assimilation	Incorporation of external dimensions	Murray, 2010
Elaboration	Endogenous reinforcement	Shipilov, Greve and Rowley, 2010
Expansion	Shift from one field to another	Nigam and Ocasio, 2010
Contraction	Reduction in logic's scope	Reay and Hinings, 2009

These forms are "passive" changes that transform or reinforce institutional fields. Thus, the transformational and developmental changes described above are the result of a sequence of societal-level events. For example, a distinct practice vocabulary might be introduced to another logic (Thornton, Ocasio and Lounsbury, 2012). In contrast to, for example, the micro-foundations literature, this discourse emphasises field-level changes and does not offer guidance on strategic organisational or managerial actions. Therefore, this literature stream is informative but of limited use for this study.

2.3.5 Limitations

The institutional logics literature is diverse and offers promising research opportunities regarding micro- and macro-level influences on organisational practices and identities. In addition, it demonstrates that institutional logics can be a source of innovation and opportunity. However, the literature on institutional logics lacks more refined empirical analyses of organisational search in intra-organisational and multi-institutional contexts, suggesting a dearth of scientific evaluations of the institutional practices and identities embedded in hybrid organisational forms. Hence, there is a need to study multiple

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practices and the endogenous interactions and opportunities generated in hybrid organisational forms.

One should also note this discourse's lack of emphasis on sustainable value creation opportunities. This absence is surprising given that institutional partners in hybrid organisational forms could contribute to identifying sustainable opportunities. This aspect has been stressed in the literature, although only in the context of discrete hybrid organisational entities (Haigh and Hoffman, 2012). However, investigating the role of variety creation in multi-institutional contexts requires that institutional pluralism in hybrid organisational forms is understood as a source of knowledge variety for SOI opportunities. Thus, a clearer conceptualization of search behaviours and SOI in hybrid organisational forms is required. Therefore, the next step is to review the literature on SOI, examining its key objectives and means of identifying SOI opportunities.

2.4 The literature on sustainability-oriented innovation

The literature on *SOI* discusses intentional changes in an organisation's philosophy, values, and behaviour with the goal of achieving net-positive social, environmental, and economic outcomes (Adams et al., 2016). Thus, this domain considers all areas of organisational life, including the innovation activities that change products, processes, business models, and systems (Adams et al., 2016; Tidd and Bessant, 2009). Certainly, such a sustainability orientation also affects search activities (Seebode, Jeanrenaud and Bessant, 2012), which makes it a relevant lens for this work. Moreover, SOI includes a broad range of activities (Adams et al., 2016) in search of environmental, commercial, and societal innovation outcomes in a CSR context (Carroll and Shabana, 2010). This study therefore present three discourses that implicitly discuss the search for opportunities in the domains of (i) eco-efficiency, (ii) societal change, and (iii) the management of SOI opportunities.

2.4.1 The literature on eco-efficiency and eco-innovation

The literature on eco-efficiency discusses the productive use of natural resources (Despeisse et al., 2012; Despeisse, Ball and Evans, 2011; Rashid, Evans and Longhurst, 2008) and predominantly focuses on improving both manufacturing production and wider industrial systems, such as supply chains (Fabbe-Costes et al., 2014; Schaltegger

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and Burritt, 2014). Therefore, the use of materials and energy/resource productivity are of central concern. Thus, this domain concentrates on designing environmental product features at the outset (Russo, Rizzi and Montelisciani, 2014; Sanyé-Mengual et al., 2014), achieving environmentally sustainable material production flows (Allenby and Rejeski, 2009; Chopra and Khanna, 2014; Korhonen, 2004), and mitigating waste and pollution outputs (Dutt and King, 2014; Pokharel and Mutha, 2009). Overall, the eco-efficiency literature discusses how to minimise waste, efficiently use materials and resources, and identify business opportunities that concurrently reduce environmental impacts (Rashid, Evans and Longhurst, 2008). It thus investigates the lifecycles of products, processes, services, and methods employed to satisfy market needs (Schiederig, Tietze and Herstatt, 2012). In other words, eco-efficiency describes innovation practices and products capable of optimising business processes and products in organisations (Adams et al., 2012; Seebode, Jeanrenaud and Bessant, 2012).

Eco-efficient innovations are also linked to the concept of eco-innovation, which encompasses policy-level impacts. For example, one stream of literature discusses the eco-innovation policies that incentivise "green growth" (OECD, 2009; del Río, Carrillo-Hermosilla and Könnölä, 2010), such as technologies that reduce the environmental impact of products, processes, production systems, and consumer markets (Carrillo-Hermosilla, del Río and Könnölä, 2010; Halila and Rundquist, 2011; Jansson, 2011; Pereira and Vence, 2012; Zhou et al., 2015). Other related research streams examine industrial ecology (Lifset, 2011; Yang, Wei and Lin, 2014) or even the circular economy, which drives eco-innovation by more broadly considering technologies and practices that close material loops in markets (CIRAIG, 2015; Despeisse et al., 2016; Ghisellini, Cialani and Ulgiati, 2016; Murray, Skene and Haynes, 2015). Indeed, such incentives make it more likely that markets and industries will adopt environmentally friendly practices across their material production systems and supply chains. At the same time, the eco-efficiency discourse focuses on technical improvements and harm reduction, often overlooking the social dimension (Klewitz and Hansen, 2014; Schiederig, Tietze and Herstatt, 2012). Therefore, the eco-efficiency and innovation literature seeks to improve business-as-usual or considers technical solutions capable of radically enhancing existing production systems. Yet, as it does not focus on stakeholders, it represents only a partial approach to sustainability.

2.4.2 The literature on corporate social responsibility and social innovation

This literature stream discusses business-society relationships concerned with the activities of organisations and institutions aimed at improving society (Carroll and Shabana, 2010; Drucker, 1987; Hanke and Stark, 2009). These enhancements stem from an array of activities, ranging from philanthropy (Seifert, Morris and Bartkus, 2004) to profit-driven CSR activities that emphasise the business case (Carroll and Shabana, 2010). Hence, innovation occurs within this range and either focuses on social impacts or on the integration of multiple environmental, social, and commercial dimensions (van Marrewijk, 2004).

Often, CSR activities play an important contextual role, as they inform "actions that appear to further some social good, beyond the interests of the firm and that which is required by law" (McWilliams and Siegel, 2001, p.117). These beyond-compliance actions often focus on environmental and social improvements that, according to most definitions, engage a wider range of stakeholders (Dahlsrud, 2008). Again, this discourse is diverse, and it considers multiple perspectives focused on societal and commercial benefits (Arora and Dharwadkar, 2011; Matten and Moon, 2008; McWilliams and Siegel, 2001). The reason for this diversity is that CSR incorporates both a range of normative sustainability goals and instrumental actions, making it a value-based concept (van Marrewijk, 2003). For this reason, CSR either risks suffering from green-washing (Delmas and Burbano, 2011)—with the resultant limited impact on the core business model—or incorporate environmental or social standards (Castka and Corbett, 2016; Reinecke, Manning and von Hagen, 2012). Indeed, this implies that firms' emphasis differs in terms of positioning business, social, and environmental objectives in the context of CSR. As a result, some CSR-related innovations are business-oriented, whereas others are CSR-related innovations would indicate a philanthropic, or social orientation.

Both social and business innovations can be embedded in a CSR context and generate social impact. *Social innovations* are developed and spread through organisations to achieve primarily social purposes, and they seek to meet an unmet social need (Mulgan et al., 2007). More specifically, social innovations engage civil society, social movements, governments, and charitable organisations in the search for ideas and opportunities capable of benefiting non-market stakeholder groups (Mulgan et al., 2007). By implication, these innovations do not have a market purpose; instead, they address social concerns related to justice, fairness,

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environmental preservation, health, arts and culture, and education (Phills, Deiglmeier and Miller, 2008). They do so by employing "a novel solution to a social problem that is more effective, efficient, [and] sustainable, [...] and for which the value created accrues primarily to society as a whole rather than to private individuals" (Phills, Deiglmeier and Miller, 2008, p.39). Thus, social innovations centre on engagement and generate impact via philanthropic activities involving stakeholders (Alvord, Brown and Letts, 2004; Teegen, Doh and Vachani, 2004).

Business innovations, on the other hand, seek to maximise profits by using disenfranchised markets to create "inclusive business" benefits (Hart and Christensen, 2002; Nidumolu and Prahalad, 2010; Prahalad, 2012). Thus, they combine a social need and a business opportunity (Anderson and Markides, 2007). Examples of such business innovations include base-of-the-pyramid innovations, in which affordable products or services meet basic needs (Prahalad and Hart, 2002; Viswanathan and Rosa, 2010). Certainly, business innovations support the notion of "shared value" and conscious capitalism (O'Toole and Vogel, 2011; Porter and Kramer, 2011), as social and economic impact is the result of "doing good by doing new things" (Adams et al., 2016). Indeed, new business ventures and philanthropic engagements can serve as innovative vehicles for social change.

Compared to the technical discourse on eco-innovation, this literature stream only focuses on social and commercial behavioural systems. Therefore, to be complete, the SOI discourse must consider the entire range of technical and behavioural activities. By implication, SOI opportunities can be product-related (Hansen, Grosse-Dunker and Reichwald, 2009), involve a search for sustainable business models (Bocken et al., 2013), or support changes to the environmental or social system (Adams et al., 2016). This combination of technical and agency-based impacts has been conceptually addressed in the sustainable value-creation literature (Bocken, Rana and Short, 2015; Hart and Dowell, 2011; Hart and Milstein, 2003), which offers an ample range of possibilities for searching for social, environment, and commercial innovation opportunities.

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2.4.3 The literature on managing sustainability-oriented innovation opportunities

The process of identifying sustainable innovation opportunities constitutes an additional research field (Bessant, 2013; Klewitz and Hansen, 2014; Seebode, Jeanrenaud and Bessant, 2012). The related literature draws on the established innovation-management literature and explores search within an SOI context.

Shifts in regulations, technologies, and markets demonstrate how to identify SOI, and they encourage organisations to innovate with private, public, and civil-society partners (Seebode, Jeanrenaud and Bessant, 2012). These collaborations both support material improvements ranging from eco-efficiency to eco-effectiveness (Braungart, McDonough and Bollinger, 2007) and connect "unusual" partners across sectors that have previously not worked together (Seebode, Jeanrenaud and Bessant, 2012). Opportunities for societal, environmental, and economic progress (Seebode, Jeanrenaud and Bessant, 2012) are therefore the result of a mixture of variety inputs stemming from partners' organisational identities and practices.

These inputs are minimised or maximised on the basis of the organisations' willingness and ability to identify SOI opportunities (Klewitz and Hansen, 2014). For example, some organisations *anticipate* future environmental and social opportunities (Noci and Verganti, 1999) without searching for new business models (Boons and Lüdeke-Freund, 2013; Hansen, Grosse-Dunker and Reichwald, 2009; Paramanathan et al., 2004; Schaltegger, Lüdecke-Freund and Hansen, 2012), while others scope out entirely new opportunities in these domains (Tilley, 1999). Still others integrate economic, environmental, and social aspects into their core business (Klewitz and Hansen, 2014) or transcend their commercial interests to serve society as a whole (Adams et al., 2016). By implication, this focus on sustainability and organisational identity frames the space in which SOI opportunities are identified.

Certainly, differences exist in terms of scope and the level of change, as indicated in Figure 3, which is based on a study by Seebode et al. (2012). *Bounded exploration and exploitation,* for example, describe the search for a specific solution to a search problem, whereas *reconfiguration* and *coevolution* search for "new ways of doing what is done already" (Seebode, Jeanrenaud and Bessant, 2012). Indeed, the contextual

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complexity and levels of incrementalism determine whether organisations search for existing or new paths via existing or new frames. Moreover, this model implies that higher levels of complexity require organisations to put forth more effort to identify innovation opportunities. In addition, this complexity could potentially be linked to institutional pluralism.
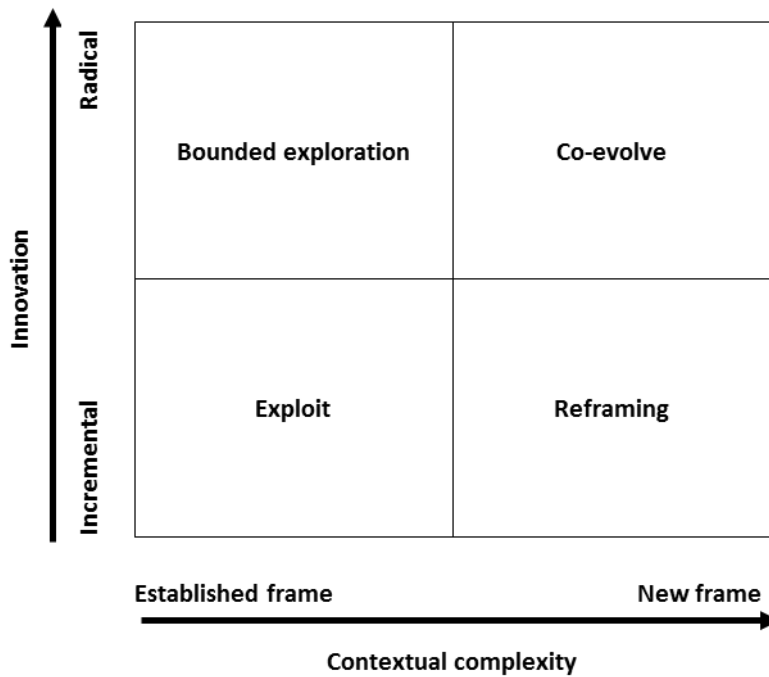
Figure 3: Simplified innovation space (adapted from Seebode et al. 2012)

A key limitation of this research stream pertains to the lack of empirical studies on SOI opportunities. The result is ambiguity regarding the features that actually affect variety creation. For example, the institutional logics literature treats organisational identities and practices as key behavioural building blocks in hybrid organisational forms. However, no empirical studies have investigated multiple organisational identities and practices as a source of SOI opportunities. Hence, this study reviews sustainable value creation, as well as the effect of institutional logics on search in hybrid organisational forms.

2.4.4 Limitations

The SOI literature is a relatively small but growing area of study (Adams et al., 2016) that integrates organisational innovation into a wider socio-technical system. That

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choice suggests that both technical and behavioural systems are sources of knowledge variety. Indeed, it emphasises that organisations have multiple options when it comes to investigating available SOI opportunities. This study therefore explores these alternatives, linking variety creation with institutional logics.

2.5 Summary

This chapter positioned the research topic within three research streams, *organisational search*, *institutional logics,* and *SOI*. The below table summarises this chapter's insights and outlines the associated research gaps. The next chapter unites these concepts and formulates the study's research question on their basis.

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Table 5: Overview of the relevant literature

Literature domain	Examples	Perspective					Focus	Implications	Limitations
		Techn.	Organ.	Inst.	Behaviour	Learning			
Organisational search									
Local and non-local search	Laursen 2012; Rosenkopf and Nerkar 2001; Rosenkopf and Almeida 2003	☑	☑		☑	☑		Focus on technological and organisational boundary-spanning	Limited discussion of institutional boundary-spanning
Ambidexterity	Cantarello, Martini, & Nosella, 2012; Raisch and Birkinshaw 2008; Tushman and O'Reilly III, 1996		☑		☑	☑		Focus on managing local and non-local search within organisations	Emphasis on internal buffering mechanisms. No relevance to this discourse.
Search openness	Laursen and Salter 2004; Perkmann and Walsh 2007; Lyles and Schwenk 1992	☑	☑		☑	☑		Focus on innovation sources, and predominantly technological R&D	Limited focus on non-profit and public-sector sources
Adaptive search	Levinthal and March 1981; Cyert and March 1963; Greve, 2003b)	☑			☑			Focus on search performance and feedback (i.e., problemistic and slack search)	No analysis of search in multi-institutional environments
Institutional logics									
Micro-foundations	Thornton, Ocasio and Lounsbury, 2012; Holm, 1995; Nigam and Ocasio, 2010		☑	☑	☑			Focus on institutional field interactions and the enactment of new logics	Emphasis on interactions across fields
Organisational practices and identities	Besharov and Smith, 2014; Pratt, 2003; Albert and Whetten, 1985		☑	☑	☑			Focus on intra-organisational variations of practices and identities within a single logic	Emphasis on practices within single logics
Institutional	Kraatz and Block 2008; Dunn and		☑	☑	☑			Focus on endogenous	Does not consider

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		1	2	3	4	5		
pluralism	Jones 2011; Tracey, Phillips and Jarvis, 2011						identities and practices in organisations and hybrid organisational forms	variety creation
Institutional field emergence	Rao, Monin and Durand, 2003; Glynn and Lounsbury, 2005; Purdy and Gray, 2009		☑	☑	☑		Explores the emergence of institutional fields	High-level descriptions of institutional logics, with no focus on organisational practices
Sustainability-oriented innovation								
Eco-efficiency and eco-innovation	Abdul Rashid, Evans and Longhurst, 2008; Despeisse et al., 2012; Sanyé-Mengual et al., 2014	☑	☑			☑	Focus on material and energy productivity	Focus on the search for eco-products and processes
Corporate social responsibility and social innovation	(Carroll and Shabana, 2010; Drucker, 1987; Hanke and Stark, 2009).		☑		☑		Focus on societal impact, generated through philanthropy or business models	Limited focus exploring the range of technical and agency-based innovations
Management of sustainable innovation opportunities	Seebode 2012; Klewitz and Hansen 2014; Adams et al. 2016	☑	☑		☑	☑	Focus on SOI opportunities	Limited empirical data on influence of sustainability objectives
This study		☑	☑	☑	☑	☑	**Focus on variety creation for SOI with multiple logics in hybrid organisational forms**	

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3 Conceptual development

This chapter conceptualises the notion of a sustainability-oriented search for ideas and opportunities within hybrid organisational forms. Thus, it appraises and unites those elements held in common by multiple research streams, formulating the research question on their basis.

The central aim of this study is to contribute to the organisational search literature. Here, behavioural antecedents—and especially the role of slack search, problemistic search, and institutional pluralism in hybrid organisational forms—are treated as a starting point (Levinthal and March, 1981). Moreover, this chapter conceptualises the factors that affect variety creation and explores the link between knowledge variety inputs, logical centrality and compatibility, and sustainability-oriented innovation (SOI) opportunities.

3.1 Behavioural antecedents of variety creation

This chapter begins by introducing Levinthal and March's (1981) model of organisational adaptive search. It then uses their framework to explore slack and problemistic search as antecedents of local and non-local search and explores the possibility of embedding variety creation within a wider institutional context.

3.1.1 Slack and problemistic search

The above model describes how organisational performance feedback drives the search for opportunities and refinements (Levinthal and March, 1981). Indeed, organisational aims are achieved via "problemistic" technological refinements or an "irresponsible" slack search (Cyert and March, 1963; Levinthal and March, 1981). Slack search uses discretionary resources to increase profits, whereas problemistic search uses corporate overheads to avoid reductions in profits and maintain the current market position (Greve, 2003a; Laursen, 2012; Nohria and Gulati, 1996). Thus, resources are either discretionary and used for opportunity-driven searches, or they are absorbed in organisational activities in search of core business solutions (Bourgeois, 1981; Bowen, 2002; Singh, Jitendra, 1986). More specifically, "discretionary resources" are *redundant employees*, *unused capacity*, *and unnecessary capital expenditures* (Daniel et al., 2004;

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Shahzad, Mousa and Sharfman, 2016), whereas "absorbed resources" refer to corporate overheads committed to core business expenditures (Bourgeois, 1981; Bowen, 2002; Singh, Jitendra, 1986). In the same vein, Bowen (2002) noted that organisations can use slack resources to develop products, conduct market research, and market-test products. In fact, both discretionary and absorbed investments trigger problemistic and slack search and are core antecedents for identifying technological alternatives and opportunities.

Some SOI studies have also highlighted problemistic and slack search's importance as antecedents of experimentation (Adams et al., 2012), although they have provided little guidance as to which forms of slack encourage search. For example, Halme and Laurila distinguished different types of corporate responsibility, including the development of sustainable products and processes, along with voluntary employee participation, donations, and access to products and services that solve stakeholders' problems (Halme and Laurila, 2009). Alternatively, some scholars have argued that CSR departments that utilise corporate overheads support corporate greening (Bowen, 2002; Seifert, Morris and Bartkus, 2004). This interpretation implies that organisations employ a range of discretionary and absorbed resources to achieve internal and external environmental and social aims (Bowen, 2002; Seifert, Morris and Bartkus, 2004). Thus, problemistic search relies on absorbed slack, whereas discretionary slack search implies access to products, funding, employees, and other resources. Indeed, these observations demonstrate that search is not always funded by financial slack, as search scholars have suggested (Cyert and March, 1963; Greve, 2003a; Laursen, 2012; Nohria and Gulati, 1996). Certainly, conceptualisations of sustainability-oriented search must address a wider range of discretionary slack resources.

3.1.2 Institutional pluralism in hybrid organisational forms

Past studies have understood slack and problemistic search as commercially oriented (Greve, 2003a; Laursen, 2012; Nohria and Gulati, 1996). However, some researchers have acknowledged that organisational slack can also contribute to corporate social performance activities (Bowen, 2002; Daniel et al., 2004; Seifert, Morris and Bartkus, 2004). For example, organisations can use their absorbed and discretionary resources for corporate philanthropy investments as extra activities without a direct link to their

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core business (Halme and Laurila, 2009). Alternatively, partners could also supply resources to address a core business problem. Thus, slack and problemistic investments have the capacity to integrate commercial and social objectives to generate mutually beneficial outcomes (Porter and Kramer, 2011). As a result, an organisation's core and peripheral CSR activities can exert an influence in a range of domains (Hahn et al., 2015; Halme and Laurila, 2009; van Marrewijk, 2003), depending on the resources they contribute to those ends. Slack and problemistic search can transcend commercial boundaries to achieve wider, non-market-related objectives.

For this purpose, organisations adopt *hybrid organisational forms*—"structures and practices that allow the coexistence of values and artefacts from two or more categories, [and thereby draw] from at least two different sectoral paradigms, logics and value systems" (Doherty, Haugh and Lyon, 2014, p.418). Hybrid organisational forms are a collective term for hybrid organisations with dual core purposes (Haigh et al., 2015), as well as other non-discrete engagement forms lacking legal structures and separate profit destinations (Pache and Santos, 2010). Certainly, this conceptualisation includes organisational collaborations and highly involved organisations with two or more institutional logics (Battilana and Dorado, 2010; Daft and Lewin, 1993; Jay, 2013). In other words, hybrid organisational forms span the entire range of social business ventures (Doherty, Haugh and Lyon, 2014), public-private partnerships (Murray, 2010), business-government engagements (Nigam and Ocasio, 2010), local community projects (Jay, 2013), and wider stakeholder consortia with multiple objectives.

By their very nature, slack and problemistic resources in hybrid organisational forms can emerge from multiple, institutionally distinct sources. For example, a government institution might supply funding to a particular cause, or grassroots-level projects might offer their time and energy to achieve specific, community-related goals. Organisations fund specific activities or use cross-sectoral ventures to engage with governments and local communities, and they use these system-building exercises to deliver social and environmental impacts (Adams et al., 2016). Indeed, hybrid organisational forms stress the involvement of multiple organisations and institutions. Thus, engagements can take multiple forms of slack and problemistic support, such as the resolution of a core business problem and partners' collaborative resource investments to realise a diverse

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set of objectives. In both of these multi-institutional contexts, slack and problemistic search would constitute antecedents for variety creation.

Search in hybrid organisational forms and institutionally embedded logics, however, has not been investigated widely (Gavetti, Levinthal and Ocasio, 2007). Instead, organisational slack investments have only played an implicit role in studies on philanthropic, shared-value, and commercially oriented activities (Dyllick and Hockerts, 2002; Hahn et al., 2015; Halme and Laurila, 2009). In fact, these contributions represent established hybrid organisational forms that have institutionalised practices via sense-making processes (Thornton, Ocasio and Lounsbury, 2012). The notion of a sense-making process is akin to the idea of variety creation within and across distinct institutional logics in a hybrid organisational form. Thus, the question is whether and how problemistic and slack search support the institutionalisation of practices—known as variety creation in the search literature—in hybrid organisational forms. The next section further addresses this question by investigating variety creation in greater detail.

3.2 Variety creation

The previous section suggested that slack and problemistic search are antecedents of variety creation in hybrid organisational forms. Variety creation refers to the range of knowledge inputs and their influence on the creation of new combinations of technological and organisational knowledge (Laursen, 2012). Therefore, a diverse sample of knowledge inputs provides opportunities for recombination and innovation (Savino, Messeni Petruzzelli and Albino, 2015). Based on this understanding, this section further develops the notion of knowledge variety inputs in the context of institutional pluralism and SOI opportunities.

3.2.1 Current conceptualisations of knowledge variety inputs

The discourse on local search and non-local search is essentially the study of knowledge variety inputs (Laursen and Salter, 2004, 2006; Rosenkopf and Almeida, 2003; Rosenkopf and Nerkar, 2001) and is thus concerned with search within relatively proximate knowledge domains (Fleming and Sorenson, 2004). *Local search*, for example, describes a search for knowledge within a close proximity and the use of variety inputs closely related to core business knowledge (Levinthal and March, 1993;

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Stuart and Podolny, 1996). In contrast, *non-local search* stresses that variety inputs are broader. Thus, given the reduced proximity to knowledge inputs, more opportunities are likely (Katila and Ahuja, 2002; Lavie, Stettner and Tushman, 2010; Rosenkopf and Nerkar, 2001).

As a result, *non-local search* builds on new knowledge (Rosenkopf and Almeida, 2003) and suggests a broader set of variety-creating opportunities. In contrast, *local search* remains path-dependent and limited to knowledge within given organisational or technological boundaries (Rosenkopf and Almeida, 2003; Rosenkopf and Nerkar, 2001). Local and non-local search behaviour therefore represent two processes for identifying relevant product and organisational variety inputs: exploiting existing resources and boundary-spanning (Rosenkopf and Nerkar, 2001).

Rosenkopf and Nerkar's (2001) study on boundary-spanning within local and non-local search identified more granular categorisations of proximity-based knowledge input types. They distinguished four types of exploration that differ with regard to their technological and organisational boundary-spanning activities. *"Local" exploration and "internal boundary-spanning",* for example, do not cross organisational borders and instead employ either similar or technologically distant technology from within the firm. On the other hand, *"radical exploration" and "external boundary-spanning"* integrate more closely or distantly related knowledge from other key technologies. This model illustrates that the manner in which the search is framed, including in terms of proximity, determines the boundary spanning scope (Fleming and Sorenson, 2004; Nicholas, Ledwith and Bessant, 2013; Rosenkopf and Nerkar, 2001). Indeed, Rosenkopf and Nerkar's (2001) model demonstrates current understandings of the proximity of knowledge—that is, the different types of exploration—as Figure 4 makes clear.

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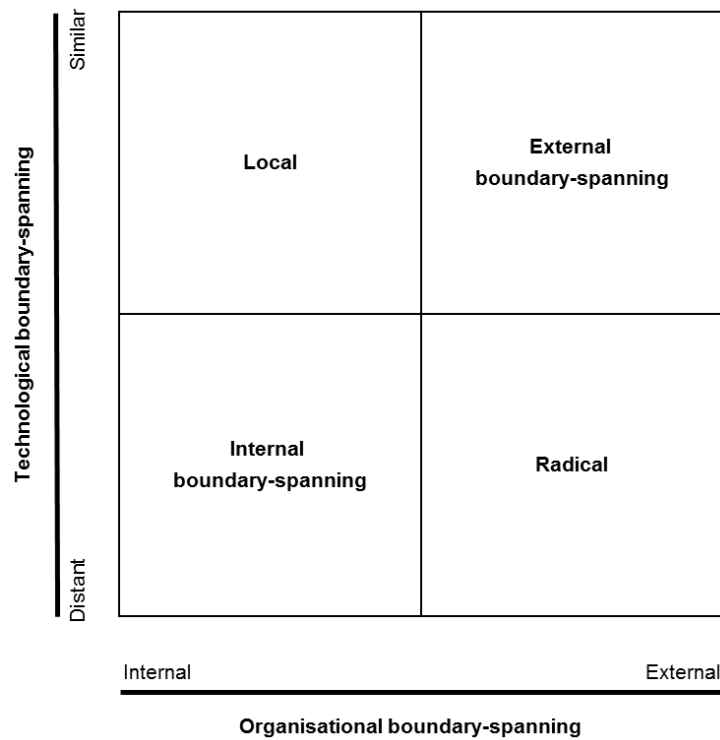
Figure 4: Four types of exploration (adapted from Rosenkopf and Nerkar, 2001)

Technological and organisational variety inputs have been widely discussed in the innovation literature (Chesbrough, 2012; Fleming and Sorenson, 2004; Hoffmann, 2007; Holmes and Smart, 2009; Lin et al., 2013). However, these studies have not referred to partners from discrete institutional logics as a knowledge input source. However, this is not to say that institutional sources of variety have not been described previously in the literature. In fact, some scholars stressed that innovation networks can span institutional boundaries (Birkinshaw, Bessant and Delbridge., 2007; Goes and Park, 1997), even if using such knowledge inputs can be difficult. The potential presence of divergent worldviews means that institutionally different organisations require time to explore their various motivations (Bessant et al., 2005; Birkinshaw, Bessant and Delbridge., 2007; Murray, 2010). On the other hand, institutional engagements between R&D organisations and universities have been frequently reported as comprising successful contexts for innovation (Fontana, Geuna and Matt, 2006; Goes and Park, 1997). In these partnerships, institutional boundaries do not constitute a hurdle, since they do not inhibit the exchange of information (Perkmann and Walsh, 2007). In fact, university-industry relationships are an example of

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institutional boundary-spanning in which knowledge exchanges take place regardless of distinct institutional practices and norms. This illustration suggests that engagements between firms and universities depend on shared cognitive frames in which partners can (or cannot) readily share pools of knowledge. In other words, conflicting institutional barriers sometimes inhibits the organisations' ability to source knowledge inputs.

3.2.2 The role of centrality and compatibility in local and non-local search

If institutional barriers play a role in the sourcing of variety inputs, then a further examination of logic relationships in pluralistic institutional environments, along with their demands and conditions, might be helpful (Besharov and Smith, 2014). According to Besharov and Smith (2014), two key dimensions—*compatibility* and *centrality*—describe the logics present within organisational fields.

Compatibility refers to "the degree of compatibility between the organisational instantiations of multiple logics" (Besharov and Smith, 2014, p.366). By implication, this term stresses a continuum from, at one end, reinforcement and consistency, to, at the other pole, contestation and inconsistency of discrete organisational practices and goals. The degree of compatibility is therefore a function of participating members with different organisational identities that incorporate their own practices and organisational values in a manner consistent with their own logic. Depending on their compatibility, these practices provide an efficient organisational approach to meeting shared objectives (McPherson and Sauder, 2013).

Centrality, on the other hand, refers to the "the extent to which multiple logics manifest in core features that are central to organisational functioning" (Besharov and Smith, 2014, p.366). Thus, multiple logics are treated as equally valid and relevant to organisational functioning. By its very nature, centrality increases along with the extent of dependence on resources that permit responses to actors or constituency groups' demands (Oliver, 1991; Powell and DiMaggio, 1983). In contrast, the absence of dependency permits organisations to ignore a particular actor or constituency group following a particular logic (Dunn and Jones, 2010). Dependence on resources therefore increases centrality (Besharov and Smith, 2014) and makes it more likely for others to adopt the core practices of a central actor.

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Besharov and Smith's (2014) model of logic relationships juxtaposes the dimensions of centrality and compatibility. It consists of four ideal types—contested, estranged, aligned, and dominant organisations—that are useful for analysing logics multiplicity (Besharov and Smith, 2014). The figure below provides an overview of these types of logic relationships.
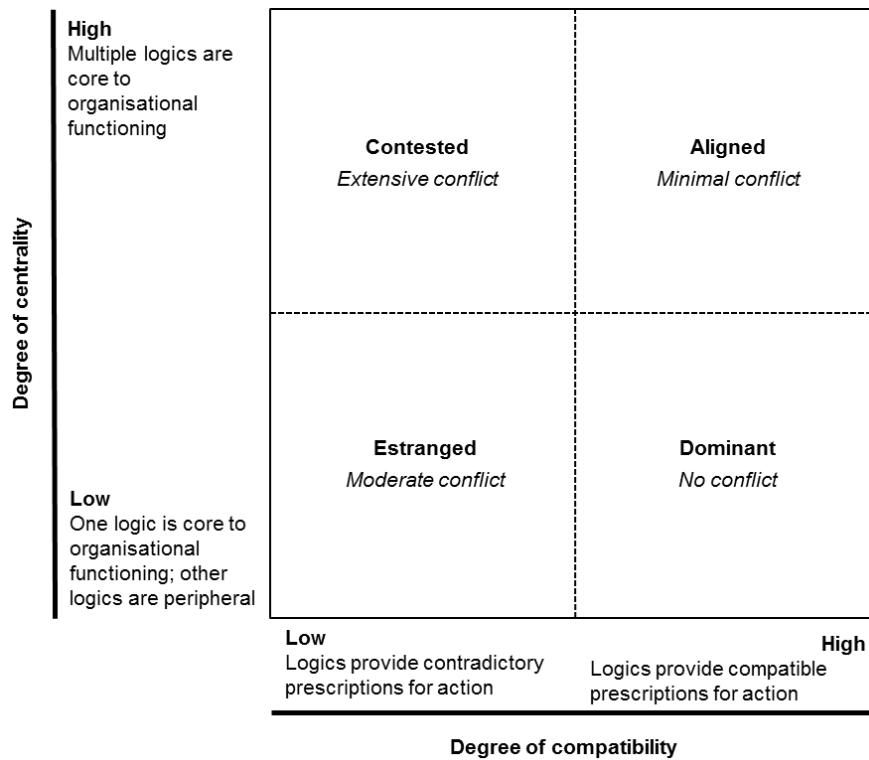
Figure 5: Types of logic relationships within organisations (Besharov and Smith, 2014)

Contested organisations combine a high degree of centrality with a low degree of compatibility. Thus, it follows that such entities have divergent goals with an effect on both organisational functioning and the range of values and identities embodied in the organisational form. Certainly, organisations can pursue different strategies for achieving these conflicting goals, with the result being contradictory recommendations for action. For this reason, contested organisations are often unstable, as they feature a disputed core organisational mission (Besharov and Smith, 2014).

Estranged organisations, on the other hand, combine low levels of compatibility and centrality. Thus, organisational practices represent multiple logics and suggest inconsistent actions. However, these practices do not exert a primary influence on organisational functioning, either because a single logic funds the mission or because all

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partners adhere to the organisation's core purpose. Estranged organisations therefore do not have a disputed core organisational mission, although they still grapple with different subsidiary logics at odds with the dominant logic.

Aligned organisations combine high levels of compatibility and centrality with consistent consequences in terms of organisational action aimed at achieving a shared core mission—despite the presence of multiple goals, values, and identities. The reason for this alignment is because all of these logics support organisational functioning and compatible supply practices. Aligned organisations therefore experience minimal conflict, with few "either/or" choices and united logics and practices.

Dominant organisations combine highly compatible prescriptions with a low degree of centrality for peripheral logics. Thus, multiple subsidiary logics comprise an organisational form and reinforce a prevailing core mission. Indeed, practices are not in conflict with each other, thanks to either the peaceful coexistence of logics within a dominant organisation or the adoption of the funders' practices. Dominant logics therefore support a single core mission, drawing on suitable practices from subsidiary logics.

Certainly, this model of centrality and compatibility has implications for local and non-local search and a hybrid organisational forms' ability to create variety from institutionally distinct pools of knowledge. For example, hybrid organisational forms with discrete institutional actors can have either *compatible or incompatible* pools of knowledge. The previous example of university-firm partnerships illustrated this distinction, since institutional boundary-spanning was not perceived as challenging when logics were *dominant* or *aligned.* In contrast, a search for discontinuous innovation opportunities across institutional boundaries was described as more difficult, because mission values were potentially contested across organisations, or because their practices initially seemed incompatible (Birkinshaw, Bessant and Delbridge., 2007). As a result, organisations could not readily source variety inputs.

Consequently, the study of logics and variety creation provokes questions regarding the relationship between local and non-local search and logics multiplicity. For example, local search suggests no institutional boundary-spanning in a *dominant logic* setting that reinforces an existing pool of knowledge (Rosenkopf and Almeida, 2003; Rosenkopf

and Nerkar, 2001). In the other three cases, however, sharing knowledge across institutional boundaries indicates a non-local search using *dominant, aligned*, *estranged*, and *contested* logics. It thus follows that local search implies the absence of institutional boundary-spanning, whereas non-local search can suggest different variants of such institutional boundary spanning.

This distinction raises further questions related to slack and problemistic search. If slack search was termed "irresponsible" and "experimental" and problemistic search as solutions-oriented, this description reflects a search within a *dominant commercial logic*. Thus, previous conceptions of commercial innovation opportunities have been studied as *reinforcements of* a dominant market logic. From this follows that previous studies have focused on a particular (dominant and market-oriented) variant of logic. However, it also indicates that there are other variants of search in which knowledge and resource investments differ. As a consequence, search triggers and search types should both be reviewed in hybrid organisational forms with regard to the range of institutional logic relationships and types.

3.2.3 Identifying sustainability-oriented innovation opportunities

Thus far, this study has not addressed the range of opportunities generated from different input variety sources. Nonetheless, these opportunities, along with (technological) discoveries and lessons, are search outputs that contribute to the adaptation of organisational performance targets (Levinthal and March, 1981). Companies sample knowledge from a pool of innovation sources and generate novel innovation opportunities (Levinthal and March, 1981). These outcomes then create new actions that "reduce or eliminate the discrepancy between target and performance" (Levinthal and March, 1981, p.309).

By implication, SOI opportunities seek to realise multiple targets addressing wider social, environmental, and commercial aims (Adams et al., 2016; Klewitz and Hansen, 2014). Outcomes support the delivery of alternative goods and services, and they also pave the way for both more efficient approaches to resource and energy management and new partnerships (Adams et al., 2016; Seebode, Jeanrenaud and Bessant, 2012). Sustainability-oriented innovation opportunities come as product, process, business-

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model, and system-level opportunities and improve economic, social, and environmental performance (Adams et al., 2016; Klewitz and Hansen, 2014).

The organisational search for SOI opportunities takes place in hybrid organisational forms. In this context, a mix of organisational identities and practices are relevant, such as those of charity organisations, NGOs, governments, professional organisations, and commercially oriented partnerships. Environmental and social performance targets consequently span organisational boundaries and operate at the business-society interface (Hahn et al., 2015; Halme and Laurila, 2009).

Organisations construct multiple sub-level organisational forms to engage with stakeholders via collaborations. These organisational forms are a locus for innovation opportunities, and they can feature a partial or integrated sustainability mission. For example, organisations can aspire to maximise their social impact by making donations to local communities (Matten and Moon, 2008), or they can provide innovation opportunities connected to specific environmental or social aims. On the other hand, innovation opportunities can emerge from an integrated approach to CSR and innovation (Elkington, 1997; Gibson, 2012; Hahn et al., 2015), where innovation opportunities concurrently deliver environmental, societal, and commercial impacts.

These two descriptions represent potential approaches to variety creation for hybrid organisational forms, and the choice of a path has implications for the scope of the opportunity. Hybrid organisational forms with a narrow scope undertake social or environmental activities individually targeted at environmental, social, and commercial goals (Adams et al., 2016). Thus, the innovation opportunities that arise from such engagements combine to form a "sustainability-oriented organisation" (Adams et al., 2016). On the other hand, a broader scope means that the organisation is working towards a wider set of goals via activities aimed at all of them. Thus, organisations can participate in multiple organisational forms, with opportunities *contributing* to specific sustainability aims, depending on their opportunity scope. However, these variations in scope must be better understood in relation to compatible or central logic relationships.

Another question linked to search is whether specific logic relationships generate opportunities in a more efficient manner. Studies on this topic have referred to notions of scope and efficiency. Regarding the scope of opportunities, the literature has assumed

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that aligning objectives across multiple partnerships is beneficial for innovation (Adams et al., 2016; Birkinshaw, Bessant and Delbridge., 2007; Seebode, Jeanrenaud and Bessant, 2012). However, these studies have not considered logics multiplicity as a potential barrier for SOI opportunities. Regarding opportunity efficiency, the literature has suggested that local search is more efficient than non-local search (Laursen, 2012; Stuart and Podolny, 1996). By implication, local searches deliver a relatively higher number of opportunities related to the search's objective. Thus, opportunities are *realised* more efficiently via local search, because they are based on existing frames of knowledge (Seebode, Jeanrenaud and Bessant, 2012). On the other hand, the compatibility and centrality of logics may delay the identification of opportunities. Thus, organisations must first construct new frames and lay the foundations for potential opportunities before they can take advantage of these prospects. This process can take a considerable amount of time. Thus, distinguishing between *realised opportunities and potential opportunities* is a useful means of addressing the efficiency of local and non-local search in different hybrid organisational forms. It may well be that compatible logic relationships deliver more opportunities, but this point remains uncertain.

The previous sections have discussed the theoretical building blocks that comprise this study. The next section continues by discussing the conceptual implications.

3.3 Outlining the knowledge gap: Summary and research question

This chapter has pointed to various knowledge gaps that prevent a complete understanding of the search for SOI opportunities. Broadly speaking, the primary problem is that the literature has not considered institutional pluralism in the context of the search for innovation opportunities, as described in Figure 6.

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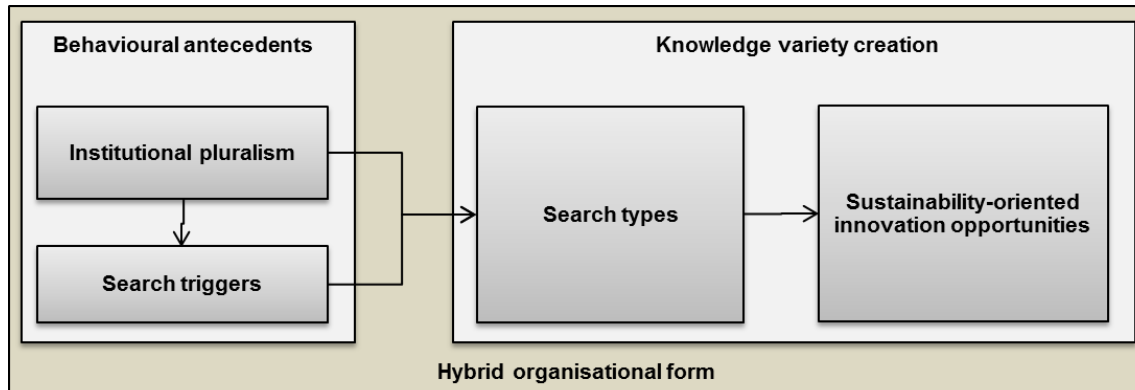
Arrows reflect gaps in the literature

Figure 6 Knowledge gaps and relevant concepts from the literature

The lacking consideration of institutional pluralism indicates that an investigation of search must examine a hybrid organisational form with multiple institutional logic relationships (Gavetti, Levinthal and Ocasio, 2007; Thornton, Ocasio and Lounsbury, 2012). This hybrid organisational form is thus the innovation locus and thus has an impact on variety creation (Laursen, 2012). This focus also includes the empirical study of SOI opportunities, another research area with few empirical contributions (Adams et al., 2016). Thus, this study addressed the following research question:

What is the impact of institutional pluralism on the search for sustainability-oriented innovation opportunities?

Following the conceptual background, this research question makes the following assumptions:

- That institutional pluralism–and particularly the centrality and compatibility of logics—affect search triggers and types
- That local and non-local exchanges of knowledge occur in hybrid organisational forms that supply or exchange slack and problemistic resources
- That institutional pluralism affects local and non-local search, and with them, the identification of SOIs

Building on these assumptions, the thesis now explains the empirical steps undertaken in the analysis, following a short summary and conclusion.

3.4 Summary

This chapter developed the concepts needed to form the research question. The first part of the chapter introduced the behavioural antecedents for variety creation and their generated opportunities in hybrid organisational forms. However, this conceptualisation remained tentative and needed to be empirically investigated. Therefore, the next step is to present the methodology used to address the research question.

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4 Methodological considerations

Following the conceptual developments from chapter 3, this chapter presents a discussion concerning the method and instruments deployed to address to the overall research question:

What is the impact of institutional pluralism on the search for sustainability-oriented innovation opportunities?

This chapter begins by examining the research philosophy, research design, and data collection and qualitative data analysis methods, shedding light on the perspectives and approaches used in this study. The chapter then concludes with thoughts on other methodological options and limitations.

4.1 Research philosophy

A study's research philosophy determines its ontology and epistemology. Both of these factors were important for this study, as they served as its theoretical foundations (Cunliffe, 2011; Morgan and Smircich, 1980). Indeed, to understand the research philosophy, one must first be aware of the author's assumptions and their influence on the data interpretation process and the study's theoretical development.

4.1.1 Ontology

Notions of ontology and epistemology has been debated for centuries, beginning with Aristotle and continuing until the present day (Easterby-Smith, Thorpe and Jackson, 2008; Smith, 2001). At the heart of Aristotle's ontology lies a theory that distinguishes between *substances* (e.g., organisms, including human beings) and *accidents,* which are defined as individual qualities, passions, and actions (Smith, 2001). Building on these two concepts, Aristotle distinguished between two distinct orders of being, one that *endures* and one that *occurs*. This observation makes explicit two views of reality: that of *becoming* and that of *being* (Chia, 2002*)*. The key difference is that reality is either *permanent* or *in flux*, and this distinction has consequences in terms of how nature is perceived. A *being ontology* therefore emphasises permanent and *enduring* features, such as order, form, and individuality, whereas a *becoming ontology* describes features that *occur* and that are in flux, such as chaos, relationality, or interpenetration. Some

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things therefore endure over time, whereas others unfold. Given its emphasis on stability, the study of causal mechanisms concerns a *being* ontology, whereas the study of qualities relies on a *becoming* ontology that assumes that reality is in flux and is not eternal. For this reason, being and becoming ontologies differ significantly in their objectivity and subjectivity (Cunliffe, 2011; Morgan and Smircich, 1980).

If being and becoming ontologies diverge regarding what constitutes reality, then their basis of knowledge also differs in terms of whether it is constructed from a *subjective* or *objective experience* (Crotty, 1989). An *objectivist being ontology* observes objects with a reality that is external and independent from social actors. In other words, reality is independent of human perception (Morgan and Smircich, 1980), and so the researcher's perspective is central in the study of "objects". In contrast, a *subjective becoming* ontology observes social construction(s) that are created either from the human imagination of actors or from interactions with other individuals (Cunliffe, 2011). A subjectivist being ontology therefore puts the actors' perspectives at the centre of study, with their interpretations, points of views, and perspectives describing reality. Indeed, becoming and being ontologies differ starkly in how they perceive reality.

This study adopts an *objectivist ontological* stance that accepts the existence of a concrete reality. In this view, reality cannot be fully understood or grasped, because partial and positioned perspectives prevent a holistic view of all elements (Cunliffe, 2011). Certainly, this study unites partial perspectives of search, institutional pluralism, and SOI opportunities, and it studies objects—or, more specifically, events—that reflect human actions. By implication, these events generate new objects, actions, and events in the form of innovation opportunities (Blaikie, 2007). Thus, this study relies on an *object-based being ontology* as opposed to an experience-based becoming ontology.

4.1.2 Epistemology

Epistemology describes the processing of reality by means of scientific inquiry (Easterby-Smith, Thorpe and Jackson, 2008; Morgan and Smircich, 1980). In this context, "processing" refers to symbols, words, and concepts as portions of reality used to interpret social and material phenomena (Chia, 2002). Three epistemological approaches are known: *Representationalist* epistemologies view symbols, words, and concepts as exact representations of the world, thus permitting researchers to uncover

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discrete and identifiable objects (Chia, 2002). Thus, symbols, words, and concepts emphasise a precise, accurate, and parsimonious description capable of explaining social and material phenomena, including management and organisational practices (Pfeffer, 1993). In contrast, *nominalist epistemologies* focus on human experiences (Easterby-Smith, Thorpe and Jackson, 2008) and use symbols, words, and concepts to investigate the meanings attributed to them. For this reason, nominalist epistemologies refer to experience-based descriptions of symbols, words, and concepts. Lastly, a *relativist epistemology* processes reality through shared meanings and concepts. While these may appear to be exact representations, in actuality they are not universally applicable and are instead quite context-specific. Indeed, "what counts for the truth can vary from place and from time to time" (Collins, 1983, p.88). All three epistemological approaches therefore create, communicate, and acquire reality-processing knowledge via words, human experiences, and shared meanings.

The world of *representationalist, nominalist*, and *relativist* epistemologies can be studied using two basic epistemological strategies: *rationalism* and *empiricism*. On the one hand, *rationalism* draws on universal and idealised categories and uses logic and reasoning to analyse symbols, concepts, and idealised objects. In contrast, *empiricism* relies on observations (Chia, 2002). Both strategies make use of two basic epistemological processing *behaviours,* and these can be blended or applied independently to process different forms of knowledge (Chia, 2002).

To begin, *positivist* methods use rationalism to verify or falsify universally applicable laws and variables (Easterby-Smith, Thorpe and Jackson, 2008). Modes of data inquiry include statistical models, survey data, and other sampling procedures (Hammersley and Atkinson, 2007). In contrast, *social constructionist methods* (Easterby-Smith, Thorpe and Jackson, 2008) apply *empiricism* as a processing behaviour to study experiences, rather than objects (Chia, 2002). Using this approach, knowledge processing involves a direct, immediate, and pure immersion in the experience, with "no separation of the knower and the known" (Chia, 2002, p.9). By implication, empiricism uses language and conceptual meanings to uncover phenomenological insights from actors (Morgan and Smircich, 1980). Lastly, *relativist methods* (Chia, 2002; Easterby-Smith, Thorpe and Jackson, 2008) combine rationalism and empiricist strategies to systematically

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uncover the viewpoints originating from different "levels of reality" (Chia, 2002, p.10). That is, symbols, concepts, and idealised objects are studied and compared as independently existing objects with discrete, hidden social meanings. Thus, observable phenomena "exist as concrete, stable entities or generative forces even though they may not ever be directly observable" (Chia, 2002, p.11).

Both empiricist and positivist processing behaviours raise questions regarding their suitability for this study. Indeed, this thesis examines variety creation and uses institutional logics and their logic relationships in a hybrid organisational form to discover sustainability-oriented ideas and opportunities. Following this approach, it is evident that partners involved in a hybrid organisational form will be associated with discrete institutional logics. These affiliations are *not*, however, directly observable. This study therefore works with seemingly "exact representations" but acknowledges that they are indeed specific to a given context—the institutional logics embedded in a hybrid organisational form. Moreover, this study builds on a range of shared definitions and concepts from three different bodies of literature. The search and institutional logics literature, for example, are both rich and diverse bodies of knowledge that have yielded important conceptual and empirical contributions (Greenwood et al., 2011; Laursen, 2012). In contrast, the SOI literature is currently primarily conceptual in nature, with few empirical studies supporting these theoretical claims (Adams et al., 2016; Klewitz and Hansen, 2014). Thus, these three fields differ in terms of their maturity and level of empirical support. From this follows that a relativist epistemology is the best in this study, because it "uncovers" knowledge and permits the combination of both mature and less established literature domains (Bacharach 1989).

4.1.3 Method of discovery

The method of discovery relates to "undertaking novel explorations that lead to puzzling observations that are subsequently explained by the cyclic and repeated use of *abduction*, *retroduction*, *deduction*, and *induction*" (Lawson, 2010, p.342). Therefore, discovery is concerned with basic inferences and a pattern of scientific reasoning and argumentation. Figure 7 describes four methods of discovery.

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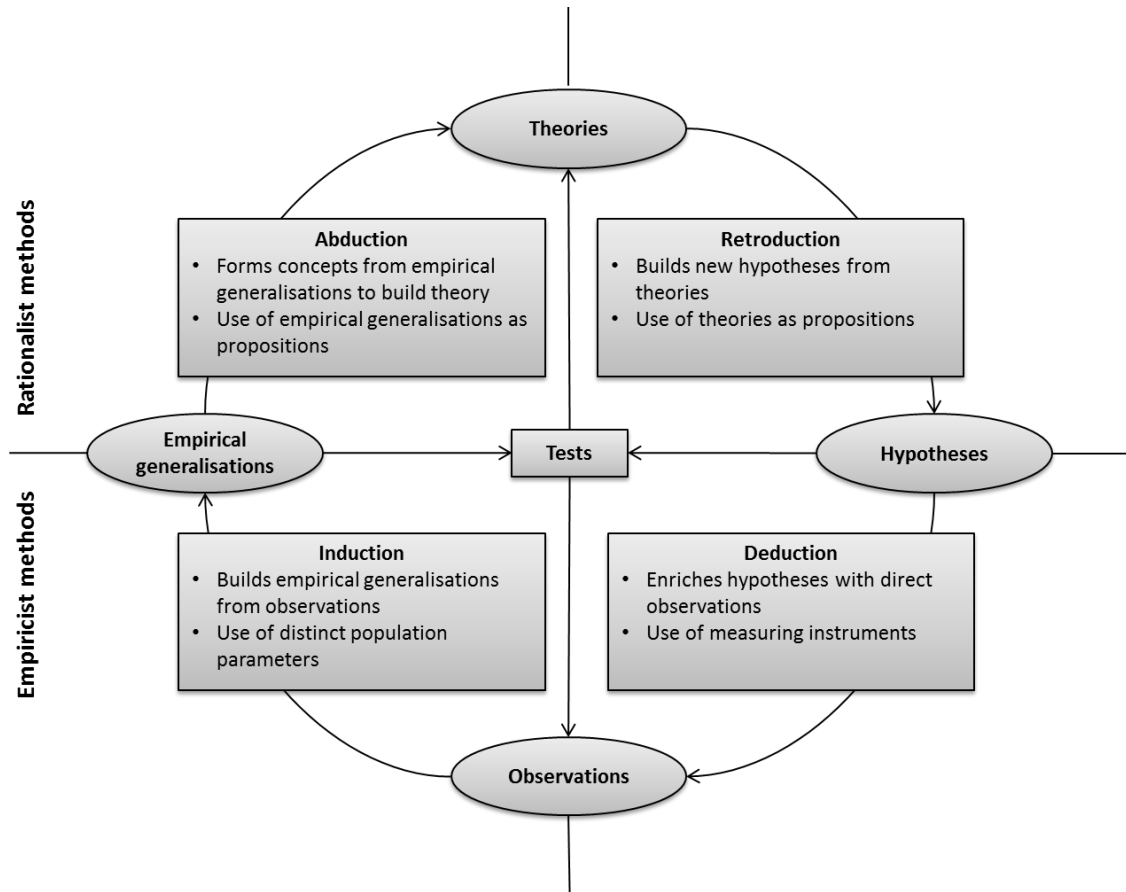
Figure 7: Cycle of inferential methods of discovery (based on Wallace, 1971; Lawson 2010; and Harrison 2002)

Retroduction tests whether a grand theory or concept actually holds true (Lawson, 2010). Thus, studies using this approach formulate and assess a theoretical framework to determine whether the evidence supports it (Blaikie, 2009; Ragin, 1994). This process of falsification and validation generates new hypotheses amending the initial theoretical framework.

Once these hypotheses have been established, *deduction* processes can be utilized to explore their consequences (Pietarinen and Bellucci, 2015) on the basis of samples and measuring instruments. These measurements rely on *empirical observations* to indicate whether hypotheses should be supported or refuted (Blaikie, 2009). These observations form the basis for *induction,* which uses a set of estimated population parameters, or concepts observed in a discrete population sample, to draw inferences and make generalisations on the basis of these observations (Harrison, 2002). Indeed, these generalisations form new concepts that use *abduction* for theory development (Lawson,

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2010). Thus, researchers formulate analogical inferences on the basis of empirical generalisations to cognitively derive causal claims (Polya, 1954; Tidman and Kahane, 2003). Abduction therefore links empirical generalisations back to grand theories.

This study used an inductive method of discovery for two reasons. First, its approach relied on observations from the literature and practice, rather than on hypotheses. For example, the study of hybrid organisational forms is a direct observation from the literature and practice, as organisations are increasingly searching for opportunities with a wider group of stakeholders with discrete institutional logics. Second, this study applied middle-range thinking (Laughlin, 1995), meaning that it utilised a combination of theories with the potential to explain a grand theory. Thus, this study did not originate from a grand theory and instead used population parameters for a specific sample to generate an empirically valid generalisation.

4.1.4 Middle-range thinking

Middle-range thinking describes a situation in which scholars address a narrow social concern that supports the discovery of grand, general theories (Laughlin, 1995; Merton, 1968). Following Laughlin, such a narrow social concern reflects an incremental approach to grand theory development, because generalisations are not all-encompassing and partial. This "skeletal approach" supports the creation of theoretically diverse underpinnings with the potential to become a new grand theory. Moreover, they provide a broader understanding of relationships and reflect a middle-range theorisation that generalises towards discovery while producing incomplete theories that only partially explain the phenomenon (Laughlin, 1995).

Middle-range thinking is often associated with a relativist epistemology, as its lack of a unifying theoretical base hinders the development of a single grand theory. Thus, this approach was well-suited for this study, as the theories incorporated within this analysis are difficult to individually test or explore. Certainly, this study incorporated overlaps from theories of behaviour and learning (March and Simon, 1958; Nelson and Winter, 1982; Simon, 1997), the institutional logics perspective (Friedland and Alford, 1991), and the resource and agency-based theories employed in sustainability studies (Connelly, Ketchen and Slater, 2011; Mellahi and Frynas, 2016). It linked these perspectives, generating interactions among these theories (Laughlin 1995).

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This middle-range approach also has consequences for methodologies that range from positivist approaches to social constructionist ones (Laughlin, 1995). For example, high-level methods use structured, quantitative techniques to identify or modify hypotheses, whereas lower-level methods imply qualitative discoveries based on experience and human constructions. Medium-level methodologies, however, often rely on case-based studies aimed at collecting conclusive data capable of tying together multiple theories through observation. Compared to grand theories, this final approach is more open to change, as it offers a high degree flexibility in combining different theories. Table 6 describes the key characteristics of middle-range thinking as compared to higher and lower levels of abstraction.

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Table 6: Theory development characteristics (adapted from Laughlin, 1995)

	High	*Medium*	*Low*
Theory characteristics			
Ontological belief	Generalisable world waiting to be discovered	"Skeletal" generalisations possible	Generalisations might not be possible
Role of theory	Definable theory with hypotheses to test	"Skeletal" theory with a broad understanding of relationships	Ill-defined theory with no prior hypotheses
Methodology characteristics			
Role of observer and human nature	Observer is independent and irrelevant	Observer is important and always part of the process of discovery	Observer is important and always part of the process of discovery
Nature of method	Structured, quantitative method	Definable approach but subject to refinement in actual situations, invariably qualitative	Unstructured, ill-defined, qualitative approach
Data sought	Cross-sectional data usually collected at one point in time and selectively tied to hypotheses	Longitudinal, case-study based; heavily descriptive but also analytical	Longitudinal, case-study based; heavily descriptive
Conclusions derived	Tight conclusions	Reasonably conclusive, tied to "skeletal" theory and empirical richness	Ill-defined and inconclusive findings but empirically rich in detail
Validity criteria	Statistical inference	Meanings: researchers & researched	Meanings: researched
Change characteristics			
	High emphasis on changing status quo	Medium emphasis; open to radical change or maintenance of status quo	Low emphasis on changing status quo
This study	*Adopts middle-range theoretical, methodological, and change-related characteristics*		

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This study employed a middle-range approach, using a mixture of theories to generate middle-level generalisations.

4.2 Research design

The research design describes the structure of the enquiry process and ensures that the research question is answered "as unambiguously as possible" (De Vaus, 2001, p.9). This study sought to employ a logical structure of inquiry, with the goal of identifying the types of evidence needed to answer the research question.

This chapter has already noted that this research project applied a relativist, inductive, middle-range approach to identify and process knowledge. The next section expands on this description, indicating the *type of data collected*, *research design, theorising strategy, and the unit and level of analysis*.

4.2.1 Type of data collected

The data collection type indicates whether qualitative or quantitative data collection focus on words or numbers (Easterby-Smith, Thorpe and Jackson, 2008). Since studies differ in their adoption of qualitative versus quantitative approaches, this section highlights preferences in the relevant literature domains, namely, search, institutional logics, and SOI.

The *search literature* contains many studies that have employed mixed quantitative and qualitative designs (Greve, 2003a; Laursen and Salter, 2006; Sidhu, Commandeur and Volberda, 2007). Nonetheless, quantitative approaches are more common in industry-specific studies relying on innovation surveys and patent data (Baum, Rowley and Shipilov, 2005; Katila and Ahuja, 2002; Laursen and Salter, 2006; Lavie and Rosenkopf, 2006). On the other hand, organisational and individual-level studies have employed qualitative designs (Lopez-Vega, Tell and Vanhaverbeke, 2016; Maggitti, Smith and Katila, 2013; Zhang and Li, 2010). Likewise, *the institutional logics literature* relies on qualitative designs across levels, frequently using event analysis as a means of interpretation (Dunn and Jones, 2010; Greenwood et al., 2011; Rao, Monin and Durand, 2003; Tracey, Phillips and Jarvis, 2011). These methodological choices suggest a strong reliance on analysing words to identify the embedded sociological

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structures and symbols. Lastly, the *SOI literature* has tended towards conceptual or qualitative studies (Adams et al., 2016; Boons and Lüdeke-Freund, 2013; Hansen, Grosse-Dunker and Reichwald, 2009).

This analysis adopted a qualitative research design, as the study of words played a critical role in identifying the effect of institutionally diverse logics on variety creation. The use of numbers would have been useful for generating empirical data on a specific parameter set for a wider industry. Such a dataset, however, does not exist for SOI studies. Instead, this study relied on organisational members' reports on incidents within a particular context (Easterby-Smith, Thorpe and Jackson, 2008). Thus, this study is well-aligned with the institutional logics literature, which also focuses on temporal event sequences (Thornton 2005) and hybrid organisational structures (Thornton et al. 2012). Perspectives from the government, public sector, local communities, and businesses would have been difficult to extrapolate in a quantitative fashion. For this reason, this research project adopted a qualitative and word-based approach to identifying hybrid organisations' SOI opportunities and activities.

4.2.2 Research design options

Bryman (2012) distinguished five research design options: *experimentation*, *cross-sectional*, *longitudinal*, *case study-based,* and *comparative designs* (Bryman, 2012).

Experimentation and cross-sectional approaches focus on specific research questions but are rather narrow in scope (Edmondson and McManus, 2007). In contrast, *case studies* are broad and allow researchers to integrate different data collection methods, such as *longitudinal and comparative approaches* (Bryman, 2012; Easterby-Smith, Thorpe and Jackson, 2008; Robson, 2011). As this study drew on multiple literature streams, a broad approach made sense, with a *case-study design* the best fit. Knowledge and theory are still evolving, and the environmental conditions were complex, offering further support for the case-study approach (Eisenhardt, 1989; Yin, 2009). This complexity was characterised in the hybrid organisational form that served as a locus for identifying SOI opportunities (Thornton, Ocasio and Lounsbury, 2012). Case studies support the empirical investigation of such hybrid organisational forms.

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This study also considered other ethnographic design options as a means of observing or influencing other people's behaviours (Easterby-Smith, Thorpe and Jackson, 2008). Regarding influencing behaviours, *action research* was considered, as it offers researchers an opportunity to involve themselves in a business problem and collaboratively learn by influencing that issue (Easterby-Smith, Thorpe and Jackson, 2008). This approach, however, would have required the study to examine a single hybrid organisational form and context, thus excluding other hybrid organisational forms. The study's goal, however, was to investigate a single organisation engaging in *multiple* hybrid organisational forms.

A more detached approach, on the other hand, would also have focused the author's attention on the interactions between *individual experiences and the organisation*, rather than on the incidents comprising a temporal set of events in multiple hybrid organisational forms. As it permitted an analysis of multiple hybrid organisational forms, this study adopted a case-study approach.

4.2.3 Theorising strategy

A study's theorising strategy refers to its approach to generating theory from data. There are different approaches to analysing data that – according to Easterby-Smith et al. (2008) - lend themselves to two options of theorisation: *content analysis* and *grounded analysis.*

Content analysis uses templates and examines historical artefacts and events on the basis of these templates (King, 2004), which capture a rich variety of descriptions of circumstances (Miles and Huberman, 1994). In contrast, *grounded analysis* is more open-ended, with close links to the notion of grounded theory (Glaser and Strauss, 1967). Content analysis and grounded analysis often overlap, meaning that it is often difficult to determine whether a particular theorising strategy is grounded or content-based (Easterby-Smith, Thorpe and Jackson, 2008). The reason for this difficulty is that theorisation can occur either at the outset of a study or after data has been collated and combined (Eisenhardt, 1989; Glaser and Strauss, 1967). However, researchers engaging in grounded analysis frequently employ a preliminary set of concepts at the outset of their investigation to tentatively frame initial theories (Eisenhardt, 1989; Yin, 2009). In a way, this specification of a priori concepts supports a "ground-up" search for data and

permits systematic falsification through analytic induction (Glaser and Strauss, 1967; Wilson, 2004). An alternative approach would be to force data to fit a template and structure the analytical process accordingly. However, the key difference pertains to whether the study is deductive or inductive. In other words, is it concerned with generating observations from hypotheses, or does it make observations regarding a particular sample? This study theorised in a bottom-up manner, using an analytical template as a starting point for constructing theory from a particular sample. Thus, the analytical template "interacted" with the data, as the qualitative analysis later demonstrates.

4.2.4 Unit and level of analysis

The unit of analysis is the "entity that forms the basis of the sample" (Easterby-Smith, Thorpe and Jackson, 2008, p.102), which in this case is the data portions under evaluation. This study used *critical incidents* to study "effective and ineffective behaviour with respect to a designated activity" (Flanagan, 1954, p.328). Such behaviour was embodied by critical events describing the effects of institutional pluralism, slack, and search types and triggers on sustainable innovation opportunities. The study of critical incidents was therefore concerned with temporal events and actions in a hybrid organisational form (Chell, 2004). This approach provided insights regarding opportunity-generating impacts.

Regarding the levels of analysis, the literature on search, institutional pluralism, and SOI contains different preferences. For example, the institutional logics literature tends to focus on organisational and field-level studies (Greenwood et al., 2011; Thornton, Ocasio and Lounsbury, 2012), whereas the majority of search studies have examined organisations and industries (Katila and Ahuja, 2002; Laursen, 2012; Laursen and Salter, 2006). At the same time, individual-level search studies have focused on invention, cognitive distance, and creativity (Maggitti, Smith and Katila, 2013; Nooteboom et al., 2007; Pandza and Thorpe, 2009). Lastly, the SOI literature prefers firm- and industry-level accounts (Adams et al., 2016; Klewitz and Hansen, 2014; Seebode, Jeanrenaud and Bessant, 2012). Generally speaking, all levels are studied across all three literature domains.

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However, the research question does not consider individuals or industry-level studies given that the research context is at the level of the *hybrid organisational form* (Doherty, Haugh and Lyon, 2014). While hybrid organisational forms "draw on at least two different sectoral paradigms, logics, and value systems" (Doherty, Haugh and Lyon, 2014, p.2), they yet represent an organisational arrangement comprised of multiple sectors. Thus, logics were studied as embedded in the hybrid organisational form (Tracey, Phillips and Jarvis, 2011). This design permitted an examination of the business-society interface, since SOI opportunities are generated within these contexts. Moreover, hybrid organisational forms are partnership-based entities and can contain both local and international partners. This research context allowed a closer investigation of multiple institutional environments and their boundary-spanning search activities.

4.3 Data collection

Data collection concerns the sequence of steps undertaken to gather data. This study needed to capture a sufficient amount of evidence to determine how institutional pluralism affects the search for SOI opportunities. Moreover, observations identified from the data needed to be validated to ensure that the findings resonated with organisational actors. These aims prompted this study to gather data from actors involved in discrete hybrid organisational forms.

Thus, data collection process started with the selection of cases. The below sub-sections describe the data collection states in greater detail.

4.3.1 Case selection

Case selection involves choosing a specific population, such as an organisation, for further study (Harrison, 2002; Hartley, 2004). This study sought to identify a theoretically useful organisation reflecting the characteristics of the sample under study (Eisenhardt, 1989) paving the way for relevant theoretical conclusions (Hartley, 2004). The case selection process therefore involved a number of scoping decisions, which are discussed below.

The first scoping decision concerned the choice between an embedded single-case and multiple-case design (Yin, 2009). Embedded single cases offer an advantage when it is

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possible to collect data on a representative, revelatory, unique, critical, and longitudinal case. In contrast, multiple-case designs often yield more robust data, as data sampling and case replication can take place simultaneously (Yin, 2009). Therefore, in most cases, multiple cases are the best option.

In addition, this study sampled and replicated embedded hybrid organisational forms in a single case, using an embedded case-study design (Yin, 2009). This choice was made for two reasons. First, the author assumed that only a handful of sustainability-oriented organisations were engaging in multiple variety-creating activities, and so the task of identifying and selecting such an organisation needed to be taken into account. Second, comparisons between hybrid organisational forms were possible, as the selected organisation served as a focal point for SOI activities. Thus, the rationale behind this single-case approach was that it would facilitate more systematic comparisons of behaviours of varying levels of effectiveness across hybrid organisational forms. As compared to a multiple-case design, a single-choice approach was expected to be more useful for examining how a single sustainability-oriented organisation participated in multiple hybrid organisational forms. The reason will be explained in the sub-section below.

4.3.1.1 Scoping a case organisation

Another important step was selecting a case organisation based on a set of criteria. Initially, business and innovation networks were surveyed to identify and engage with companies, smaller start-ups and medium-sized enterprises committed to sustainability-related activities. Some of these companies were interested in a further engagement. However, because these enterprises were rather resource-constrained and had their resources predominantly bound to core business activities, the engagements were not intensified as such organisations did not qualify for this study. Following this insight, larger sustainability-oriented companies were explored, as it was assumed that such organisations would both focus on sustainability-orieted core business activities and also represent a range of non-profit activities targeting environmental and social demands.

Indeed, the search for a sustainability-oriented organisation took many factors into account, such as *reputation*, *the diversity of hybrid organisational forms*, *research and*

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development intensity, and *company size*. These features were considered in further searches for large-scale organisations.

A useful source to identify large organisations with sustainability credentials was the FTSE4Good index and the Dow Jones Sustainability Index, as they represent societal evaluations of company activities (FTSE Russell Group, 2017; RobecoSAM, 2017). This evaluation ensured that the selected organisation was a trailblazer. Moreover, the company had to participate in the Global Reporting Initiative (GRI) – an independent standards organisation that supports businesses, governments and other organisations to disclose its sustainability-related activities via the *GRI Sustainability Disclosure Database* (Global Reporting Initiative, 2017). This disclosure indicated that the organisation partook in a *diversity of hybrid organisational forms,* as the GRI requires organisations to disclose information on formalised stakeholder inputs.

The organisation's interest in *eco-related or social research and development* was also of significance, as it reflected the firm's sustainability-oriented innovativeness via established product and system-level innovations. For this purpose, larger sustainability-oriented companies were explored, as it was assumed that such organisations would represent a range of search activities targeting environmental and social demands. Moreover, it was reasoned that larger organisations would be more likely to enjoy excess funding, resources, and employee access in comparison to smaller and medium-sized enterprises.

Following these measures, three large organisations were examined as described above, targeting more than one organisations as a way to back this study with further population samples. While many firms didn't meet the above described criteria or were difficult to get access to, three retail, consumer goods, and automotive industries were identified via online research, personal conversations with leading academics, and personal contacts. Table 7 lists these organisations and describes their consumer areas.

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Table 7: Case study selection and access

	Automotive company	*Retail company*	*Consumer goods company*
Reputation	Strong sustainable product portfolio; world-renowned sustainable production system	Strong circular business models in the textile and fashion industry	Multiple initiatives on large-scale behavioural change
Diversity of hybrid organisational forms	Engaged in technical education, biodiversity, and sustainable mobility	Engaged in generating value from waste materials and social-impact activities	Engaged in sustainable agriculture, nutrition, and hygiene initiatives
Research and development intensity	Very high: strong interest in building eco-efficient cars	High: strong interest in creating value from "waste"	High: strong interest in behavioural change
Company size	Multinational	Multinational	Multinational
Access	Yes	No	No

Evidence indicated that all three multinational organisations were sustainability-oriented trailblazers in their sectors and had an interest in creating sustainable value. Consequently, all of these organisations were contacted via email, as well as via direct conversations at sustainability-oriented conferences. Yet, only the automotive company was interested in scheduling further meetings and interviews. Thus, that firm became the case organisation.

4.3.1.2 The case organisation: AUTO

Once that the case organisation had been selected, it was necessary to obtain a general overview of its structure and operations (Hartley, 2004). Collecting this information constituted a first step towards identifying a range of sustainability-oriented activities extending beyond organisational and technological boundaries.

Indeed, the multinational automotive company AUTO has a strong reputation for its eco-friendly cars and globally renowned sustainable production practices. AUTO operates 75 manufacturing plants in 28 countries, and it markets its vehicles in more than 170 countries via a workforce of 320,000 employees. The European market also is important for AUTO, prompting it to invest more than $7 billion since 1990. Moreover,

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as of 2015, AUTO employed 80,000 workers in Europe and Eurasia, and these employees were spread across a wide network of 31 national marketing and sales companies in 56 countries. It also works with 3,000 retailers and 9 manufacturing plants, with these latter organisations producing AUTO's range of eco-friendly cars.

As indicated in AUTO's sustainability report, it engages in extensive activities aimed at improving society, the environment, and the economy (Adams et al., 2016; Seebode, Jeanrenaud and Bessant, 2012). These undertakings range from eco-efficient product developments, such as hydrogen cars and hybrid technologies, to wider engagements with industrial NGOs exploring sustainable mobility. AUTO has also investigated numerous other sustainability-related topics. These include environmental themes, such as *low carbon societies*, *recycling-based societies*, *environmental protection, and harmony with the natural world.* However, *socially and economically oriented themes* connected to corporate citizenship were also represented, such as *building better cars, enriching the lives of communities,* and *creating a stable business base.* On the whole, these themes indicated an interest in net-positive benefits for business and society. This desire drove AUTO to partner with other organisations to work on central or specific issues related to each theme. Thus, AUTO engaged in hybrid organisational forms that aspired to be sustainability-oriented.

4.3.2 Preliminary contact and data collection

The author contacted AUTO's General Manager of Environmental Affairs (coded as Senior Manager 1). This contact clarified the study's objectives and led Senior Manager 1 to provide initial access, in the form of informal interviews with organisational members, in July and August 2014. The aim of these initial conversations was to obtain contextual data on the organisation's history, present functioning, and, last but not least, past and future challenges (Hartley, 2004). After explaining the study's goal of exploring SOI opportunities in the context of AUTO's CSR activities, the interviewees indicated that AUTO's CSR activities were decentralised and embedded across multiple company divisions. In other words, AUTO did not have a central CSR department. This structure indicated that the organisation's sustainability orientation was central to its identity.

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Four further interviews at AUTO's headquarters were scheduled, permitting the author to learn more about AUTO's various CSR-related innovation activities and collect initial data. These interviews took place in January 2015 and involved introductions to multiple mid- and upper-level managers. Furthermore, a research protocol was created (Chell, 2004) that contained questions regarding the company's overall business and the undertaken study. The questions of the interview protocol can be found in Appendix A. As the appendix demonstrates, the protocol was modified and improved over time. These alterations were the result of feedback from this dissertation's academic panel, and they ensured the protocol's validity. In consequence, the interviewees provided insights on different projects, including their core missions and outcomes. Moreover, additional information was gathered from AUTO's sustainability reports and website. Table 8 provides a summary of this preliminary research stage.

Table 8: Preliminary data collection with AUTO

Interviewee	Date interviewed	Type	Mode	Length
Sr. Manager 1	29 July 2014	Informal	Face-to-face	40 minutes
	20 August 2014	Informal		2 hours
	21 January 2015	Formal		1 hour
Md. Manager 2	21 January	Formal	Face-to-face	1 hour
Md. Manager 3	21 January	Formal	Face-to-face	1 hour
Sr. Manager 4	21 January	Formal	Face-to-face	1 hour

4.3.3 Primary data collection activities

The primary data collection phase involved a search for interview partners who could provide relevant insights on the phenomenon of interest (Cunliffe, 2011; Kvale, 2007). This phase was in accordance with the research design and the amended research protocol, which anticipated hour-long semi-structured interviews. All interviews were scheduled in advance via email with the support of a key contact in AUTO, who sent the email on the author's behalf. The email explained the research, explicitly stating that participation was voluntary and that the interviewees' input would be treated as confidential. The email also noted that with the participant's consent, the interviews would be audio-recorded (Du Bois et al., 1993), facilitating the creation of interview transcripts. All of participants indicated their satisfaction with these provisions, and some of them asked to see the interview protocol in advance of the interviews.

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This correspondence resulted in 26 face-to-face interviews, and these took place at different locations across Belgium and the United Kingdom (UK). Moreover, for reasons related to funding and accessibility, the author also conducted seven phone interviews with AUTO's external partners. Thus, 33 interviews were held in total. Two key challenges emerged in connection with the number of interviewees:

- The initial intention was to conduct more interviews. However, this approach failed because AUTO employees only reluctantly provided access in many cases, despite support from the key contact. These employees noted their lack of time and claimed that interviewing managers in similar roles would create high levels of redundancy. Although the author rebutted this assertion, the interviewees declined to suggest further contacts and instead repeatedly referred to online sources as a substitute for further interviews. As a countermeasure, the author encouraged the interviewees to make a referral from a list of potential interviewees sourced online or through other interviews. This approach was successful and increased access, but the study still did not achieve its initial target.

- The key contact facilitated initial contact with employees but was reluctant to support additional face-to-face contacts as per author's suggestions. Instead, the key contact offered to disseminate the interview questions to other country divisions via an online survey. However, the author expected a low response rate from this approach and indeed, a list of 35 email contacts yielded only 5 responses. Moreover, the responses to the online survey were vague and lacking in detailed information. Therefore, the author eventually discarded this data. Moreover, no additional face-to-face interviews materialised from this approach.

Although data collection mostly conformed to the research design, the above-mentioned deviations did not affect the data quality and findings for the following reasons:

- The primary data was collected during face-to-face interviews and phone interviews served as a fruitful complement. As a result, the data gained from the in-person interviews, when supplemented with data from the telephone interviews, resulted in a rich dataset.

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- As the research question focused on critical incidents, it was possible to identify relevant data through online protocols and resources, since information on the projects under study was often publically accessible via AUTO's web and intranet pages. Thus, the quality of the data depended on the author's understanding of temporal events reflecting search behaviours and lessons in the context of hybrid organisational forms.

Table 9 summarises the author's primary contacts with AUTO, demonstrating that most of the interviews took approximately one hour.

Table 9: Primary data collection

Name	Date interviewed	Type	Mode	Length
Sr. Manager 1	29 July 2014	Formal	Face-to-face	1 hour
	20 August 2014	Informal	Face-to-face	40 min.
	21 January 2015	Informal	Face-to-face	2 hours
	2 December 2015	Formal	Face-to-face	1 hour
Md. Manager 2	21 January 2015	Formal	Face-to-face	1 hour
	2 December 2015	Formal	Face-to-face	1 hour
Md. Manager 3	21 January 2015	Formal	Face-to-face	1 hour
	2 December 2015	Formal	Face-to-face	1 hour
Sr. Manager 4	21 January 2015	Formal	Face-to-face	1 hour
	2 December 2015	Formal	Face-to-face	1 hour
Md. Manager 5	2 December 2015	Formal	Face-to-face	1 hour
Md. Manager 6	9 February 2016	Formal	Face-to-face	1 hour
	1 April 2016	Formal	Face-to-face	1 hour
Sr. Manager 7	9 February 2016	Formal	Face-to-face	1 hour
Sr. Manager 8	12 February 2016	Formal	Face-to-face	30 min.
Sr. Manager 9	12 February 2016	Formal	Face-to-face	1 hour
Md. Manager 10	12 February 2016	Formal	Face-to-face	1 hour
Md. Manager 11	12 February 2016	Formal	Face-to-face	1 hour
	18 March 2016	Formal	Phone	30 min.
Md. Manager 12	23 February 2016	Formal	Face-to-face	2 hours
Sr. Manager 13	1 March 2016	Formal	Face-to-face	1 hour
Sr. Manager 14	16 March 2016	Formal	Face-to-face	1 hour
Md. Manager 15	23 March 2016	Formal	Face-to-face	1 hour
Md. Manager 16	23 March 2016	Formal	Face-to-face	1 hour
Md. Manager 17	23 March 2016	Formal	Face-to-face	1 hour
Md. Manager 18	1 April 2016	Formal	Face-to-face	1 hour

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Md. Manager 19	29 March 2016	Formal	Phone	1 hour
Md. Manager 20	10 August 2016	Formal	Phone	1 hour
Md. Manager 21	16 August 2016	Formal	Phone	1 hour
Md. Manager 22	17 August 2016	Formal	Phone	1 hour
Md. Manager 23	17 August 2016	Formal	Phone	1 hour
Md. Manager 24	6 September 2016	Formal	Phone	1 hour
Md. Manager 25	14 September 2016	Formal	Phone	1 hour
Total interviews	**33**			

Five of the interviews were of different lengths, as explained below:

- Senior Manager 1 was the key contact and provided valuable contextual information about AUTO during two informal conversations, which lasted 40 minutes and 2 hours.

- Senior Manager 8 was a very senior employed, and he indicated that the interview could not last for more than 15 minutes. Therefore, this interview was rather rushed, but it still provided important insights on the core values of the organisation and the rationale for engaging in different projects. Data granularity was therefore lower than in other interviews, but further interviews with Middle Manager 10, Middle Manager 11, and Senior Manager 13 made progress towards closing this gap.

- The 30-minute interview with Middle Manager 11 was a follow-up interview on a key project. It centred around certain open-ended questions that the first interview had not addressed.

- The interview with Middle Manager 12 took two hours because of a spontaneous schedule change. One confirmed interviewee was not able to participate, and so Middle Manager 12 filled in for that employee and answered questions regarding two projects.

Table 10 provides a summary of the field data.

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Table 10: Field data summary

Method	Semi-structured interviews (face-to-face and telephone)
Time period	January 2015-September 2016
Total number of interviews	33 interviews
Interview duration range	30 minutes -2 hours
Average interview length	1 hour
Total material collected	27 hours (321 pages of 31 transcripts)

After the interviews, it was possible to generate insights on relevant projects and company divisions. As the projects in question sought to develop technical and societal knowledge to make a social, environmental, and commercial impact, they were viewed as lower-level undertakings within hybrid organisational forms containing multiple identities and practices (Doherty, Haugh and Lyon, 2014). Therefore, a large portion of the analysis was concerned with identifying and analysing those projects undertaken in hybrid organisational forms, as the next section explains.

4.4 Qualitative data analysis

The qualitative data analysis took place concurrently to data collection. It sought to make sense of the data, following Miles and Huberman's (1994) notion of reducing and displaying data to generate conclusions. The first step was to create verbatim transcriptions of 27 hours of interviews, with 31 resultant transcripts comprising 321 pages of text. Next, all of the data was imported into NVivo 10, which supported the subsequent analysis. Overall, the analytical process consisted of three steps: developing the list of projects, creating the coding frame, and analysing the critical incidents. The following sub-sections explore these phases in further detail.

4.4.1 Project list development

The first step was to develop a project listing for further investigation. To that end, AUTO's CSR reports and informal conversations with corporate employees were used to search for projects. Using this route, a list of 13 case study projects emerged. Following further interviews and AUTO's CSR reports, this list was expanded particularly at the beginning and included all projects mentioned during the interviews.

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Indeed, this implied that this initial list initially included all activities mentioned during interviews and found in secondary sources, without any scoping based on data granularity. Thus, an analysis of all of the interview transcripts and a descriptive coding cycle (Saldaña, 2009) resulted in a list of 53 projects involving external stakeholders. Table 11 provides an overview of these undertakings.

As a second step, the list of projects had to be reduced to a manageable set of projects and was analysed with regard to its data granularity. For this analysis, all undertaken interviews were appraised with regard to their data coverage. In addition, corporate and public sources—including presentations, newspaper articles, news releases, promotional videos, newsletters, internal documents, and other web material —were considered, with the goal of determining whether in-depth incident descriptions were available for all 53 projects. Appendix B provides more details regarding this analysis, indicating that 13 projects qualified for further investigation. Table 12 lists these projects and provides details on their objectives and the partners involved in them.

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Table 11: Initial list of identified projects

No.	Project	No.	Project
1	Car-sharing vehicle-testing	28	Lean approach seminar
2	Car-sharing commercial experiment	29	Low carbon vehicle partnership
3	Sustainable supply chain reporting	30	Eco-headquarters development
4	Ambulance by Air charity	31	Childhood charity
5	Responsible Business Network	32	Responsible mineral trade working group
6	Sustainable mobility project – trial city #1 (BK)	33	Doing the Most Good charity
7	Circus Visits for Children charity	34	Road safety education project
8	Citizens Advice Bureau	35	Maritime youth charity
9	Post-traumatic Stress Charity	36	See inside manufacturing partnership
10	Just World Charity	37	Sight Loss charity
11	Community groups	38	Technology Challenges
12	Bereavement support	39	Food Bank Support #2
13	Football club engagement	40	Local Wildlife Trust
14	Technical college engagement	41	Eco-park development
15	Hydrogen in the UK Network	42	Local Nature Partnership
16	Automotive association	43	Trust for children
17	Sustainable mobility project – trial city #2	44	Diagnose Car project
18	Cricket club for disabled persons	45	The Art of Manufacturing partnership
19	European Union consultation working group on a EU directive	46	Business support programme
20	Supply Chain Sustainability Working Group	47	Charity support programme
21	Food Bank Support #1	48	Online education support programme
22	Support of intensive care for infants	49	National Hydrogen Mobility Working Group
23	National Health road safety partnership	50	Local fire and rescue department
24	Industrial Cadets	51	Volunteer programme
25	Technical College Academy	52	Working assets programme
26	Apprentice Scheme	53	Young Engineers partnership
27	Biodiversity education project		

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Table 12: Final list of selected projects

	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity
1	Car-sharing vehicle-testing	French city administration, industrial partners	Test car-sharing technology and business model	Explore future sustainable business model	Medium	Presentation	Web material, promotional video	High
2	Car-sharing commercial experiment	Italian city administration, community enterprises, mobility-sector businesses	Test car-sharing business model	Explore future sustainable business model	High	Presentation	Newspaper articles, web material.	High
3	Sustainable mobility project – trial city #1 (BK)	Trial city administration, industrial partners, local businesses, communities, government, police	Explore integrated solutions for sustainable mobility	Explore future sustainable business model	High	Presentation	Newspaper articles, news releases, promotional video, web material	High
4	Just World Charity	NGO	Financial support and local community engagements across the UK and Africa	Increase social impact nationally and internationally	High	No	Web material	High
5	Supply Chain Sustainability Working Group	Manufacturers, suppliers, sustainability-driven NGO	Improve sustainable supply chain procurement practices amongst supplier base for all manufacturers	Improve sustainable business processes	High	Presentation	Web material	High
6	Apprentice Scheme	Regional government, professional organisations, local university	Generate an apprentice talent pipeline for AUTO and other regional businesses	Increase wider regional impact by offering engineering services	High	Presentation	No	High
7	Biodiversity education	Scientific NGO	Supply biodiversity-related teaching materials to	Increase wider international	High	No	Online resource, web material, news	High

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	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity
	project		European school network	community and achieve an environmental impact			releases	
8	Eco-headquarters development	Scientific NGO	Improve biodiversity at local headquarters	Increase wider environmental and social impact	High	No	Promotional video, news release, web material	High
9	Eco-park development	Scientific NGO	Create an eco-park at the production site	Increase wider environmental and social impact	High	No	Promotional video, news release, web material	High
10	Road Safety Education project	NGO, local schools, police	Make films to improve awareness of road safety in local schools	Increase local community impact	High	Newsletter	Web material	Medium
11	Local Nature Partnership	Regional government, universities, NGOs, industrial partners	Create a green economy in the region	Increase wider environmental and social impact	High	Internal documents	Web material	High
12	Diagnose Car project	Regional government, industrial partners, professional organisation	Donation and rotation of cars across technical colleges	Increase wider social impact	High	No	Web material	High
13	Fire and rescue organisation	Public organisation	Supply of trial vehicles used for education and training, thereby increasing road safety	Increase local, national, and international social impact	High	Presentation	Web material, news release	High

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Following the project selection phase, the next step was linking these projects with its associated hybrid organisational form. This step was necessary, because the projects were embedded in their hybrid organisational form. In particular, two hybrid organisational forms included more than one project. Thus, the mix of sectoral paradigms prevailed although the partnerships varied for the projects. Yet, the established mix of institutional logics did not change the key purpose of the engagements. In this respect, it is important to remember that hybrid organisational forms refer to logic compositions, whereas projects describe sustainability-oriented engagements with partners. For this reason, cases with a change in logic composition were separated. Table 13 provides a brief overview of the project links and the related hybrid organisational forms. Note that the titles in the table are referred to as hybrid organisational forms (HOFs) in the subsequent chapters.

The next section describes the development of the coding frame.

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Table 13: Hybrid organisational forms linked to projects

No.	Title of hybrid organisational form	Logics	Projects	Search aspiration
1	**Car-sharing initiative**	Market Corporate Community State	Car-sharing vehicle-testing	Test car-sharing technology and business model
			Car-sharing commercial experiment	Test car-sharing business model
2	**Sustainable Development Coalition**	Corporate Market Professional Community State	Sustainable mobility project – trial city #1 (BK)	Explore integrated solutions for sustainable mobility
3	**Just World Charity**	Community Corporate	Just World Charity	Fundraising and local supplier community engagements
4	**Supply Chain Sustainability Working Group**	Corporate Community	Supply Chain Sustainability Working Group	Improve sustainable supply chain procurement practices amongst the supplier base for all manufacturers
5	**Apprentice Scheme**	Professional Corporate Market Community State	Apprentice Scheme	Generate an apprentice talent pipeline for AUTO and other regional businesses
6	**Gingko**	Corporate Professional	Eco-park development	Create an eco-park at the production site
			Eco-headquarters development	Create an eco-park at national headquarters

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			Biodiversity education project	Supply biodiversity-related teaching materials to European school network
		Community State		
7	**Road Safety Education**	Community Corporate	Road safety education project	Provision of financial support and know-how for films seeking to raise awareness in local schools regarding road safety
8	**Local Nature Partnership**	State Corporate Market Community	Local Nature Partnership	Create a green economy in the region
9	**Diagnose Car**	Community Corporate State	Diagnose Car project	Supply donated cars to technical colleges
10	**Local fire and rescue department**	Community Corporate State	Local fire and rescue department	Supply of trial vehicles for education and training, thereby increasing road safety

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4.4.2 Coding frame development

Subsequent to selecting projects and integrating them in hybrid organisational forms, the development of the analytical coding frame followed over two stages.

The first stage involved an NVivo 10 analysis of a "start list" of codes that reflected concepts from the literature (Saldaña, 2009). The interview transcripts were repeatedly analysed using these different code descriptions. This process was iterative, and it required complete immersion in the data (Glaser and Strauss, 1967). An analytic induction process provided support in the conceptual finding phase (Wilson, 2004). More specifically, concepts were repeatedly tested across the sample to ensure their validity across all cases. However, the identified concepts did not perfectly fit with all the cases and data. Therefore, the coding frame was refined. Moreover, the concepts had to be iteratively revised through modifications, extensions, and the exclusion of new codes (Lincoln and Guba, 1983), given that some codes appeared to be "inapplicable, overbuilt, empirically ill-fitting, or overly abstract" (Miles and Huberman, 1994, p.65). This process was time-consuming, as the literature did not provide sufficient guidance on the best approach for search studies examining multi-institutional contexts. Eventually, however, this technique generated a list of concepts for further investigation.

Table 14 describes the development of the coding frame in more detail, indicating which concepts underwent multiple revisions. It demonstrates that search, institutional pluralism, and SOI were investigated as key themes. Moreover, sub-level concepts identified from the literature were individually trialled during the conceptual development phase.

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Table 14: Development of the coding frame

	Initial coding frame	*Reason*	*Key author*	*Concept development*	*Final conceptual frame*
Search behaviour	*Search aspiration*	Identify search objectives	Levinthal and March, 1981	Modified: aspirations are implied in discrete institutional logics	*Search aspiration*
	Search trigger (Problemistic/slack)	Identify trigger opportunity	Levinthal and March, 1981	Maintained	*Search trigger (Problemistic/ slack)*
	Search type (local/non-local)	Identify whether the search relied on prior knowledge or unknown knowledge	Nelson and Winter, 1982	Maintained	*Search type (local/non-local)*
	Search intensity	Determine the intensity with which partners engage in the search	Nelson and Winter, 1982	Excluded: no explanatory power and no reliable data	
Institutional pluralism	*No. of institutional logics*	Determine the number of logics involved in the search	Thornton et al., 2012	Extended by one concept	*Number and type of institutional logics*
	Mission orientation (e.g., purpose-driven)	Determine the purpose of the logic	Thornton et al., 2012	Excluded: mission orientation is implied in discrete institutional logics	
	Framing/reframing incidents	Determine events that changed the project's direction	Flanagan, 1955	Excluded: framing and reframing incidents reflect potential innovation opportunities	

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	Tensions (between logics)	Determine potential conflicts between logics	Jay, 2013; Besharov and Smith, 2014	Modified: tensions are implied in the range of logic relationships	*Logic relationship*
	Types of tensions	Determine the type of conflict in the search	Besharov and Smith, 2014	Modified: tension types are implied in the range of logic relationships	
	Reconciliation (between logics)	Determine the strategy used to overcome tensions	Thornton et al., 2012	Modified: reconciliations are implied in logic relationships	
Sustainability -oriented innovation opportunities	*Range of innovation opportunities*	Determine the type of innovation opportunity delivered	Tidd and Bessant, 2009	Modified: SOI opportunities can contribute to products, processes, business models, and systems.	*SOI opportunity type*
				Added: innovation opportunity scope describes the institutional breadth of opportunities.	*SOI opportunity scope*
				Added: the number of innovation opportunities realised in the literature	*Number of realised opportunities*
				Added: the number of potential future opportunities	*Number of potential opportunities*
				Added: the ratio of incidents to potential and realised opportunities	*Opportunity incident ratio*

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As regards the *search theme*, search triggers and types emerged as relevant concepts, whereas other factors were excluded or amended. Search aspirations, for example, were considered but had to be further broken down by considering discrete logics. Similarly, concepts such as "search intensity" were contextually implied but also discarded at a deeper level, because the interview data did not provide any reliable data on established contacts between partners.

The *institutional pluralism* theme required modifications. A central question pertained to the number of, and relationships between, institutional logics in a hybrid organisational form. The literature in majority reported on hybrid organisations with *dual core purposes* (Greenwood et al., 2011). However, it was soon discovered that hybrid organisational forms can also incorporate two or more logics (Doherty, Haugh and Lyon, 2014). In addition, the data pointed to different relationships between logics (Besharov and Smith 2014). This insight was then combined with the seven institutional orders described earlier in Table 1 by Thornton et al. (2012) and simplified descriptions of discrete core and peripheral mission purposes.

Sustainability-oriented innovation opportunities also required further systematic analysis, since the types and scopes of such opportunities were unclear. This assessment led to the addition of factors capturing potential and realised innovation opportunities related to temporal events. Moreover, the data demonstrated that the presence of realised and potential product, process, business-model, and system-level opportunity types reflected a narrow or broad opportunity scope. This insight prompted the author to consider an opportunity-incident ratio mapping the difference between potential and realised opportunities and critical incidents. The final coding frame is presented in Table 15.

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Table 15: Final coding frame

Data category	Identified theme	Sub-level constructs
Search	Aspiration	Identifies the purpose of the engagement
	Trigger	Identifies slack and problemistic search triggers
	Type	Identifies local and non-local search types
Institutional pluralism	Number and type of institutional logics	Identifies the institutional logics involved in the hybrid organisational form
	Logic relationship	Identifies the alignment, contestation, estrangement, and dominance of logics
SOI opportunities	Type	Identifies product, process, business-model, and system-level innovation opportunities
	Scope	Identifies the range of opportunity types
	Realised	Identifies the number of realised opportunities
	Potential	Identifies the number of potential opportunities
	Opportunity-incident ratio	Difference between realised and potential opportunities and critical incidents

4.4.3 Analysis of critical incidents

The next stage was to apply the critical incidence technique (CIT) on the basis of the coding frame (Flanagan, 1954). Thus, the author examined relevant occurrences in the data. In particular, this step involved studying past events and analysing attributes of particular interest (Chell, 2004). These attributes are listed as sub-constructs in Table 16, and they describe the types of data examined within the incidents.

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Table 16: Sub-constructs

Data category	Theme	Sub-constructs	Example descriptions based on relevant academic literatures
Search	*Aspiration*		The mission purpose that brings together partners in the hybrid organisational form
	Trigger	Slack search	Access to excess facilities or resources, financial support and contributions, and employee slack
		Problemistic search	Access to know-how capable of solving the current business problem
	Type	Local search	Search that occurs within familiar knowledge boundaries
		Non-local search	Search that occurs across unfamiliar knowledge boundaries
Institutional pluralism	*Institutional logics*	Family	Manager in a family network
		Community	Improve human activities in local communities
		Religion	Improve ritual meanings for citizens in gated communities
		State	Regulate human behaviour through policy
		Market	Commodify products and services
		Profession	Pool professional knowledge in trade associations and representative bodies
		Corporation	Increase productive (sustainability-oriented) behaviour in organisation and inter-firm partnerships
	Relationship	Aligned	Multiple integrated logics and compatible practices
		Contested	Multiple disintegrated logics and incompatible practices
		Estranged	Single dominant logic and incompatible practices from peripheral logics
		Dominant	Single dominant logic and compatible practices from peripheral logics
SOI opportunity	*Type*	Product opportunity	Ideas for developing or providing alternative goods and services
		Process opportunity	Efficient approaches to environmental resource and energy management and better integration of stakeholders
		Business-model opportunity	Commercial goods and services with a positive environmental and/or social impact that may change value proposition, operating and revenue models
		System-level opportunity	Engagements with a range of stakeholders to create a positive impact in community groups, cities, regions, policy and nations

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Scope	Narrow	Core benefits limited to a process
	Broad	Core benefits at multiple levels (product, process, business model, and system)
Realised	Deployed opportunity	Realised opportunities from incidents
Potential	Potential identified opportunity	Potential opportunities from incidents
Opportunity-incident ratio	Mobilisation of variety	A high ratio generates greater (knowledge) variety than a lower ratio.

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After developing this list, the author analysed incidents in the interview transcripts and secondary sources (Chell, 2004), generating insights on search activities, institutional logics, and potential and realised innovation opportunities. These findings were evaluated by analysing sub-constructs in each event. Appendix C describes this sequence for all 10 hybrid organisational forms.

A further analytical step aggregated the themes from the chronological incidents and linked them to the previously established coding frame. Thus, the relevant incidents were integrated, permitting the author to chart potential patterns across cases (Miles and Huberman, 1994). Sometimes it was not possible to identify sub-constructs in the chronology. In such cases, the interview transcripts were revisited with respect to a particular sub-construct. The findings generated through this process are presented in the next chapter. Appendix D provides more details regarding the data itself.

4.4.4 Other analytical approaches

The author also considered other analytical approaches. For example, cognitive mapping techniques—and particularly the repertory grid method and conjoint analysis—were considered as means of identifying how managers' values and norms affected search activities (Easterby-Smith, Thorpe and Jackson, 2008). This study, however, focused on incidents rather than on meanings and managers' hidden symbolic attributions (Kelly, 1955). Therefore, an approach focused on cognitive mapping was unsuitable in this context.

Discourse analysis was also reviewed (Easterby-Smith, Thorpe and Jackson, 2008), with special attention provided to the following approaches: *narrative analysis*, *conversation analysis*, and *argument analysis* (Easterby-Smith, Thorpe and Jackson, 2008). Each of these methods is useful for analysing natural language data (e.g., narratives; (Tsoukas and Hatch, 2001), the formation of judgements in conversations (Silverman, 1993, 2000), and the role of arguments in the development of management agendas (Easterby-Smith, Thorpe and Jackson, 2008). However, this study wanted to identify opportunities through incidents, rather than through language, judgements, or arguments. Therefore, these analytical approaches were discarded as well.

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4.5 Summary

This chapter reviewed the methodology adopted in this study. It clarified the research philosophy and design, as well as the data collection and analysis processes, as Table 17 demonstrates. The next chapter presents the study's findings.

Table 17: Summary of the methodology

Category	*Positioning of this study*
Research philosophy	Ontology of being Relativist epistemology Inductively generates theory from empirical observations
Research design	Single case-study design, with projects embedded in hybrid organisational forms Grounded approach with a focus on critical incidents
Data collection	Selection of AUTO as a sustainability-oriented case organisation Semi-structured interviews and secondary interview sources
Data analysis	Development of the project list and data analysis via CIT and thematic coding

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5 Findings

This chapter presents the case narratives, analyses, and research findings. More specifically, it discusses 10 case narratives describing hybrid organisational forms, focusing on institutional logic relationships and their implications for variety creation during the search for SOI opportunities. The findings are rooted on a chronology of "incidents" (see Appendix C) and the analytical coding frame (see Appendix D). Based on a qualitative cross-case analysis, aggregate themes were identified, with are discussed in greater detail below.

5.1 Case narratives

The following section presents the 10 hybrid organisational forms and explores the role and impact of institutional pluralism in the search for SOI opportunities. Table 13 and Table 18 describe these hybrid organisational forms and their logics in more detail, focusing on their embeddedness within SOI projects. Visualisations of all the possible institutional logics are illustrated in Figure 8.

As a next step, the 10 hybrid organisational forms (and their associated projects) are presented, along with the related search aspirations, search types (local/non-local), search triggers (problemistic/slack), institutional pluralism (logics), and SOIs (as potential/realised outcomes).
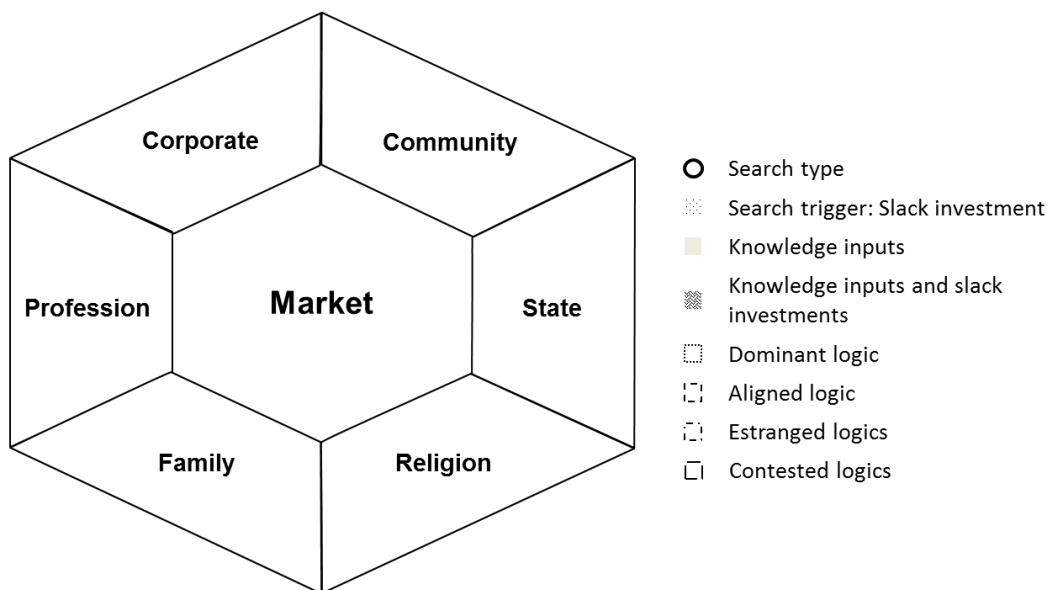
Figure 8: Seven potential institutional logics

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Table 18: Description of hybrid organisational forms and their embedded project objectives

No.	Title of hybrid organisational form	Logics	Projects	Search aspiration
1	**Car-sharing initiative**	Market Corporate Community State	Car-sharing vehicle-testing	Test car-sharing technology and business model
			Car-sharing commercial experiment	Test car-sharing business model
2	**Sustainable Development Coalition**	Corporate Market Professional Community State	Sustainable mobility project – trial city #1 (BK)	Explore integrated solutions for sustainable mobility
3	**Just World Charity**	Community Corporate	Just World Charity	Fundraising and local supplier community engagements
4	**Supply Chain Sustainability Working Group**	Corporate Community	Supply Chain Sustainability Working Group	Improve sustainable supply chain procurement practices amongst the supplier base for all manufacturers
5	**Apprentice Scheme**	Professional Corporate Market Community State	Apprentice Scheme	Generate an apprentice talent pipeline for AUTO and other regional businesses
6	**Gingko**	Corporate Professional	Eco-park development	Create an eco-park at the production site
			Eco-headquarters development	Create an eco-park at national headquarters

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		Community State	Biodiversity education project	Supply biodiversity-related teaching materials to European school network
7	**Road Safety Education**	Community Corporate	Road safety education project	Provision of financial support and know-how for films seeking to raise awareness in local schools regarding road safety
8	**Local Nature Partnership**	State Corporate Market Community	Local Nature Partnership	Create a green economy in the region
9	**Diagnose Car**	Community Corporate State	Diagnose Car project	Supply donated cars to technical colleges
10	**Local fire and rescue department**	Community Corporate State	Local fire and rescue department	Supply of trial vehicles for education and training, thereby increasing road safety

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5.1.1 Car-sharing initiative

Search aspiration: Test car-sharing technology and business model

Search trigger: Resource, financial, and product slack

Search type Non-local search

SOI opportunities: *Realised*: 1 system-level, 2 business-model, 4 process, and 1 product opportunities

Potential: 2 business-model and 3 process opportunities

Partners: Corporate partners, local city administration, Wheelco

Institutional logics involved: Dominant market logic, with peripheral corporate, community, and state logics

The car-sharing initiative stemmed from AUTO's core interest in creating eco-efficient cars. This project is a coalition of partners from the power (electricity), car-sharing, and public transportation sectors, and it explores future technologies and business models capable of reducing emissions and creating a better quality of life for members of society. Hence, partners such as city administrators (including local government) and customers are involved in this hybrid organisational form. This composition is indicative of a mix of corporate, market, community, and state logics (see Figure 9), as partners focus on exploring sustainable business models and mobility technologies in an urban city environment.
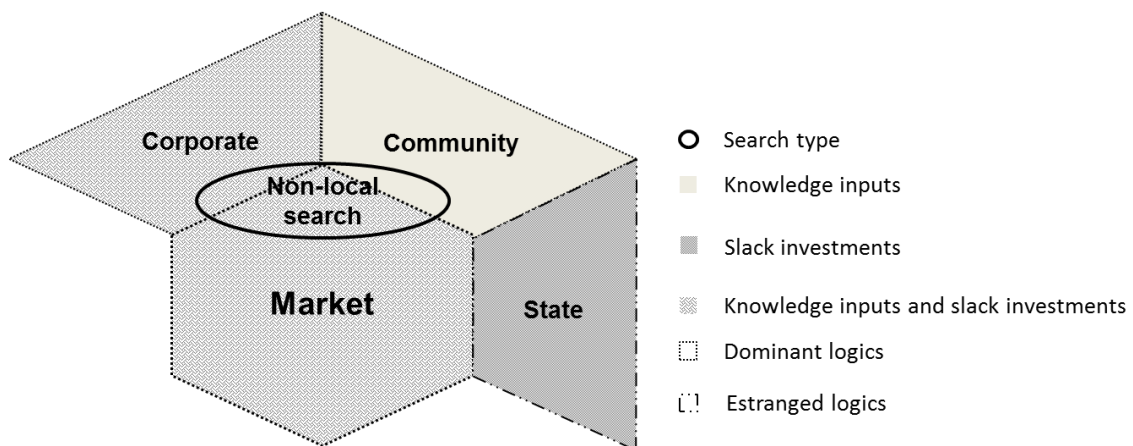
Figure 9: The technological and commercial car-sharing partner search

To date, the car-sharing initiative has explored sustainable mobility via two projects: a car-sharing vehicle-testing project and a project with the Wheelco company. Note that these projects have not changed the overall composition of logics in the associated

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hybrid organisational form. Instead, the second project was a consequence of the first one. The sub-sections below discuss the projects within this initiative in sequential order.

5.1.1.1 The car-sharing vehicle-testing project

The first project's search aspiration was the desire to seamlessly integrate all existing public transportation modes and AUTO's most technologically advanced vehicles via a sustainable mobility system. AUTO led this project and engaged with corporate partners, community users, and local city administrators to organise technical and commercial trials. Hence, the search was non-local, as it implied commercial explorations regarding how to implement a car-sharing business model that ventured beyond AUTO's knowledge boundaries.

"Because we try to understand how we can make business in a different stakeholder environment […] we need[ed] the support of the city […] they needed support of other stakeholders, they needed to study consumer behaviours, […] so, what makes the car-sharing offer attractive for consumers to use?" [Senior Manager 4, Transcript. 8, p. 12]

This non-local search involved a mix of discretionary slack resources and know-how, as Table 19 demonstrates. This provision of resources was seamless, and so it fostered a direct exchange of know-how across partners organisations. AUTO, for example, provided funding for a three-year trial project and supplied 70 ultra-compact electric vehicles using their most recent technology. One corporate partner provided an on-board information system that offered different mobility options, such as trains, bicycles, and car-sharing vehicles. Another partner supplied 27 charging stations and worked with AUTO to ensure their technological compatibility. The local user community provided feedback on the electric-vehicle technology. Lastly, city administrators ensured the availability of parking facilities and surveillance.

"[This project is] led by AUTO. But, for example, the system itself is operated by [a car-sharing company]. So, they operate, […] and then, of course, the charging stations are provided by [the electricity company][…] and then there is the city, because they provided the space for the cars, […] so there are a number of different stakeholders involved in it." [Senior Manager 4, Transcript. 8, p. 13]

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Table 19: Partners' slack and knowledge contributions

Partners	Slack and knowledge contributions	Type of discretionary slack
AUTO	Provision of latest-technology vehicles for experimentation purposes	*Financial slack; Product access*
Corporate partners	Know-how on sustainable mobility technology and the car-sharing industry	*Financial slack*
Local city administration	Access to the city environment. Provision of allotted parking spaces.	*Resource access*
Community	Feedback from local community members on technology	*No slack; knowledge access*

However, the city administration's commitment changed during the project, and this led to an estranged relationship between AUTO and the city officials. A new mayor with leftist political leanings was appointed and suddenly refused to engage with the project and provide parking surveillance. In the meantime, inebriated individuals vandalised the lightweight electric vehicles, lifting them in the air and rendering them inoperable. AUTO did not want to jeopardise the project, and so it installed alarm systems in the cars. The technological experiment then continued as planned for three years, but with lower-level support from city administrators under the new regime. Thus, the project's commercial explorations continued, albeit more slowly, resulting in additional lessons for AUTO:

"I think one [problem] that I am aware of is that there were elections, and the new major, I think he's left. And I think although he likes the project, his party is a bit suspicious when they talk to business[es]. So, there is just a simple reason that he cannot support business, because that is somehow against their party's principles and understanding. And, of course, that created some issues." [Senior Manager 4, Transcript. 8, p. 13]

"So, what I would say is that [this trial] is successful on the basis that it's a technology experiment. Will electric car-sharing work in Europe? Can the system be adapted with a European public? And the answer to that question is 'yes'. The other things I had to

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establish were new business relationships […] and learn how to choose locations." [*Senior Manager 14, Transcript. 18, p. 8*]

Table 20 illustrates the realised opportunities generated by this project. It demonstrates that AUTO learned how to operate a sustainable mobility system, as well as how to implement a car-sharing business model. Moreover, this search generated process opportunities that improved both the location selection procedure and the project's car-sharing operations, and it also resulted in technological refinements.

Table 20: Identified opportunities within the car-sharing initiative

SOI Opportunity	*Type*	*Description*
Realised	System-level	Operation of a sustainable mobility system
	Business model	Refinements to the car-sharing business model
	Process	Lesson regarding the process of launching a car-sharing business
	Product	Refinements to the ultra-compact vehicle technology and software
	Process	Creation of a user club

This project also generated realised opportunities via AUTO's engagement with Wheelco, as the next sub-section demonstrates.

5.1.1.2 The car-sharing commercial experiment

The second project focused on refining AUTO's car-sharing business model in two trial locations. For this purpose, AUTO started a collaboration with the Wheelco company. The objective was to draw on Wheelco's expertise regarding car-sharing operations and location selection to enhance the commercial experiment. Hence, this search was also non-local, as the car-sharing vehicle-testing project led AUTO to realise that it further needed to explore Wheelco's car-sharing know-how. Moreover, this know-how played a key role in AUTO's exploration of the financial feasibility of car-sharing across different cities.

This non-local search also employed a mix of discretionary slack resources and know-how and its exchange was free of any conflict and tension. Table 21 demonstrates that AUTO supplied financial slack and access to its latest-technology cars for the

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commercial experiments. Wheelco, on the other hand, shared its expertise on how to run a car-sharing business and select locations.

"We have the technology, we have the cars […] Wheelco has the experience of operating all the various services that are required from business-to-business and business-to-customer." [Senior Manager 14, Transcript. 18, p. 4]

"What they also bring to the party is their experience on how to choose a location. Therefore, they have a sophisticated way of assessing the city based on its population density, the age profile, the education profile, the car-ownership profile, public transportation usage, and many other things." [Senior Manager 14, Transcript. 18, p. 4]

Table 21: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Provision of latest-technology vehicles for experimentation purposes	*Financial slack; Product access*
Wheelco	Location selection and car-sharing business know-how	*No slack; knowledge access*

Table 22 describes the realised opportunities generated by this project. Indeed, AUTO's engagement with Wheelco led it to further explore the car-sharing business model. This required the integration of Wheelco's management into AUTO's mobility team, and Wheelco's knowledge regarding the selection of locations and assessments of commercial feasibility were also integral.

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Table 22: Identified opportunities within the Wheelco engagement

SOI Opportunity	Type	Description
Realised	Business model	Exploration of car-sharing utilisation rates and the break-even point within local communities
	Process	Integration of Wheelco into AUTO's mobility team
		Location selection and a commercial feasibility assessment
Potential	Business model	Explore the commercial feasibility of car-sharing
		Transfer and scale car-sharing program across countries
	Process	Develop better marketing for car-sharing
		Make local distributors responsible for establishing contact with local cities
	Product	Create better technological software platform for car-sharing

Moreover, this project has also generated potential innovation opportunities. AUTO is planning to further transfer and scale its car-sharing business model across more locations in different countries. This move will require the more advanced car-sharing software platform provided by Wheelco, as well as a method that relies on local distributors as the point of contact within individual cities. The engagement with Wheelco continues to this day.

"After nine months, at the end of this year, I want to be able to track the rate of customer acquisition, the number of hours per car per day used, revenue per month, and profit per month and say that all of those [key performance indicators] have crossed the straight line to the target. And therefore we could be confident that we will be hitting our target for break-even on time." [Senior Manager 14, Transcript 18, p. 7]

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5.1.2 The Sustainable Development Coalition

Search aspiration:	Explore integrated sustainable mobility solutions
Search trigger:	Resource, financial, and product slack
Search type	Non-local search
SOI opportunity:	*Realised*: 1 system-level, 2 business-model, and 5 process opportunities
	Potential: 2 system-level, 2 business-model, and 1 product opportunity
Partners:	Businesses, professional organisations, city administrations, local businesses, and communities
Institutional logics involved:	Aligned corporate, market, state, professional, and community logics

The Sustainable Development Coalition (SDC) is an NGO that facilitates global sustainable development initiatives. AUTO participates in this coalition, managing an initiative, called the Sustainable Mobility Project, that explores sustainable urban mobility. Thus, this project is run in a working group that brings together mobility-related companies, local businesses, community members, professional organisations, and city administrators. This alignment of corporate, market, community, professional, and state logics suggests a shared interest in exploring sustainable mobility solutions, as demonstrated in Figure 10.

"SDC [is] an industrial NGO, and that's quite important as well. It's not a classical industry lobbying association. It's an association with an eye on what is good for the environment and society, and, how this can be combined with business." [Senior Manager 4, Transcript 2, p. 11]
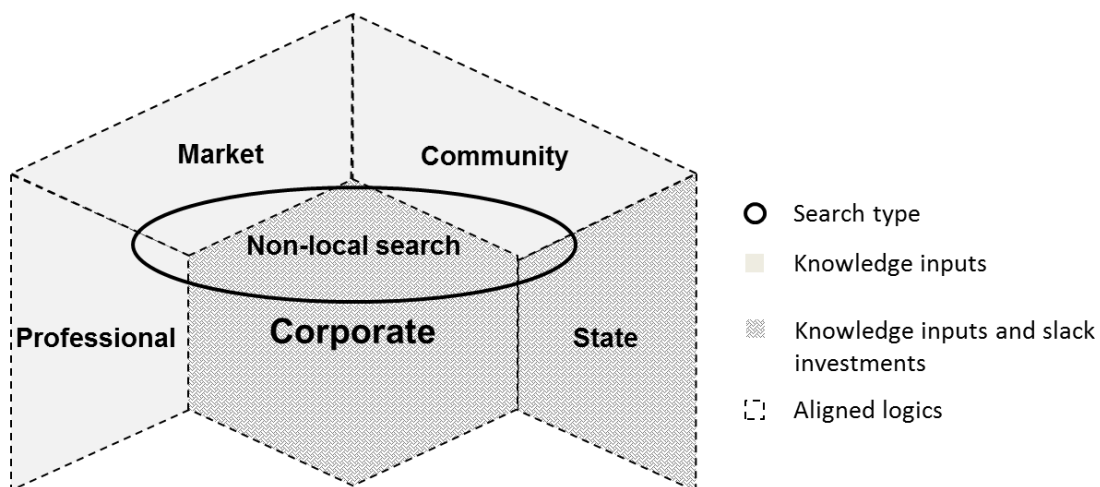
Figure 10: The Sustainable Development Coalition partner search

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Table 23 illustrates the aligned, non-local mix of discretionary and knowledge-related contributions to the SDC. AUTO, for example, managed one trial location and supplied a full-time employee and financial resources to the working group. Other mobility-related companies also supplied one full-time employee who remained on those organisations' payrolls. Moreover, the working group involved local city administrators in the trial cities, as they provided access to city officials and the permits required for the project's trials. Public officials also supplied their know-how on key issues and city priorities. Professional organisations, communities, and local businesses offered input as well, ensuring that all partners influenced the solution-delivery process.

"So, we get the commune, we get the government, we get the infrastructure builder, you get something, and this, and this, and this […] you put all of those together, and with all of those components, actually, you can deliver a solution that works." [Senior Manager 1, Transcript 6, p. 2]

"We have selected a specific road—the Bangkok [main] road—and said, 'The biggest problem obviously is that we need to ensure that there is a smoother traffic flow to reduce the environmental burden'. And then we have implemented and tested a number of measures." [Senior Manager 5, Transcript 8, p. 2]

Table 23: Partners' slack and knowledge contributions

Partners	Contribution	Type of discretionary slack
AUTO	Sustainable mobility expertise, employees, and discretionary investments in the mobility project	*Financial slack; Employee slack*
Mobility-related companies	Sustainable mobility expertise and employees	*Employee slack*
Professional organisations	Expertise on urban environmental issues	*No slack; knowledge access*
City administration	Access to cities and business networks, operational know-how	*Resource access*
Local businesses	Know-how on local business issues	*No slack; knowledge access*
Communities	Know-how on school and community issues	*No slack; knowledge access*

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Table 24 displays the potential and realised system-level, business-model, and process opportunities generated via this project.

Table 24: Identified opportunities within the Sustainable Development Coalition

SOI Opportunity	Type	Description
Realised	System-level	Access to city authorities, police, and other relevant community stakeholders
	Business model	Exploration of the commercial feasibility of working jointly with cities
		Commercial range of technology and expertise provided as sustainable mobility solutions
	Process	Exploration of a fact-based methodology
		Use of a best-practice toolbox
		Use of 22 indicators to identify city priorities
		Exploration of a solution delivery process for a congested road
		Engagement with community members to identify concerns and needs
Potential	System-level	Fund the transfer the concept to other cities
		Support city improvements
	Business model	Include city stakeholders in the business model
	Business model and product	Generate further insights regarding commercial feasibility

System-level opportunities emerged from this hybrid organisational form, as it enabled access to city authorities, the police, and other relevant community stakeholders. Moreover, the SDC permitted AUTO to explore a new business model and the application of a range of technological solutions. Evidently, this involved many process-level opportunities, such as the exploration of a fact-based methodology; the use of a best-practices toolbox, containing measures used in other cities; the identification of city priorities; and the ability to trial the proposed solutions within a busy road in Bangkok in collaboration with communities, local businesses, and the local government. Therefore, this project had wider positive implications for the city, as well as for businesses and local community citizens.

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As a result, the project has been continued, with AUTO supplying further funding. The aim is to explore whether the same approach can be transferred to other Asian cities. Of particular interest is exploring how cities can benefit from collaborations with businesses, with an eye on identifying a future business model and further insights into the commercial feasibility of different options.

"You get an opportunity to develop your product, [and] to understand how society would like your product to develop in the future [...] you are basically learning how to operate the city, given different interests and learning how AUTO might benefit in the future from how to operate and what the role of technologies is there." [Senior Manager 1, Transcript 6, p. 3]

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5.1.3 Just World Charity

Search aspiration:	Financial support and local community engagements
Search type and trigger:	Financial and employee slack
Search type	Local search
SOI opportunity:	*Realised:* 3 process opportunities
	Potential: 2 process opportunities
Partners:	Charity organisation
Institutional logics involved:	Dominant community logic, with a peripheral corporate logic

Just World Charity (JWC) is an organisation that relies on financial contributions from large organisations and funds over 1,000 social and environmental projects in Africa and the UK. While the only partner with AUTO in this hybrid organisational form is JWC, the organisation is engaged with a wide range of grassroots projects. As a result, JWC supplies three-year funding packages to projects related to safety, health, education, and empowerment. This orientation suggests a dominant community logic and a peripheral corporate logic, as illustrated in Figure 11, as the main purpose is to deliver a large-scale community impact.

"Of course, there should be some benefit to the organisation [AUTO], to be recognized as supporting it. But that wasn't the principal reason for us to be involved [with JWC]. It would sort of be a by-product of being involved in it. But our main reason, and we made that quite clear to our staff, is that we wanted to be a corporate…a good corporate citizen in a very big way." [Senior Manager 7, Transcript 12, p. 15]
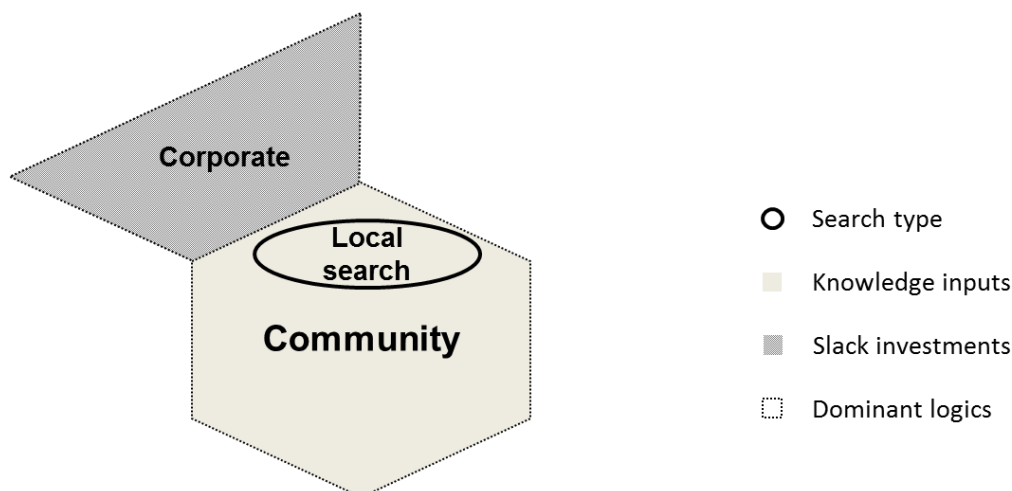
Figure 11: The Just World Charity partner search

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Table 24 indicates that AUTO provided discretionary slack resources in support of JWC's work, as well as know-how on generating community impact. In fact, AUTO held a fundraising event across all of its national divisions to boost its financial and social contributions. Employees donated money and asked citizens in public areas to support JWC's cause. In return, JWC's public exposure and network of locally supported community projects meant a greater potential for local impact across the UK.

"We believed that it would be great for the organisation to get a whole organisation […] every bit of AUTO across the UK involved in one big cause." [Senior Manager 7, Transcript 12, p. 13]

"[The primary purpose] was to 'give back'. Fifty per cent of the money that they raised goes to the UK project, and 50% goes to Africa." [Senior Manager 7, Transcript 12, p. 15]

Table 25: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Fundraising activity relying on employees' involvement and financial contributions	*Financial slack; Employee slack*
JWC	Know-how on charitable community projects nationwide	*No slack; knowledge access*

Table 26 lists the realised and potential process opportunities generated from this engagement. For example, £775,000 was collected for JWC, and the project also improved AUTO's overall community impact. Moreover, AUTO identified an opportunity that generated high levels of staff engagement and volunteering opportunities in local dealerships.

"So, where JWC decided to give a donation to a project [in a particular region], we would put them in touch with the dealer and see what else the dealer could do to support that need. […] In some cases, those relationships now are on-going, so they were almost introduced through JWC. And, with some people we heard, they said,

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*'Wow, we didn't even know that this type of activity or even need was such in our town
or our city'."* [Senior Manager 7, Transcript 12, p. 15]

Table 26: Identified opportunities within the JWC engagement

SOI Opportunity	*Type*	*Description*
Realised	Process	AUTO became a main supporter of JWC
		Teams strengthened as the company raised £775,000 in donations
		Improved ability to find philanthropic funding and volunteer opportunities for local dealers.
Potential	Process	Identify charities and strengthen relationships with local dealers
		Continue financial and in-kind support of charities

Moreover, two potential process opportunities demonstrated that AUTO could support
more charities at the local dealership level, using JWC's list of charities as a starting
point. In fact, AUTO is planning to strengthen its relationship with JWC, further
partnering with the organisation to more effectively engage local communities across
the country. Thus, AUTO will continue to fundraise for JWC and learn how it can better
support local communities in conjunction with JWC.

*"We think we're going to work a more strategic approach with JWC with their own
supported charities. We're trying to expand that a bit further, get a bit more of the
network involved [and] identify the right ones."* [Senior Manager 7, Transcript 12, p.
18]

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5.1.4 Supply Chain Sustainability Working Group

Search aspiration: Improve sustainable supply chain procurement practices amongst the supplier base for all manufacturers

Search trigger: Problemistic search

Search type Local search

SOI opportunity: *Realised:* 3 process opportunities

Potential: 2 process opportunities

Partners: Manufacturers, suppliers and the European NGO on Corporate Social Responsibility (NCSR)

Institutional logics involved: Dominant corporate logic, with peripheral community logic

The Supply Chain Sustainability Working Group (SCSG) facilitates exchanges between automotive organisations regarding their sustainable supply chain practices. It is a collaboration between purchasing representatives from several manufacturers with links to suppliers. Moreover, the European NGO on Corporate Social Responsibility (NCSR) facilitates this working group. Therefore, a dominant corporate logic and peripheral community logics are indicated, because the setting is business-oriented but seeks to integrate sustainability principles into corporate processes. Figure 12 illustrates this focus on improving core business practices while also considering the wider sustainability implications with NCSR's support.

"So, we are meeting together [...] to improve the sustainability in our supply chain, [...] because, of course, we can tackle different points individually [...] but maybe when we do it together, it will be more efficient, it will give us the scale, and it will bring better results." [Middle Manager 12, Transcript 16, p. 2]
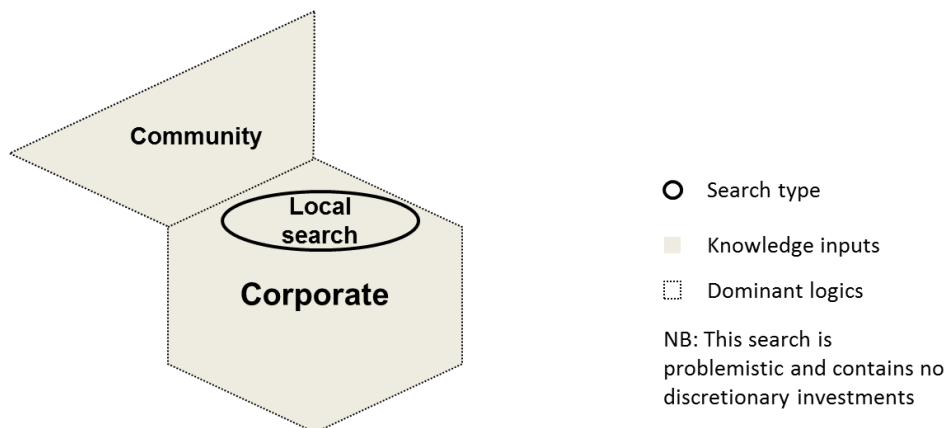
Figure 12: The supply chain sustainability working group partner search

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As Figure 12 reveals, the local search for knowledge did not involve any discretionary resource contributions from partners. Table 27 provides more details and illustrates that core business knowledge on sustainable supply chain procurement was exchanged by all of the manufacturers, with NCSR's support. Thus, an exchange of supplier screening practices and guidelines took place between AUTO and the manufacturers. This exchange was facilitated by NCSR, as partners were sharing sensitive information. As a next step, the suppliers then provided feedback on the feasibility of the guidelines.

"NCSR is the facilitator, so they are also handling the confidential data, like how to invite the suppliers, how to merge the suppliers, the supplier release, and so on…that's handled by NCSR [...] We need to follow very detailed steps and the process to keep everything according to the law and stick to the rules and regulations." [Middle Manager 12, Transcript 16, p. 2]

Table 27: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Know-how on sustainable procurement processes	*No slack; knowledge access*
Manufacturers	Know-how on sustainable procurement processes	*No slack; knowledge access*
Suppliers	Know-how on sustainable procurement processes	*No slack; knowledge access*
NSCR	Know-how on sharing sensitive data across manufacturers	*No slack; knowledge access*

Table 28 illustrates that this engagement delivered both realised and potential process opportunities. These included improvements related to the exchange of supply chain procurement practices and the establishment of shared guidelines across the manufacturers. In addition, with the help of NCSR, the members of the working group developed a questionnaire for more efficiently screening suppliers.

"[So another thing that] we looked together was the CSR questionnaire [and] it turned out that all of us as separate [original equipment manufacturers], we are sending the CSR questionnaire to our suppliers and trying to assess their CSR performance, [and]

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we found 10 different questionnaires [for 10 OEMs], 10 different set of questions. We were asking more or less the same [things]." [Middle Manager 12, Transcript 16, p. 3]

Table 28: Identified opportunities within the SCSG engagement

SOI Opportunity	Type	Description
Realised	Process	Collaborative improvements to supply chain sustainability
		Development of shared supply chain procurement guidelines
		Creation of an online supplier questionnaire shared across all manufacturers and suppliers
		Exchange of practices across manufacturers, using NCSR as a mediator to anonymously disclose sensitive information
Potential	Process	Plan to develop a common ranking system for best practices
		Continue the exchange of knowledge across manufacturers

Moreover, AUTO is continuing to explore two potential process opportunities with the SCSG. First, it wants to rank manufacturers' best practices. However, this initiative would require a broad degree of consensus and has therefore been put aside at the present moment. Second, AUTO will continue to use the SCSG as an exchange platform for sustainable supply chain procurement knowledge.

"We don't have such clear [benchmarking targets]. But, yes, all of us are evolving, so our guidelines can go up, improve. We can expect more. We are coming back to this discussion on a regular basis, if there is something that we should consider." [Middle Manager 12, Transcript 16, p. 9]

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5.1.5 Apprentice Scheme

Search aspiration:	Generate an apprentice talent pipeline for AUTO and other regional businesses
Search trigger:	Resource and financial slack
Search type:	Non-local search
SOI opportunity:	*Realised:* 1 system-level, 1 business-model, and 5 process opportunities
	Potential: 1 system-level, 1 business-model, and 1 process opportunity
Partners:	Local university, an engineering skills organisation, local government funding agency, local businesses
Institutional logics involved:	Dominant corporate logic, with peripheral professional, market, community, and state logics

The Apprentice Scheme Partnership (ASP) is a group of organisations that supports small- and medium sized enterprises (SMEs) in training young engineers via AUTO's four-year apprenticeship scheme and latest-technology training facilities. It is a collaboration between a local university, an engineering skills organisation (ESO), a government-led regional funding agency, and local businesses that aspire to increase the number and quality of engineers in the region. This shared objective suggests an aligned mix of professional, market, state, community, and corporate logics, as illustrated in Figure 13. Certainly, this engagement focuses on exploring of how it can directly support AUTO as it train apprentices from other companies.

"We've all got our own objectives individually and in our organisation. But there is one common goal out there, which is making sure we've got good apprenticeships." *[Middle Manager 22, Transcript 28, p. 6]*
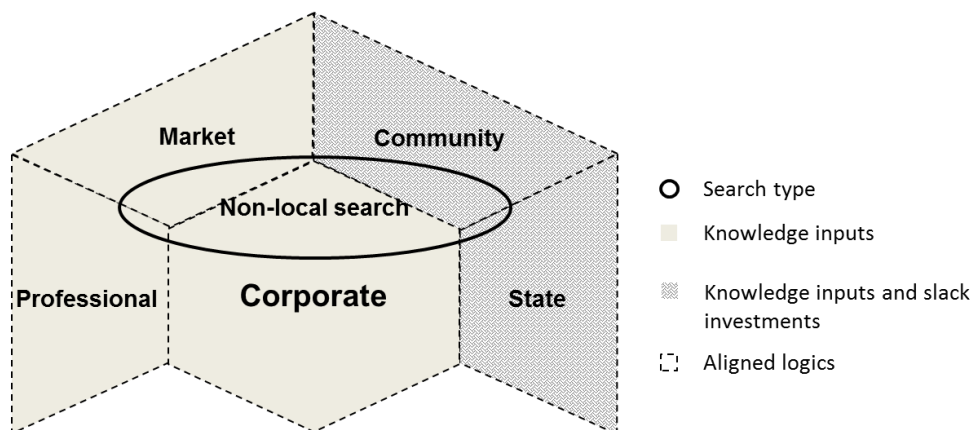
Figure 13: The apprentice scheme partnership search

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Table 28 indicates that AUTO, the local government, and the local university provided resource access and financial slack to the apprenticeship scheme. At the same time, the ESO and local SMEs contributed their know-how regarding how to improve the quality of the engineering training and how to overcome challenges of recruiting and training apprentices.

Table 29: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Apprenticeship scheme know-how and latest-technology facilities	*Resource access*
Local university	Know-how on curricula building, supply of student recruitment facilities	*Resource access*
Engineering skills organisation	Know-how on curricula building, supply of SME business contacts	*No slack; knowledge access*
Local government funding agency	Supply of business contacts and funding opportunities for apprentices	*Financial slack*
Local businesses	Know-how on talent recruitment and training challenges	*No slack; knowledge access*

Ultimately, AUTO gave local SMEs access to its underused, state-of-the-art training facility, as well as to its four-year apprenticeship training scheme. The local university supplied both teachers and facilities for recruiting students. The local government funding agency also covered the costs of the apprenticeship training for small SMEs. This contribution enabled SMEs to pay AUTO for training their apprentices. There was also an exchange of know-how between ESO, local businesses, the local government, and AUTO, ensuring a high-quality apprenticeship scheme and attracting companies' interest in taking AUTO up on its offer.

"I think it is 21 [SME apprentices] now. And then we're just in the process of recruiting for the next intake."[Senior Manager 13, Transcript 17, p. 4]

Table 30 indicates that this project resulted in seven realised system-level, business-model, and process opportunities. A system-level opportunity pertained to the fact that the project has improved the quality of engineers in the region. More specifically, AUTO's self-developed apprenticeship scheme, along with its provision of its training

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facilities to other SMEs, has developed a new business model with broad, positive implications for society. At the process-level, these opportunities required collaborations with different partners, ensuring a more effective utilisation of the training centre. AUTO also continued training its own apprentices in unison with apprentices from other companies.

"We have got all sorts of visits [regarding this scheme], so we've gone through from the prime minister, chief of York, [and] the [Commander of the Most Excellent Order of the British Empire], so all sorts of [prominent figures], local and big. And we won one or two awards." [Middle Manager 17, Transcript 23, p. 3]

Table 30: Identified opportunities within the ASP engagement

SOI Opportunity	Type	Description
Realised	System-level	Improvements in the quality of engineers in the region
	Business model	Provision of training facilities to other SMEs
	Process	Provision of a four-year apprenticeship scheme to other SMEs
		Creation of an extended four-year (rather than three-year) apprenticeship program to enhance trainees' skills
		Cross-institutional collaborations in establishing the four-year apprenticeship program
		Opportunity to offer skilled staff more advanced roles
		Increased utilisation rate for the training centre
Potential	System-level	Serve as a best-practice example regarding the training of engineers
	Business model	Expand product offerings and explore the training needs of potential clients
	Process	Provide a future talent pipeline for young people

Clearly, the three potential opportunities reveal that AUTO is willing to expand its product offerings and become a best-practice example in the engineering sector. AUTO has also continued to improve the quality of its training, maintaining the engagement with ESO and the other partners. AUTO's provision of a training centre represents a

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major advancement for the region, with AUTO becoming a respected local training centre.

"I am looking at what other apprenticeship schemes we can run, so business admin. apprenticeships, other production apprenticeships, anything else that we can bring into the apprenticeship framework. My image would be that this training centre has got 20 classrooms full every week. That's the image." *[Middle Manager 16, Transcript 21, p. 14]*

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5.1.6 Gingko

Search aspiration:	Create an eco-park at the production site**,** improve biodiversity at national headquarters, and supply biodiversity-related teaching materials to the European school network
Search trigger:	Resource and financial slack
Search type:	Non-local search
SOI opportunity:	*Realised:* 4 system-level, 1 business-model, and 11 process opportunities
	Potential: 2 system-level and 3 process opportunities
Partners:	Gingko, Local Wildlife Trust, Environmental Education Network
Institutional logics involved:	Aligned corporate, community, professional and state logics

Gingko is a scientific institution that engages with AUTO in the areas of biodiversity-focused landscape restoration and biodiversity awareness. It is a collaboration between Ginkgo and AUTO, but it also involves a Local Wildlife Trust (LWT) and an environmental education network as professional organisations. Thus, the project blends corporate, community, and professional logics, as illustrated in Figure 14. Gingko's work is also linked to international conventions of biodiversity, a multilateral treaty that aims develop national strategies that lead to the conservation and sustainable use of biodiversity. This association thus implies a state logic. In short, this collaboration focuses on the search for biodiversity-related opportunities.

"We know that the United Nations has created a convention on biodiversity…so as long as we can link [our activities with Gingko to that] it would be great…so [we] focused on habitat conservation and enhancement." [Middle Manager 2, Transcript 11, p. 5]
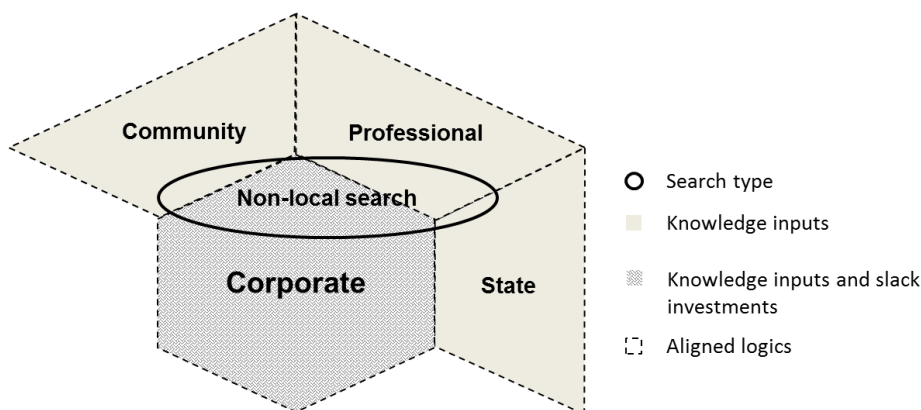
Figure 14: The Gingko partnership partner search

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Gingko has identified 16 opportunities via 3 projects, namely, the eco-park development, the eco-headquarters project, and the biodiversity education project. Similar to the car-sharing initiative, these projects have not changed the overall composition of logics in the associated hybrid organisational forms. Instead, they have grown out of one another. The following sub-sections describe these projects.

5.1.6.1 The development of an eco-park

The first project focused on developing an eco-park to restore industrialised land and foster biodiversity. As a first step, LWT conducted an environmental survey. Then, based on its findings, Gingko and AUTO signed a memorandum of understanding containing multiple areas for future engagement. However, Gingko's first concern was to increase the diversity of species on AUTO's production site in collaboration with AUTO. Clearly, AUTO was entering new territory that was not directly linked to manufacturing. Thus, the search was non-local, as it implied an exploration of biodiversity-related ecological services on AUTO's fallow land.

This non-local search employed a mix of financial slack and resource access from AUTO, and these were supplemented with know-how from Gingko and LWT. Table 31 indicates that AUTO provided funding for Ginkgo and the wildlife trust, ensuring that AUTO learned about the types of species onsite and the best means of developing the onsite patches of land into valuable biodiversity assets. Gingko played an especially critical role in supporting the creation of an eco-park on the fallow land surrounding AUTO's production facility, which was located in a 680-acre stretch of meadows, grassland, wetlands, woods, and hedgerows.

"So, we started to work with LWT. They started to give us ideas on how we might manage the environment in a slightly different way. […]And the next step was around the plants. Honestly speaking, there was a lot of close-cut grass just by the side of the buildings. Actually, no value at all. So, all of these things added up to saying, 'Well, we need to change the way in which we manage'. […] [Then] one of my colleagues heard an interview with Gingko on the radio and said, 'Why don't we try them?'" [Senior Manager 1, Transcript 9, p. 1]

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"[We asked Gingko to work with us, as] we do not have the expertise, we are therefore looking for a partner, and we thought you might be the right partner [...]. In a way they were also checking us [...] they were kind of interviewing us and seeing what our beliefs were, what our motives were, what our principles were behind it." [Middle Manager 11, Transcript 15, p. 4]

Table 31: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Financial support and provision of fallow land, funding of biodiversity-focused conservation and awareness projects	*Financial slack; Resource access*
Gingko	Know-how on biodiverse landscape restoration practices	*No slack; knowledge access*
Local Wildlife Trust	Know-how on biodiversity surveys	*No slack; knowledge access*

Table 32 presents the system-level and process opportunities generated by this project. A system-level outcome was the ability to improve biodiversity, especially in terms of the number of rare species represented in the country. Indeed, the conversion of this industrialised land provided another system-level opportunity, as it had positive implications for national biodiversity. Moreover, many process opportunities were realised. Moreover, AUTO was able to trial its eco-park concept, and it gained knowledge on managing a biodiversity habitat. AUTO also identified opportunities to increase the number of rare species, resulting in their wider distribution. The distribution involved an expensive harvesting process. However, AUTO and Gingko were able to jointly reduce harvesting costs from £17 per square metre to £2.30 per square metre. Lastly, a green grid was established to ensure higher levels of species migration across the site. This development represented a landmark achievement in biodiverse restoration practises, and so it attracted attention from other organisational divisions as well.

"And obviously, the benefit is that you are increasing the ecological resilience. You create a network of rows, hedgerows, and trees that connect the outsides…so that increases ecological resilience, usually pathways or species that migrate for genetic

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*diversity to occur, [...] so that obviously matches their principles of restoration and
preservation." [Middle Manager 11, Transcript 15, p. 6]*

Table 32: Identified opportunities within the Gingko eco-park development

SOI Opportunity	*Type*	*Description*
Realised	System-level	Nationwide improvements in biodiversity and increased number of rare species
		Conversion of industrialised land into a natural resource; AUTO identified Gingko as a biodiversity expert
	Process	AUTO production site becomes a trial location for exploring sustainable manufacturing practices
		Better management practices for industrial fallow land
		Collaboration with wildlife trust delivers insights on rare species; need for a biodiversity expert
		16,000 square metre of land converted.
		Cost of rare species harvesting drops from £17 per square metre to £2.30 per square metre
		Introduction of a green grid of hedgerows for migrating species
		Eco-park concept is copied at European headquarters

The project will continue until the year 2033, and it will involve the gradual restoration
of the entire site. Moreover, other divisions have also started to use Gingko's expertise,
as illustrated by the following project on the development of an eco-headquarters.

5.1.6.2 The development of an eco-headquarters

The second project focused on the development of an eco-headquarters for AUTO.
Similar to the first project, Gingko and AUTO collaboratively ran the project, and the
LWT conducted an environmental survey. The overall objective was to increase onsite
biodiversity through a systematic reintroduction of plants and other species. Thus, the
search was non-local, as it sought to identify biodiversity-related knowledge from
Gingko on their industrial premises.

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The non-local search involved financial slack, resource access from AUTO, and knowledge contributions from partners. Table 33 demonstrates that AUTO sponsored the work of Gingko and the LWT. As with the eco-park development, Gingko suggested the overall concept and the idea of reintroducing species. Using Gingko's expertise, the landscape developers created a "secret valley", allowing employees to walk through a species-rich area on their way to the main building. Moreover, LWT supported the installation of a beehive to attract bees and other insects. Using its own sawmill, that same organisation also worked with local students to create an outdoor conference area. This exchange of know-how was possible after the interest of all of the project's partners became aligned.

"Gingko came in with a proposal of the species and what we should do…they came up with a scheme design for us to say, 'This is how you could transform your site [...]. Add some species back in that are more native species.'" [Middle Manager 6, Transcript 12, p. 4]

"The other thing we forged more is the relationship with the Local Wildlife Trust…but what the [relationship with Gingko] has done […] and that's interesting […] it started with [the eco-headquarters project] but has now developed in supporting this." [Middle Manager 6, Transcript 12, p. 7]

Table 33: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Financial support and provision of fallow land, funding of biodiversity-related conservation and awareness projects	*Financial slack; Resource access*
Gingko	Know-how on biodiverse landscape restoration practices	*No slack; knowledge access*
Local Wildlife Trust	Know-how on biodiversity surveys and awareness building	*No slack; knowledge access*

Table 34 illustrates that all of the realised opportunities were process-related. First of all, AUTO replicated the eco-park concept in another location, generating additional biodiversity-related opportunities. Since this eco-park concept was successful at this

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second location, it inspired AUTO's European headquarters to create a blueprint document outlining how to transfer the concept to other company divisions. Lastly, Gingko had encouraged a more extensive relationship with LWT, resulting in higher levels of employee engagement and more biodiversity-related conservation opportunities in the local community.

Table 34: Identified opportunities within Gingko's eco-headquarters project

SOI Opportunity	*Type*	*Description*
Realised	Process	Replication of the eco-park concept at national headquarters
		Creation of a blueprint document facilitating the transfer of this best practice to other company divisions
		Relationship with LWT forged, thanks to Gingko's engagement

Over time, Gingko has become a well-known partner of AUTO and has consequently received wider recognition. Moreover, because AUTO saw more opportunities for engagement, it asked Gingko to join its biodiversity awareness project, presented in the following sub-section.

5.1.6.3 The biodiversity education project

The third project focused on raising awareness of biodiversity-related issues in primary schools across 10 European countries. It involved Gingko, AUTO, and the Environmental Education Network (EEN). The central objective was to disseminate and translate course materials on biodiversity for primary schools. Hence, this process required a non-local search, as it involved an exploration of practices for promoting biodiversity awareness.

As Table 35 demonstrates, this non-local search involved financial slack from AUTO, along with product and resource access contributions from Gingko and the EEN. In short, AUTO ensured that the project was sufficiently funded and executed. Gingko, on the other hand, provided a free-of-charge online resource on biodiversity for children aged 5- to 11-years-old. This resource took the form of a webpage addressing both educational and practical elements of biodiversity. Its "great plant hunt" theme has

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encouraged students of various grades to explore the topic of biodiversity. Also significant was the fact that EEN offered both its network of schools and its know-how on biodiversity awareness. As a result, EEN translated and disseminated Gingko's course materials across 10 European countries. As demonstrated, all of the partners offered resources and generated a sustainable impact.

"AUTO kind of said, 'Why don't we all work together? You have the resources and expertise, EEA has the network and the programme, and AUTO has the financial element – so why not bring all of these together?'" [Middle Manager 19, Transcript.24, p.4]

Table 35: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Financial support of a biodiversity awareness project	*Financial slack*
Gingko	Know-how on biodiversity education for primary-school students	*Product access*
Environmental Education Network	Know-how on biodiversity education and network of European schools	*Resource access*

Table 36 reveals that this project delivered four realised opportunities. AUTO has successfully grown its relationship with Gingko, yielding further opportunities for engagement related to scientific research on rare plant and animal species. Other process opportunities pertained to the discovery of Gingko's educational material, including their translation and distribution in 10 European countries.

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Table 36: Identified opportunities within Gingko's biodiversity awareness project

SOI Opportunity	Type	Description
Realised	Process	AUTO discovers Gingko's biodiversity awareness educational materials
		AUTO asks the EEN network to translate Gingko's materials and distribute them across Europe
		Dissemination of Gingko's training to European schools with a positive impact in terms of biodiversity awareness
	Business model	Gingko's successful participation results in opportunities to engage more closely with AUTO
Potential	System-level	Continue conversion of industrialised land across divisions
		Continue efforts to increased awareness of biodiversity-related issues
	Process	Explore plants useful in manufacturing systems
		Further the memorandums of understanding interest areas

In total, 16 opportunities have been generated across all three projects. At the same time, these projects have also led to four potential opportunities. For example, Gingko continues to support AUTO as it rolls out the eco-park concept internationally. It is also involved in the area of biodiversity education. AUTO will also financially support Gingko's research, while also exploring useful plants that may be useful in manufacturing processes. Lastly, AUTO's signed memorandum of understanding with Gingko will further generate opportunities both for AUTO and Gingko.

"[The translation of course materials is] starting out with the junior ages, 5- to 6-year-olds, and then we want to build on that over the next 5 years and include the current students each year, […] so that they are actually really gaining really good[…] knowledge over the course of the project." [Middle Manager 19, Transcript.24, p.5]

"[In terms of landscape restoration], we've got another 13 warehouses. We've got 30 office buildings owned by our sales and marketing operations. There are vehicle hubs. And if we're really ambitious, we can go to the dealers, and we've got about 3,000

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dealers across the European marketplace. So, we've got a long way to go." [Senior
Manager 1, Transcript. 9, p.2]

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5.1.7 Road Safety Education

Search aspiration:	Provision of financial support and know-how for films seeking to improve road safety awareness in local schools
Search trigger:	Financial and product slack
Search type:	Local search
SOI opportunity:	*Realised:* 1 process opportunity
	Potential: 2 process opportunities
Partners:	Road Safety Education NGO
Institutional logics involved:	Dominant community logic, with a peripheral corporate logic

The Road Safety Education (RSE) NGO is an organisation that AUTO supports with the goal of reducing traffic casualty rates for young adults. In particular, RSE partners with AUTO and other organisations, and it therefore relies on financial and in-kind support. This structure suggests a dominant community logic and a peripheral corporate logic, as illustrated in Figure 15, as the focus is on supporting RSE in achieving a distinct community objective, namely, improving road safety.
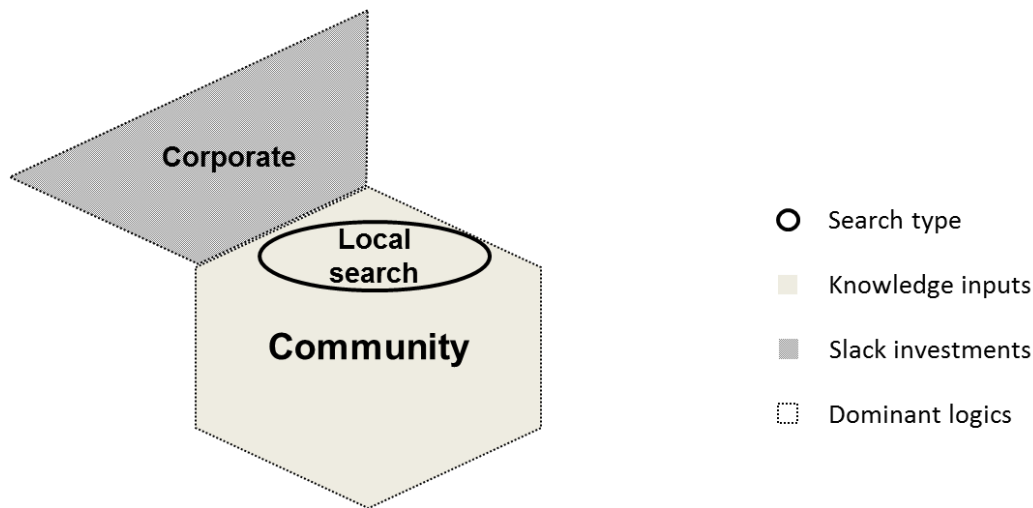
Figure 15: The road safety education partnership search

Table 37 demonstrates that AUTO has sponsored RSE's activities by providing financial and product slack. This has enabled RSE to prepare a film in partnership with the police, local councils, and emergency service providers. An AUTO vehicle was part of this film, in which actors re-enacted a fatal crash, visiting familiar sites, including local roads and hospitals. Thus, the intention was to use shock tactics to reduce traffic

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casualty rates for young adults. Clearly, RSE depended on contributions from other partners.

"First [we support them] financially, then we get involved and do other things…RSE came to us through a fund request, and we said, 'Oh, this would be interesting to do more with…so go and see them and actually have a richer relationship with them'." [Middle Manager 6, Transcript 12, p. 24]

Table 37: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Financial contribution and supply of a vehicle	*Financial slack; Product access*
Road Safety Education NGO	Know-how on increasing road safety awareness	*No slack; knowledge access*

Table 38 demonstrates that AUTO realised one process opportunity; it promoted road safety by provisioning the vehicle used to stage the accident in the film.

Table 38: Opportunities identified within the RSE project

SOI opportunity	*Type*	*Description*
Realised	Process	Promote road safety through provisioning a car to stage an accident in a movie
Potential	Process	Reach young students and facilitate the spread of road safety information
		Generate proof of concept demonstrating the film's effect on driving behaviour.

At the same time, two potential opportunities emerged. First, AUTO was able to support RSE in validating the effectiveness of its film. To that end, RSE proposed that AUTO would provide cars, equip them with recording devices, and then return the data to RSE. AUTO saw this proof of concept as a way to engage more closely with young adults on road safety issues.

"So, we are talking about this potential where we could maybe take our student intake […] measure them before and see how they drive, and then take them to the event, and

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then measure them as a real-world test [...] whether it does make a difference, so that they can provide proof of concept about driving habits[...]. This is a bit of a wider concept that we're trying to support with them, and that is quite interesting." [Middle Manager 6, Transcript 12, p. 25]

To this day, AUTO continues to provide in-kind contributions and other means of support to RSE.

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5.1.8 Local Nature Partnership

Search aspiration: Create a green economy in the region

Search trigger: Resource, financial, and employee slack

Search type: Non-local search

SOI opportunity: *Realised:* 3 system-level and 2 process opportunities
Potential: 1 process opportunity

Partners: Regional university, governments, local authorities, businesses, and NGOs

Institutional logics involved: Estranged state logic, with peripheral corporate, market, and community logics.

The Local Nature Partnership (LNP) is a coalition of multiple regional stakeholders. Thus, AUTO is involved in a group of business organisations, government institutions, universities, and professional organisations, and together they explore policy measures intended to foster a green economy in the region. However, consensus is lacking regarding these measures, thus suggesting estrangement between partners bringing a state logic and peripheral corporate, market, and community logics, as demonstrated in Figure 16. Clearly, the focus of this partnership is on exploring and influencing policies within the UK.

"The LNP is really a combination of business organisations and nature organisations and local government. And the board is quite high-level [...] It is basically endorsed and created by an act of Parliament [...] so we support that activity." [Middle Manager 11, Transcript 15, p. 13-14]
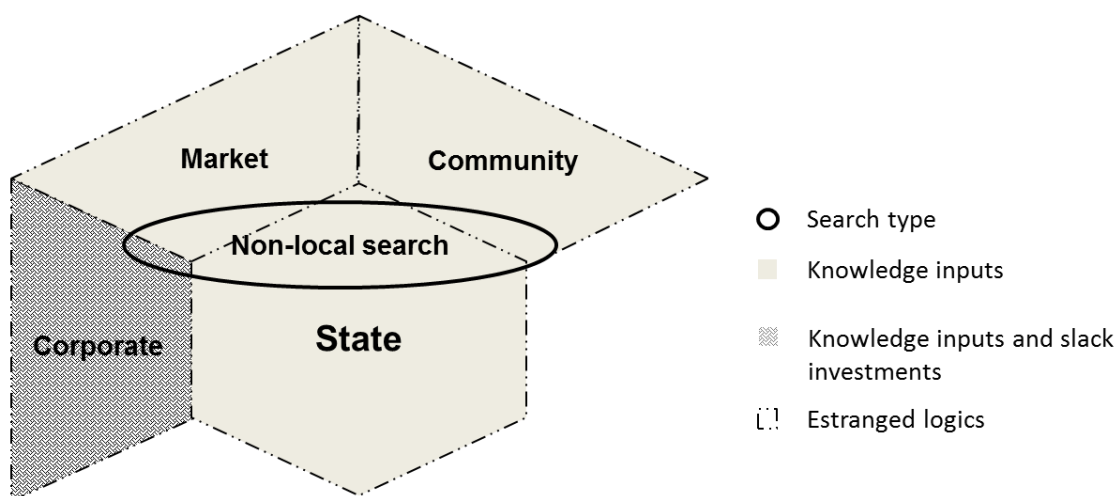
Figure 16: Local Nature Partnership search

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Table 39 illustrates that AUTO supplied a donation, its meeting facilities, and the time of its employees for regular board meetings. In other words, AUTO was involved with a mix of universities, governments, local authorities, businesses, and NGOs and provided technical expertise on biodiversity-related topics in sub-level working groups. In these working groups, all of the other partners exchanged their knowledge as well. The regional university, for example, had knowledge of scientific aspects relating to biodiversity, whereas the local governments and authorities supplied information on infrastructure planning, planning commissions, and resource stocks. The businesses were interested in understanding commodification opportunities and provided their perspectives. Lastly, the NGOs wanted to maximise environmental conservation.

"We support [the LNP] financially, we support that practically with our room, we support that with our reputation, if you know what I mean. I am encouraged to give my time to do these sorts of things, [...] and it's a very impressive part of AUTO, because it all costs money, because while we are doing these things, we are not doing something else, by definition." [Senior Manager 8, Transcript 14, p.5]

Table 39: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Financial contribution, employee involvement, and know-how on green economy	*Financial slack; Employee slack; Resource access*
Regional university	Know-how on latest environmental science	*No slack; knowledge access*
Governments	Know-how on planning commissions and infrastructure planning	*No slack; knowledge access*
Local authorities	Know-how on regional resource stocks	*No slack; knowledge access*
Businesses	Knowledge of business interests	*No slack; knowledge access*
NGOs	Knowledge of community interests	*No slack; knowledge access*

However, the diversity of know-how led to an estranged relationship between the partners. As a result, the partner organisations had to establish shared strategic

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priorities. They did so by establishing baseline data and identifying their options for either protecting or exploiting natural resource stocks. For example, extraction companies were interested in commodifying resources, whereas the environmental scientists preferred the idea of landscape conservation. AUTO moderated this process, but it seemed clear that this diversity of proposed practices and goals created conflicts in terms determining what natural resources to prioritise.

"Yeah, so, our strategy at the moment is to focus on natural capital and how developments are happening in the area [...] we might, for example, want to say that we are aiming for 20% tree cover or whatever it is, you know, [...] so, that kind of thing, [but] with such a broad range of board members, it means that there are not always agreements and consensuses about where the priority should be [...] So, it's kind of finding a consensus really [...] and an agreed direction amongst board members [...] and that takes a little time." [Middle Manager 21, Transcript 27, p. 3]

Table 40 indicates that five opportunities were realised via this partnership. First, the opportunity arose to influence regional green-economy policy-making, and AUTO was able to engage with industries, universities, and public bodies to that end. More specifically, AUTO influenced regional infrastructure developments and supported the establishment of a database of natural resource stocks. In addition, planning commission reports used the know-how and the range of expertise within the LNP as a validation mechanism. In this manner, the LNP served as an expert body on biodiversity issues, and it had significant weight given the range of sectors involved.

"A lot of data exists, but is held separately [...]. So, [the group] tried [...] to identify the natural capital assets within the region. Pulling together data from various statutory bodies, [...] so that was a big project we did last year, to try and bring all that data together." [Middle Manager 21, Transcript 27, p. 2]

"[This area is] going to be subjected to a lot of pressure and development. So, there is going to be a lot of housing going near there; [but] there is also a valley that has a lot of aggregates extraction, and there will be more in the future; we have a lot of opportunities for recreation and for biodiversity improvement." [Middle Manager 21, Transcript 27, p. 5]

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Table 40: Identified opportunities within the LNP coalition

SOI opportunity	Type	Description
Realised	System-level	Opportunity to the influence regional discourse on a green economy
		Engagement opportunities with regional stakeholders across industries
		Possibility to influence regional infrastructure developments
	Process	Create a natural resource-stock database for the region
		Enhance AUTO's ability to influence local planning commission reports
Potential	Process	Influence green public policy-making in the future

Indeed, the LNP is an important partnership, and AUTO continues to use that entity to influence other planning authorities with its expertise.

5.1.9 Diagnose Car

Search aspiration:	Supply donated cars to technical colleges
Search trigger:	Financial and product slack
Search type:	Local search
SOI opportunity:	*Realised:* 1 system level and 2 process opportunities
	Potential: 3 process opportunities
Partners:	Diagnose Car, the government, automotive federation of manufacturers, equipment suppliers
Institutional logics involved:	Dominant community logic, with peripheral corporate and state logics

The Diagnose Car partnership (DCP) is collaboration between car manufacturers and the regional Belgian government. AUTO supports the DCP, because it facilitates the rotation and exchange of latest-technology vehicles for technical training across technical colleges. This approach therefore adopts a dominant community logic and relies on peripheral state and corporate logics, as Figure 17 illustrates. Indeed, the goal of this engagement is to support the DCP in improving educational quality for future engineers across Belgium.

"For the Department of Education, it is very important to get the right capabilities, […] so with [the DCP], you get a higher level of education, and that's important for the department, of course, and also important for the [automotive] federation." [Middle Manager 20, Transcript 26, p. 3]
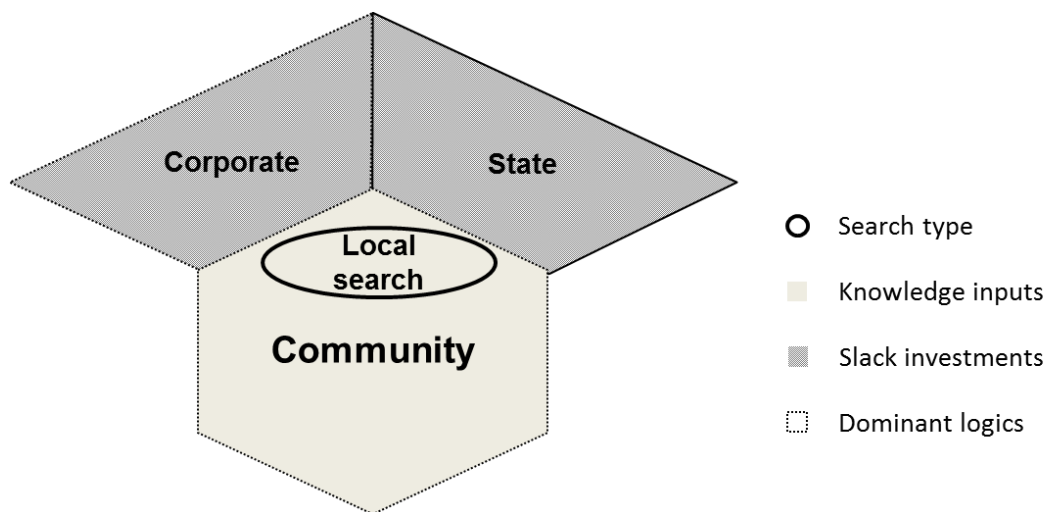
Figure 17: Diagnose Car partner search

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Table 41 reveals that all of the partners, except for Diagnose Car, provided financial slack and product access, in addition to technology-specific know-how. AUTO, for example, contributed a car and supplied relevant know-how, thus contributing to the technical training of local college students. The involvement of the automotive federation also ensured that other manufacturers and equipment providers similarly donated cars and technical equipment. The Belgian government also funded Diagnose Car, as it saw an opportunity to contribute to higher-quality engineering training across the country. In sum, Diagnose Car received all these contributions and made sure that they were equally distributed across the region's technical colleges.

Table 41: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Contribution of a car, supply of technical know-how	*Product access*
Diagnose Car	Know-how on disseminating training and equipment across schools, supply of technical college network	*No slack; knowledge access*
Local government	Financial contribution to support higher-quality education at technical colleges	*Financial slack*
Automotive federation of manufacturers	Access to car manufacturers, contribution of cars, supply of know-how	*Product access*
Equipment suppliers	Access to technical equipment	*Product access*

Table 42 indicates that three opportunities were realised. First of all, the introduction of a car-rotation scheme created a process opportunity for AUTO, permitting it to more effectively disseminate donated cars to technical colleges. The rotation scheme also improved the quality of technical education, as technical schools were able to learn with latest-technology cars. Moreover, AUTO found it beneficial to gain access to diagnostic tools and equipment, and that access served as a benchmarking opportunity.

"DCP had an asset, if you like, as they had every manufacturer's diagnostic tool—and if they get consent from the manufacturers to use the tool in the equipment in this

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comparison, we wanted to share the comparison between the other manufacturers to [explore] whose tool is better or worse." [Middle Manager 3, Transcript 5, p. 2]

"So, [this project] was even on the Motor Show, and [...] we had a lot of publicity; it was even on regional television, and so on, and it's sort of the ideal case, because we didn't just give something, we also learned something, and so it [...] it seemed like a logical way to work." [Middle Manager 3, Transcript 5, p. 3]

Table 42: Identified opportunities within the DCP project

SOI opportunity	Type	Description
Realised	System-level	Influence the quality of training across all regional schools
	Process	Introduction of car rotation scheme
		Access to diagnostic tools and equipment
Potential	Process	Create a handbook for students on a range of technical subjects
		Establish a purchasing syndicate for all teachers involved
		Develop teacher-training courses on the topic of different vehicles and technologies

AUTO continues to support the DCP by contributing its latest vehicles and technical expertise. Thus, the DCP is able to maintain its network of manufacturers and is now writing a student handbook and developing teacher-training courses. Moreover, the DCP is planning to establish a purchasing syndicate. Thus, AUTO's in-kind support furthers the DCP's ability to realise and identify potential community-oriented opportunities.

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5.1.10 Local fire and rescue department

Search aspiration: Supply of trial vehicles for education and training, thereby increasing road safety

Search trigger: Financial and product slack

Search type: Local search

SOI opportunity: *Realised:* 3 system-level, 3 process, and 2 product opportunities

Potential: 2 system-level opportunities

Partners: Local fire and rescue department and local university

Institutional logics involved: Dominant community logic, with peripheral state and corporate logics

The Fire and Rescue Organisation (FRO) is a local public body that is engaged with both AUTO and a local university with the goal of improving road safety for community members. AUTO's role is donating trial vehicles for use in staged car crashes and rescue training for fire-fighters. Thus, the Fire and Rescue Organisation (FRO) relies on contributions from private organisations and the government to equip fire-fighters with the rescue training. This suggests a core community logic and peripheral corporate and state logics, as illustrated in Figure 18, as the focus is on improving educational quality for fire-fighters, and on enhancing their skills.
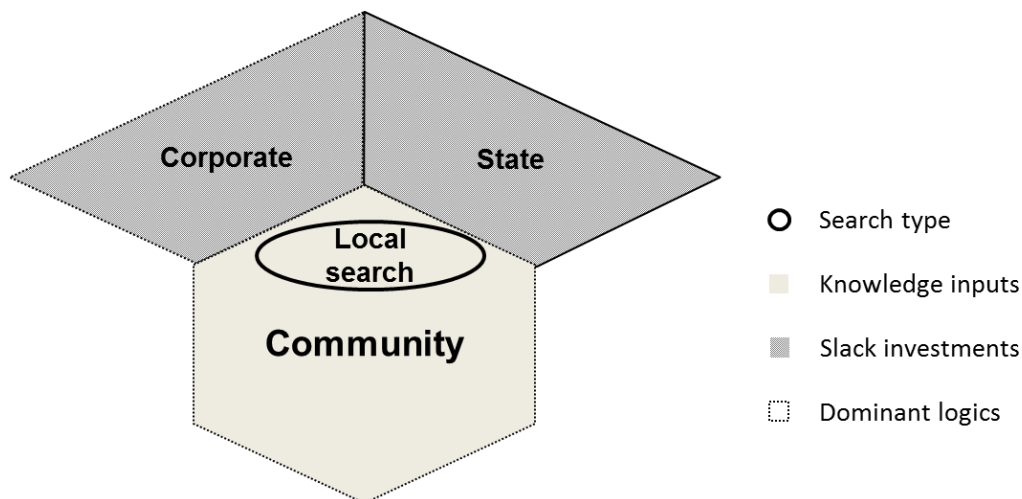
Figure 18: Fire and rescue partner search

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Table 43 depicts the product access contributions from AUTO and the financial slack received from the state. AUTO supplied latest-technology trial cars to the FRO. This permitted the FRO to undertake further activities, as on its own, the government's slack funding did not allow the FRO to buy latest-technology vehicles for car crash and extrication training. The FRO saw an opportunity to alleviate this funding shortage and asked AUTO to sponsor vehicles. Moreover, the FRO proposed the creation of a self-contained "transformer vehicle" that could be re-used for training purposes. Following AUTO's agreement to support the project, a local university provided engineering know-how in order to build the car with the help of local university students, whereas AUTO and the FRO supplied the technical expertise needed to build the car.

"They have actually taken [our car apart], and using these skills from [the local] university, they actually built a vehicle that can be taken apart and put back together. So, this is a [car], and they can literally take every part of it off to show the fire-fighters where it actually should be cut and how to extricate the causalities." [Middle Manager 10, Transcript 14, p. 4]

Table 43: Partners' slack and knowledge contributions

Partners	*Contribution*	*Type of discretionary slack*
AUTO	Contribution of trial cars, supply of technical know-how	*Product access*
Local fire and rescue department	Government funding and know-how on training fire-fighters on extricating victims from car crashes	*Financial slack*
Local university	Know-how of engineering students	*No slack; knowledge access*

Table 44 describes seven realised opportunities. One key contribution was the improved quality of fire-fighter training across the country. The idea of a self-contained car provided opportunities that made training more accessible for fire-fighters and other rescue personnel. The FRO also took the transformer car to road shows. This attracted further interest from other training centres, both nationally and internationally. The outcome was so successful that another trial car was built and then shipped overseas to

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Eastern Europe and South Africa. Moreover, another self-contained "safety engineering simulator car" was built, and it displays safety systems and possible extrication routes during traffic casualties. Together, these self-contained cars and the trial vehicles supplied for car-crash training purposes improved the overall quality of training for fire-fighters and medical staff.

"The reason why we are donating these vehicles isn't to save us money. We are donating these, because we believe it is the right thing to do, and actually, because we want to make our roads safer." [Middle Manager 10, Transcript 14, p. 3]

"I mean, you can see here that they do not just use it for their own fire and rescue service. They actually use it for other emergency services. And, they actually train neighbouring fire services, [...] they've actually visited to actually kind of use this. This has actually been all over the UK, and I think they have shipped [the car] over to Europe [and South Africa] as well." [Middle Manager 10, Transcript 14, p. 4]

Table 44: Identified opportunities within the FRO project

SOI opportunity	Type	Description
Realised	System-level	Improved quality of fire-fighter education
		Improved access to latest-technology cars and extrication training
	Process	Better utilisation of excess trial cars for road safety education
		Improved quality of training with addition of two transformer cars
	Product	Creation of transformer car for extrication training
		Creation of transformer car for safety engineering simulation
		Replication of the transformer car for training in developing countries
Potential	System-level	Improve overall road safety across the country
		Improve the overall impact of the contribution

AUTO continues to engage with the FRO as it seeks to improve road safety across the country and to increase its overall impact. To that end, they are currently working on a project that explores how to best measure the community impact.

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5.2 Cross-case findings from the narratives

The 10 cases provided insights into different approaches to searching for SOI opportunities. This section brings together the findings from these cases. As discussed in section 4.4.3 on the analysis of critical incidents, all of the concepts were appraised as described in Figure 19. These concepts build on the conceptual framework, as well as on the constructs analysed in chapters 3 and 4.

Search	Institutional pluralism	Sustainability-oriented innovation opportunities

Search aspiration
• Purpose
Search trigger
• Problemistic
• Slack
  ○ *Type of discretionary slack*
    ▪ Employee slack
    ▪ Financial slack
    ▪ Resource slack
 	
Search type
• Local
• Non-local
	Number of logics
	• Dominant
	• Peripheral
	
	Types of logics
	• Corporate
	• Community
	• Family
	• Market
	• Professional
	• Religion
	• State
	
	Logic relationships
	• Aligned
	• Contested
	• Dominant
	• Estranged
		Realised and potential opportunity types
		• Product
		• Process
		• Business model
		• System-level
		
		Scope
		• Broad
		• Narrow
		
		Opportunity-incident ratio
		• Number of opportunities divided by the number of incidents

Figure 19: Concepts used in the findings

The next step was to identify key patterns across the concepts, and this was achieved via a cross-case analysis, as described below. Table 45 summarises the patterns in the cross-case findings.

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Table 45: Findings

No.	Title	Search				Institutional pluralism				Sustainability-oriented innovation opportunities							
		Aspiration	Trigger	Discretionary slack type	Type	Dominant institutional logics	Peripheral logics	No. of Logics	Logic relaionship	Product	Process	Business model	System	No. of incidents	Opportunities	Scope	Opportunity /Incident ratio
1	CSI	Test car-sharing technology and business model	Slack	Resource access Financial slack Product access	Non-local	Market	Corporate Community State	4	Dominant & Estranged	1 Realised	4 Realised 3 Potential	2 Realised 2 Potential	1 Realised	14	8 Realised 6 Potential	Broad	13/14=0.93
2	SDC	Explore integrated sustainable mobility solutions	Slack	Resource access Financial slack Employee slack	Non-local	Corporate Market Professional Community State		5	Aligned	1 Potential	5 Realised	2 Realised 2 Potential	1 Realised 2 Potential	10	8 Realised 4 Potential	Broad	12/10=1.20
3	JWC	Fundraising & engaging local supplier community	Slack	Financial slack Employee slack	Local	Community	Corporate	2	Dominant		3 Realised 2 Potential			5	3 Realised 2 Potential	Narrow	5/5= 1.00
4	SCSG	Improve supply chain procurement	Problemistic	n/a	Local	Corporate	Community	2	Dominant		4 Realised 2 Potential			6	4 Realised 2 Potential	Narrow	6/6=1.00
5	ASP	Create an apprentice talent pipeline for AUTO and SMEs	Slack	Resource access Financial slack	Non-local	Professional Corporate Market Community State		5	Aligned		5 Realised 1 Potential	1 Realised 1 Potential	1 Realised 1 Potential	7	7 Realised 3 Potential	Broad	10/7=1.43
6	Gingko	Create eco-parks & awareness for biodiversity	Slack	Resource access Financial slack Product access	Non-local	Corporate Professional Community State		4	Aligned		11 Realised 3 Potential	1 Realised	4 Realised 2 Potential	15	16 Realised 5 Potential	Broad	21/15=1.40
7	RSE	Donate cars for road safety awareness in local schools	Slack	Financial slack Product access	Local	Community	Corporate	2	Dominant		1 Realised 2 Potential			3	1 Realised 2 Potential	Narrow	3/3=1.0
8	LNP	Create a regional green economy	Slack	Resource access Financial slack Employee slack	Non-local	State	Corporate Market Community	4	Estranged		2 Realised 1 Potential		3 Realised	8	5 Realised 1 Potential	Broad	6/8=0.75
9	DCP	Donate cars to a rotation scheme for technical colleges	Slack	Financial slack Product access	Local	Community	Corporate State	3	Dominant		2 Realised 3 Potential		1 Realised	6	3 Realised 3 Potential	Broad	6/6=1.00
10	FRO	Donate trial vehicles for firefighter education and training	Slack	Financial slack Product access	Local	Community	Corporate State	3	Dominant	2 Realised	3 Realised		3 Realised 2 Potential	9	8 Realised 2 Potential	Broad	10/9=1.11

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5.2.1 Search

5.2.1.1 Aspirations

The search aspirations in the hybrid organisational forms (HOFs) from Table 44 reflected a range of SOI activities related to education (HOFs 5, 9, and 10), local community-impact delivery (HOFs 3 and 7), sustainable mobility (HOFs 1 and 2), and biodiversity (HOFs 6 and 8). Moreover, one hybrid organisational form sought to improve business processes (HOF 4).

This analysis demonstrates that *the emphasis on social, environmental, and commercial search aspirations differed* across the case projects. Biodiversity-related hybrid organisational forms, for example, emphasised raising awareness regarding biodiversity by looking for ways to improve biodiversity at the company site premises and regional levels (HOFs 6 and 8). Community projects and education projects, on the other hand, stressed societal opportunities for equipping people with relevant skills or drawing their attention to socially and environmentally positive behaviours (HOFs 3, 5, 7, 9, and 10). Lastly, commercially oriented projects focused on improving current and future business activities (HOFs 1, 2, and 4). Clearly, AUTO's SOI aspirations were broad in scope which encapsulated social, environmental, and commercial dimensions.

5.2.1.2 Slack and problemistic search

The data indicates that discretionary *slack funds were a frequent antecedent of variety creation in the search for SOI*. In fact, 9 of the 10 hybrid organisational forms involved slack-triggered searches (HOFs 1-3 and 5-10); thus, a majority of the hybrid organisational forms used three types of discretionary slack to fund and support the search for future opportunities.

Financial slack was also used in 9 of the 10 cases (HOFs 1-3 and 5-10). However, financial contributions took multiple forms, ranging from donations (HOFs 3, 7, and 8), to external funding (HOFs 5, 9 and 10) and corporate investments (HOFs 1, 2 and 6). The engagement with Gingko (HOF 6), for example, was entirely funded by AUTO, ensuring a non-local search for SOI opportunities.

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In five hybrid organisational forms, *resource access* was an important antecedent for identifying opportunities (HOFs 1, 2, 5, 6, and 8). This included access to cities (HOFs 1 and 2), as well as access to production, training, or meeting facilities (HOFs 5, 6, and 8). For example, the Sustainable Development Coalition (HOF 2) and the car-sharing initiative (HOF 1) relied on access to the city environment to identify innovation opportunities, whereas the apprenticeship scheme depended on AUTO's willingness to provide its latest-technology training facilities. By implication, a search would not have been possible if AUTO had not provided these resources.

Product access was a further form of slack observed in the cases, and five of the hybrid organisational forms (HOFs 1, 6, 7, 9, and 10) made use of it. For example, AUTO supplied trial cars for the fire and rescue team (HOF 10), and its participation in that initiative triggered the creation of self-contained transformer cars. In other cases, car donations yielded future business knowledge (HOF 1) or improved the quality of education and training (HOFs 6, 7, 9, and 10). Indeed, product access was an instrumental component of these hybrid organisational forms, triggering further searches.

Lastly, three hybrid organisational forms used *employee slack* as part of the search process (HOFs 2, 3, and 8). In these instances, employees committed their excess time to the search for opportunities, while remaining on the payroll of the host organisation. In all of these cases, AUTO permitted staff members to commit to a specific project as part of their work for the firm. In the Just World Charity (HOF 3) case, this project took the form of fundraising, whereas in the Local Nature Partnership and Sustainable Development Coalition cases, employees were able to attend regular project meetings during their working hours.

A majority of the projects combined slack types. For example, 4 of the 10 hybrid organisational forms combined 3 types of slack (HOFs 1, 2, 6, and 8), whereas 5 of them relied on 2 slack types (HOFs 3, 5, 7, 9, and 10). None of the hybrid organisational forms exclusively relied on a sole slack investment. Moreover, the data did not reveal any clear patterns regarding different slack combinations. Rather, financial slack was combined with resource access, product slack, and employee slack in different ways.

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In one case (HOF 4), a *problemistic search trigger* did not require discretionary slack funds. Instead, a lack of shared sustainable supply chain procurement practices triggered the search, which led AUTO to engage in the Supply Chain Sustainability Working Group (SCSG). This group, however, made no use of other slack investments. Instead, managers from different organisational procurement divisions shared relevant supply chain procurement knowledge. Moreover, the SCSG used the NGO on Corporate Social Responsibility to facilitate this knowledge exchange. Thus, in this case, AUTO's core business problem was solved through the exchange of subject-specific know-how between partners.

5.2.1.3 Local and non-local search

The local and non-local search dichotomy in Table 44 demonstrates that in *5 of the 10 cases, searches were local* (HOFs 3, 4, 7, 9, and 10). It thus follows that existing business- or community-related knowledge was enhanced and reinforced via these searches. For example, Diagnose Car's car-rotation system was the result of a local search aimed at improving the quality of education and training across the country, and it relied on AUTO's supply of a vehicle and equipment. In a similar case, AUTO's supply of trial vehicles also generated refinement opportunities for the Fire and Rescue Organisation (FRO), leading to the development of self-contained transformer car. This advancement strongly improved the quality and scope of fire-fighter training. Indeed, in both cases, the searches enhanced the quality and outputs of education and training.

Moreover, five non-local searches spanned knowledge boundaries across institutional logics (HOFs 1, 2, 5, 6, and 8). In these instances, AUTO was engaged with stakeholders in a shared activity but also faced diverse pools of knowledge. For example, the Sustainable Development Coalition (SDC) had mechanisms in place to ensure the integration of different stakeholder perspectives. Moreover, the SDC also provided a best-practice database. Industrial members of the partnership also provided their expertise on technical solutions. In other words, each member supplied knowledge and expertise, thus enabling a search process and activity across partners with different institutional logics. This case clearly illustrates the range of options and perspectives facing the hybrid organisational form.

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5.2.2 Institutional pluralism

5.2.2.1 Institutional logics

The findings demonstrated *a range of institutional logics in the hybrid organisational forms, and these included community, corporate, market, state, and professional logics*. Specifically, the 10 hybrid organisational forms used 5 of the 7 ideal logic types. The presence of religion and family logics were not observed in any of the cases.

All of the hybrid organisational forms included a *community logic* and a *corporate logic* (HOFs 1-10). The aim of the community logic was to improve human activities by means of direct and indirect grassroots-level support for community groups at local, national, or international levels via civil society groups and NGOs (HOFs 2-4, 5, 7, 9, and 10). Some of the hybrid organisational forms particularly encouraged engagements with local communities as a means of delivering additional environmental value (HOFs 1, 6, and 8). In contrast, the corporate logic built partnerships as a means of encouraging associations of AUTO with more productive sustainability-oriented behaviour. This objective was often achieved through different forms of discretionary support or the exchange of know-how. In both of these approaches, diversification was the result of discretionary funding or an exchange of company-relevant know-how.

Six of the 10 hybrid organisational forms adopted *a state logic* (HOFs 2, 5, 6, and 8-10). The principal aim was therefore *to regulate human behaviour,* and the partners achieved this goal by using incentives and slack funds to encourage different stakeholder groups and actors to adopt desired actions (HOFs 5, 9, and 10). Another approach was to adhere to a wider set of aspirational policies at the local, national, and international levels (HOFs 2, 6, and 8). The state logic therefore sought *top-down* opportunities to improve citizens' quality of life.

Four of the 10 ten cases adopted *a market logic* and therefore sought to commodify services in a CSR context (HOFs 1, 2, 5, and 8). For example, AUTO's exploration of sustainable future business models constituted a search for alternative future revenue streams (HOFs 1, 2, and 8), as well as a search for alternative service offers (HOF 5). The market logic therefore involved new funding streams and commercially viable opportunities.

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Lastly, 3 of the 10 hybrid organisational forms also incorporated a *professional logic* (HOFs 2, 5, and 6). In these instances, trade associations and other representative industry bodies were a source of subject-related knowledge. For example, Gingko's involvement with AUTO was useful, as the former had subject-specific expertise in the area of biodiversity (HOF 6). Equally, hybrid organisational forms 2 and 5 benefited from experts who provided their knowledge to the hybrid organisational form. Therefore, the professional logic supported a search for SOI opportunities via subject-specific expertise.

5.2.2.2 Logic multiplicity

As Table 44 indicates, *6 of the 10 projects had dominant logic relationships* (HOFs 1, 3, 4, 7, 9 and 10), indicating 1 core logic with multiple peripheral logics (Besharov and Smith, 2014). Dominant institutional logics often involved pairs composed of a core corporate (HOFs 3, 4, 7, and 9) or market logic (HOF 1) and a peripheral community logic. However, in four cases, the community logic was the core one (HOFs 3, 7, 9, 10), accompanied by peripheral corporate (HOFs 3 and 7), as well as corporate and state logics (HOFs 9 and 10). The remaining two cases demonstrated a core market or corporate logic accompanied by peripheral corporate (HOF 4) or community logics (HOF 1). Indeed, dominant core logics underwent little to no conflict with the peripheral logics, regardless of their particular composition.

Three of the 10 cases contained aligned logic relationships (HOFs 2, 5, and 6), which means that there were multiple, compatible core logics (Besharov and Smith, 2014). Interestingly, such alignment occurred when four or more logics were involved. The Apprentice scheme partnership, for example, sought to improve the skills of apprentices in the region, and multiple partners were engaged in this mission. Moreover, all of these partner organisations were able to meet the distinct goals of each other's host logics. AUTO, for example, opened its apprenticeship scheme to other SMEs and thereby increased its training facility's utilisation rate, while simultaneously helping to develop the skills of apprentices throughout the region. This example indicates that aligned core logics occur in hybrid organisational forms with four or more logics. Moreover, this alignment encourages the integration of a range of institutional practices.

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Two of the 10 cases indicated an estranged logic relationship (HOFs 1 and 8). Thus, there was a single core logic with incompatible peripheral logics (Besharov and Smith, 2014). For example, in the Local Nature Partnership case (HOF 8), the core mission was promoting a green economy, but the partners involved in that imitative struggled to agree on a strategy for the region. Similarly, the car-sharing initiative's goal was commercial experimentation, but the partners struggled to respond to the changes that took place in the French city's administration. Yet, AUTO was able to continue the experiment in the city with other partners. Thus, both examples demonstrate that achieving consensus regarding priorities and measures can be challenging, even if the overall mission is not in danger.

5.2.3 Sustainability-oriented innovation opportunities

5.2.3.1 Opportunity type

Seven of the 10 hybrid organisational forms generated combinatory outcomes of product, process, business-model, and/or system-level opportunities (HOFs 1, 2, 5, 6, and 8-10). This mix demonstrates that innovation opportunity types differed across community groups, cities, regions, and countries. A large range of such opportunities was identified in hybrid organisational forms 1 and 2. In these instances, a mixture of all opportunity types was found. Thus, the technical product and process solutions generated in those cases had business-model and system-level implications (HOFs 1 and 2). In hybrid organisational forms 5 and 6, a product opportunity was not involved, although the generated opportunities still had process, business-model, and system-level implications.

There were also *system-level and process opportunity combinations* (HOFs 8,9, and 10) that indicated more effective stakeholder integration processes. System-level implications, in terms of the local community impact, were also present. For example, AUTO's supply of trial vehicles supported fire-fighter training at the local level but also improved overall educational quality for fire-fighters in the UK and internationally.

The smallest opportunity scope was limited to *processes* (HOFs 3, 4, and 7) that yielded social, environmental, or commercial improvements in a business or community context. In these cases, wider implications in terms of business-model, product, or

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systems opportunities were not identified, as these projects were somewhat narrow in their search aspirations and scope for innovation generally. For example, the Supply Chain Sustainability Working Group improved the quality of sustainable supply chain procurement processes, but this initiative did not have broader implications as regards products, business models, or systems.

5.2.3.2 The scope of realised and potential opportunities

The innovation opportunity scope pertains to the range of opportunity types and can be either *broad* or *narrow*. *Broad* SOI opportunity scopes emerge when system-level implications are coupled with product, process, or business-model opportunities. This full range of scope was witnessed in seven cases (HOFs 1, 2, 5, 6, and 8-10). In contrast, *narrow* opportunities had process-level implications only, as found in three of the cases (HOFs 3, 4, and 7). Thus, the narrow SOI scope was linked to the lower range of opportunity types.

For example, the apprenticeship scheme generated system-level, business-model, and process opportunities. Opening the apprenticeship training program to other SMEs had positive implications for AUTO in terms of new revenue streams, the more effective utilisation of its training facility, and the quality of engineers in the region. Thus, these broad opportunities generated multiple types of process-level, business-model, and/or system-level opportunities.

In contrast, more narrow opportunities were limited to process-level benefits. In the case of the Just World Charity, improvements took the form of the more effective social impact delivery, and the ability to identify charities and strengthen relationships with local dealers. In the same vein, the Supply Chain Sustainability Working Group's search for knowledge generated opportunities that were limited to supply chain procurement practices. Thus, neither of these cases generated product, business-model, or system-level outcomes.

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5.3 Cross-case data comparison

This section presents the patterns identified across the cases. In sum, five consistent patterns were observed:

- *Slack* was associated with the presence and interaction of two or more institutional logics.

- There are alternative *variants* of search *triggers* and *types*.

- The *compatibility* and *centrality* of logics impacted and mobilised variety creation.

- *Aligned* logic relationships had a positive impact on innovation outcomes.

- A higher number of logics was associated with the increased scope of SOI opportunity.

The following sections discuss these patterns in more detail.

5.3.1 Behavioural antecedents of variety creation

As discussed in chapter 3, this section presents the findings regarding the role of slack and problemistic search as antecedents of variety creation. Moreover, it demonstrates the embeddedness of institutional logics during organisational search for innovation.

5.3.1.1 Slack and its impact on institutional pluralism

First of all, *slack was associated with the presence and interaction of two or more institutional logics.* This configuration was observable in the nine slack-funded projects that involved multiple logics (HOFs 1-3 and 5-10). In these cases, financial slack, employee slack, and resource access to facilities and cities were antecedents to instigate knowledge variety-creation involving multiple institutionally diverse partners. The evidence thus demonstrated that discretionary resources were used to engage institutionally diverse partners exhibiting two or more logics. On the other hand, absorbed resources as described in the literature review were not identified, as this requires resources bound to a singular organisational context (Bourgeois, 1981; Bowen, 2002; Cyert and March, 1963). Clearly, the hybrid organisational forms' basis was founded on discretionary resources that spanned such boundaries.

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Of note is that financial, resource, employee, and product slack did not indicate any particular patterns when it came to the number of logics involved. Instead, at least one partner provided slack resources, thus enabling the search across logics in the hybrid organisational form. Consequently, discretionary slack resources were an important antecedent for the linking of multiple logics via a sustainability-oriented search.

However, one problemistic search involved fewer logics (HOF 4). This arrangement suggested that the search involved stakeholders that displayed only a corporate and community logic. Moreover, contrary to the other cases, there were no discretionary resource investments. Instead, know-how on sustainable procurement practices was exchanged. While all of the partners shared a common interest, it was clear that the project did not require discretionary slack investments. Instead, participation in this hybrid organisational form improved the efficiency of sustainable supply chain procurement practices across all member organisations.

5.3.1.2 Alternative variants of search triggers and types

Secondly, the data revealed *alternative variants of search triggers and types.* In fact, *four local slack searches* (HOFs 3, 7, 9, and 10), *five non-local slack searches* (HOFs 1, 2, 5, 6, and 8), and *one local problemistic search* (HOF 4) were identified. Thus, nine out of ten *slack triggers led to both local and non-local searches* (HOF 1-3, and 5-10)**.**

In the case of *local slack search* (HOFs 3, 7, 9, and 10), partners regularly contributed both financial slack and product access to facilitate the search for improvements within a logic. Diagnose Car, for example, used AUTO's donation of trial vehicles, which triggered a search for better training opportunities using self-contained cars.

Non-local slack searches were also common (HOFs 1, 2, 5, 6, and 8). Here, discretionary resources were provided and pooled, enabling a conjoint search for SOI opportunities. For example, the Sustainable Development Coalition participants provided financial support, employee slack, and resource access, and they paved the way for a concerted, methodology-based non-local search including different stakeholder perspectives and pools of knowledge. Clearly, all slack contributions were an antecedent to the identification of innovation opportunities, with the primary goal of generating a sustainable impact.

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Notably, the data indicated only one *local problemistic search* (HOF 4). In this case, no discretionary resources were used in the search. Instead, a business problem drove the exchange of knowledge between partners with similar logics. The problemistic search was therefore *not* based on the discretionary resources provided by the partners.

5.3.1.3 The effect of centrality and compatibility on local and non-local search

Third, *the compatibility and centrality of logics impacted and mobilised variety creation.* Thus, local and non-local searches differed in their ability to facilitate the exchange of knowledge. For example, six hybrid organisational forms had a *dominant logic* (HOFs 1, 3, 4, 7, 9, and 10), three had *aligned logics* (HOFs 2, 5, and 6)*,* and one had an *estranged logic*[2] (HOF 8). These three logic relationships diverged in that the exchange of knowledge was characterised by different levels of conflict and tension. Consequently, these differences had an impact on local and non-local search in terms of innovation outcomes.

Dominant logic relationships were identified in *all local searches* (HOFs 3, 4, 7, 9, and 10), *as well as in one non-local search* (HOF 1).

In *local searches*, this compatibility of logics led either to slack support that encouraged the local search in another discrete logic. Alternatively, problemistic searches in a discrete received knowledge support from another logic that supported the discrete logics' efficiency improvements. The Supply Chain Sustainability Working Group, for example, used the NGO for Corporate Social Responsibility as a facilitator, and improved its sustainable supply chain efficiency through manufacturers' confidential exchange of sustainable procurement screening practices.

In *non-local searches*, slack support occurred in institutionally diverse settings, with partners freely exchanging their know-how across logics. As no goal or practice conflicts arose, the search aspirations were shared and did not involve any tension among the partners. Clearly, the car-sharing initiative (HOF 1) was a commercial and technological experiment that sourced compatible knowledge from partners that adhered

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[2]The car-sharing initiative also involved an estranged logic (in combination with a dominant logic); however, it did not play a role in knowledge variety creation. Therefore this case of estrangement was not considered in the context of local and non-local search.

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to community and corporate logics. While the French city administration instigated a conflict regarding access to parking area monitoring, which had previously been promised, their know-how did not have any commercial and technological implications. Thus, the presence of incompatible objectives and practices did not interfere during knowledge variety creation. Dominant logic relationships thus did not take into account potentially incompatible practices.

Aligned logic relationships (HOFs 2, 5, and 6) were also identified, although only in *non-local searches*. In these cases, multiple core logics with distinct objectives shared the same goal. Typically, these engagements only involved an exchange of know-how *after* these discrete objectives had been aligned in support of a shared goal. The apprenticeship scheme (HOF 5), for example, involved a mix of objectives at the state, community, professional, and corporate levels, and these were united in service of the common goal of supplying high-quality apprenticeships in the region. This endeavour thus permitted a regular exchange of non-local know-how across institutional boundaries. Clearly, this diversity of aligned objectives and practices greatly enhanced variety creation.

Estranged logic relationships (HOF 8) were also identified as affecting *non-local search.* In this case, a dominant logic with a core mission was present, while implementation priorities diverged. Thus, the partners agreed on the central purpose of the hybrid organisational form but struggled due to the conflicting strategic priorities. Indeed, a less straightforward exchange of know-how was the result. The Local Nature Partnership (LNP) case also illustrates this point, as it involved a regular, non-local search across partners' institutional logics. Yet, the incompatibilities between practices resulted in on-going delays in determining the LNP's strategic direction. In this way, the estranged logics delayed variety creation.

In summary, different logic relationships moderated the partners' ability to exchange resources, knowledge, and expertise.

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5.3.2 Creating sustainability-oriented innovation opportunities via institutional pluralism

5.3.2.1 The effect of multiple logics on sustainability-oriented innovation opportunities

The fourth pattern revealed that *aligned logic relationships had a positive impact on innovation outcomes* (HOFs 2, 5, and 6). In fact, aligned logics scored the highest in terms of their ability to convert incidents into opportunities, as Table 46 illustrates.

Table 46: Overview of opportunity-incident ratios

Dominant	Ratio	Aligned	Ratio	Estranged	Ratio
CSI*	0.93	SDC	1.20	LNP	0.75
JWC	1.00	ASP	1.43	CSI*	0.93
SCSG	1.00	Gingko	1.40		
RSE	1.00	*Note: The car-sharing initiative faced an estranged logic relationship with the French city administrators but sourced relevant know-how akin to a dominant logic. Therefore, the CSI is included in both the dominant logic and estranged logic columns.			
DCP	1.00				
FRO	1.11				

Aligned logic relationships indicated a significant exchange across a diverse pool of knowledge. This means that incidents were transformed into shared opportunities. For example, AUTO's decision to open its apprenticeship scheme to SMEs generated process, business-model, and system-level opportunities. Thus, aligned logics generated a higher density of opportunities per incident.

In contrast, *estranged logic relationships* generated the lowest opportunity-incident ratio of all hybrid organisational forms studied. Here, the density was lower, because some incidents did not result in further opportunities. For example, the Local Nature Partnership case required partner consensus regarding the region's natural resource strategy and did generate any immediate outcomes. Subsequently, estranged logics resulted in a lower density of opportunities per incident.

Lastly, *dominant logic relationships* often resulted in a 1:1 opportunity-incident ratio, due to the fact that incidents immediately generated opportunities. In these cases, variety mobilisation was relatively simple, as the goals tended to be clear and focused on distinct aims. In fact, all 1:1 ratios were the results of local searches.

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While two of the six dominant logics differed from this pattern, the data suggested that the conversion of incidents into opportunities followed a continuum that ranged from low variety mobilisation in estranged logics to high variety mobilisation in aligned logics. Therefore, aligned logic relationships were the most effective in terms of sustainable variety-creation opportunities.

5.3.2.2 Type and scope of opportunities

Fifth, a *higher number of logics increased the scope for innovation.* Thus, the more institutional logics involved, *the greater the breadth* and *focus* of the SOI opportunities generated, as Table 47 illustrates.

Table 47: Opportunity type versus the number of logics

No.	Title	No. of logics	Type	Scope	No.	Title	No. of logics	Type	Scope
3	JWC	2	Process	*Narrow*	1	**CSI**	4	Product Process Business-model System	*Broad*
4	SCSC	2	Process	*Narrow*	6	**Gingko**	4	Process Business-model System	*Broad*
7	RSE	2	Process	*Narrow*	8	**LNP**	4	Process System	*Broad*
9	DCP	3	Process System	*Broad*	2	**SDC**	5	Product Process Business-model System	*Broad*
10	FRO	3	Product Process System	*Broad*	5	**ASP**	5	Process Business-model System	*Broad*

For example*, all of the narrow range opportunities involved two logics* (HOF 3, 4, and 7), whereas *broad innovation opportunities involved three or more logics* (HOFs 1, 2, 5, 6, and 8-10). In the case of *narrow opportunities*, the scope was limited to process-level outcomes. As a consequence, no product, business-model, or system-level opportunities were identified. For example, the Road Safety Education NGO generated community-based opportunities that supported road safety awareness in local schools. However, the project did not have any wider implications for AUTO in terms of business-model,

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product-related, or system-level opportunities (HOF 7). In fact, this case was solely focused on creating an impact in the community.

In contrast, broad opportunities contained *three or more institutional logics* and yielded a combination of product, process, business-model, and system-level outcomes. Indeed, when four or more logics were involved (HOFs 1, 2, 5, and 6), the opportunity scope tended to be broader. For example, the Sustainable Development Coalition and the Apprentice Scheme participants generated a range of opportunities that improved processes, resulted in new product and business ideas, and had system-level effects. Thus, the findings reflected that the scope of innovation opportunities increased with the number of logics involved.

5.4 Summary

This chapter began by presenting the case narratives and then discussed five key cross-case patterns. Table 48 lists these patterns. Indeed, the table illustrates that slack tended to be associated with two or more institutional logics; that the compatibility and centrality of logics impacted and mobilised variety creation; that alternative variants of slack search triggers and types exist; that aligned logic relationships had a positive impact on innovation outcomes; and that a higher number of logics was associated with the increased scope of SOI opportunity.

In the next chapter, these patterns are discussed with regards to their implications for theory and practice.

Table 48: List of identified patterns

No.	Identified patterns
1	Slack was associated with the presence and interaction of two or more institutional logics.
2	There are alternative variants of search triggers and types.
3	The compatibility and centrality of logics impacted and mobilised variety creation.
4	Aligned logic relationships had a positive impact on innovation outcomes.
5	A higher number of logics was associated with the increased scope of SOI opportunity.

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6 Discussion

This chapter is concerned with discussing the research findings identified in relation to the existing body of literature. It both explores the current state of theory and describes how this work contributes to its development. Consequently, it incorporates the five key patterns from the data, presenting them as a starting point for further theory development.

6.1 Behavioural antecedents of variety creation

Building on Levinthal and March's description of adaptive organisational search (Levinthal and March, 1981), the previous chapter demonstrated that discretionary slack resources and institutional logic relationships are important behavioural antecedents for variety creation in hybrid organisational forms. Slack triggers variety creation across multiple institutional logics and describes the context in which the search for SOI opportunities are being searched.

6.1.1 Institutional pluralism and its impact on slack resources

Finding 1: *Slack was associated with the presence and interaction of two or more institutional logics.*

From an organisational search perspective, this finding broadens and extends prior work on organisational search and SOI (Adams et al., 2016; Laursen, 2012; Levinthal and March, 1981). Utilising the concepts of institutional logics and slack, the results demonstrated that (i) *slack resources are an important antecedent, and (ii) they seek to aspire to the goals of two or more institutional logics.*

In regards to the first point, this finding on the significance of slack adds to Levinthal and March's description of adaptive organisational performance (Levinthal and March, 1981), as well as to Laursen's understanding of slack in the context of variety creation (Laursen, 2012). Both of those works explained discretionary slack as a function of excess returns in a commercial context. Thus, financial, resource, and employee slack resources trigger an "irresponsible" (slack) search for commercially oriented innovations (Laursen, 2012; Levinthal and March, 1981, p.309). To date, slack in the

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context of organisational search has primarily been discussed in the context of commercial logics (Greve, 2003a; Laursen, 2012; Nohria and Gulati, 1996).

This study, however, extends this conversation and demonstrates that slack is not limited to searches within commercial logics. Instead, the results indicated that slack can be used for searches that go beyond exclusively commercial objectives. In fact, the findings illustrated that slack investments, such as donations, employee time, and underused capacities, were capable of triggering searches within multiple logics with societal or environmental objectives. Therefore, these slack resources created the capacity to integrate a multiplicity of institutional logics and aims.

This study also extends the discourse on slack via its findings on *the role of search aspirations* (Levinthal and March, 1981). Prior studies have indicated that search aspirations were discussed as seeking improvements within a discrete logic that met or exceeded performance as a result of slack and problemistic search (Levinthal and March, 1981). Other scholars have adhered to this description and thus have not considered the role of other discrete institutional logics (Bowen, 2002; Laursen, 2012; Nohria and Gulati, 1996). Instead, slack was considered to be an organisational resource used to address organisational aspirations.

This study, however, revealed that slack is capable of achieving, or furthering, the objectives of other embedded logics. The research demonstrated that slack was used to facilitate search within two or more discrete logic spheres with the goal variety creation for sustainability-oriented variety creation. Thus, the environmental, social, and commercial improvements that resulted from logic relationships generated shared innovation opportunities and improved the partners' SOI prospects. Clearly, the majority of these improvements were slack-dependent, suggesting the need to improve aspiration targets for the respective logics involved. For example, community logic aspirations were often qualitative, which made performance measurements difficult. As a result, additional slack was needed to facilitate qualitative improvements. Thus, slack had the capacity coalesce logics and meet the aspirations of collective and discrete multiple logics.

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6.1.2 Variation of search triggers for local and non-local search

Finding 2: *There are alternative variants of search triggers and types*

Having observed the central role of slack in the search for SOI opportunities, it is somewhat surprising that the local slack variant has not been previously addressed in the organisational search literature in conjunction with non-local slack. Particularly Laursen (2012) states that no studies had addressed the "type of innovation that slack search may lead to" (Laursen, 2012, p.1203). Yet, these variants have not received much attention, because the concept of slack has been somewhat conflated (or treated synonymous) with non-local search (Adams et al., 2016; Laursen, 2012; Levinthal and March, 1981). Thus, researchers have indicated that slack search results in the experimental, "irresponsible" exploration of (commercially oriented) innovation opportunities (Levinthal and March, 1981). Possibly this exclusive consideration of a single logic has resulted in slack being associated with non-local search, as (commercially oriented) problemistic searches were assumed to lead to less slack (Greve, 2003a). Equally, Adams et als. (2012) systematic review of the SOI literature also describes slack as a resource that supports the search for radical innovation opportunities (Adams et al., 2012). This research, however, adds that slack can lead to local and non-local searches. Hence, it can be a source for radical *and* incremental innovation opportunities.

Finding 3 also contributes to the literature in that it suggests a wider definition of radicalness in the search for innovation opportunities. The prior literature on search has often emphasised the property of "radicalness" by emphasising the magnitude of *technological* change (Ahuja and Katila, 2004; Laursen, 2012; Savino, Messeni Petruzzelli and Albino, 2015). Consequently, a majority of scholars suggest that slack leads more radical (often product) innovations (Bowen, 2002; Cyert and March, 1963; Greve, 2003a; Laursen, 2012), as an outcome of experimentation and discovery. However, this study suggests that radicalness in a multi-institutional context also refers to SOIs, whose magnitude of change is not solely associated with markets and industries, but also with wider institutional groups and their associated logics.

In addition, the findings show that the size of some slack investments was relatively small as *existing behaviours and technologies* had been reinforced by means of

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incremental process improvements. As a result, slack did not always lead to fundamental changes from existing practices; instead, discretionary resources were used to support a specific sustainability-oriented cause. For this reason, this study partially contradicts previous findings on radicalness, as it reveals that multiple institutional logics change the role of slack resources and the implications in terms of materialising radical innovation opportunities. *Local slack search* relates to discretionary slack contributions that generated opportunities for refinement within a discrete logic. On the other hand, *non-local slack search* used discretionary resources to engage in searches with multiple partners from different institutional settings. Both local and non-local searches can use slack resources with different implications for radicalness, as long as the search takes place across discrete institutional logic boundaries. Otherwise it permits refinement opportunities within discrete institutional settings.

6.1.3 Institutional pluralism and its impact of centrality and compatibility in local and non-local search types

Finding 3: *The compatibility and centrality of logic pattern impacts and mobilises variety creation*

Broadly speaking, this study illustrated the important role of a wider institutional context in local and non-local search (Gavetti, Levinthal and Ocasio, 2007). Central to this observation is that knowledge is created, transferred, and recombined at different rates and in different degrees (Kogut and Zander, 1992, 1996). More specifically, Kogut and Zander use the concept of speed and efficiency to explain the creation and transfer of knowledge within (and across) social communities such as firms (Kogut and Zander, 1992, 1996). However, while studies recognised the challenges of variety creation, the concept of knowledge rates was not explicitly discussed with reference to multiple institutional logic relationships (Laursen, 2012; Thornton, Ocasio and Lounsbury, 2012). Thus, the findings of this research contribute to the variety-creation discourse (Birkinshaw, Bessant and Delbridge., 2007; Laursen, 2012; Rosenkopf and Nerkar, 2001), as they demonstrate that logic relationships effect both the local *and* non-local search for SOI opportunities.

This focus on central and compatible logics in local and non-local search is novel, and no other studies have examined this relationship. Rather, past research has focused on

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the commercially oriented organisational search for *technological variety* and the implications regarding a firm's innovative performance (Laursen, 2012; Nohria and Gulati, 1996). Such works (Köhler, Sofka and Grimpe, 2012; Lavie, Stettner and Tushman, 2010; Sidhu, Commandeur and Volberda, 2007) do not discuss the role of multiple institutional logics and its impact on variety creation.

For these reasons, this study extends the literature, as it considered the roles of centrality and compatibility of the multiple institutional logics in the local and non-local search discourse. It therefore adds that institutional logics are boundaries that can be transcended in order to source (institutionally distinct) knowledge for innovation. In this regard, it builds on the prior discussed notions of technological and organisational boundaries (Rosenkopf and Nerkar, 2001), adding that multiple institutional actors hold technological, organisational, and societal know-how (Adams et al., 2016). This greater inclusivity and diversity of inputs from "unusual partners" that have traditionally not worked closely (Bessant, 2013; Seebode, Jeanrenaud and Bessant, 2012) can have conflicting or compatible effects (Besharov and Smith, 2014; Birkinshaw, Bessant and Delbridge., 2007; Hahn et al., 2015), or face no resistance to communication across knowledge boundaries (Carlile, 2002; Laursen, 2012). Therefore some partners are confronted with codified knowledge pools from which it is difficult to benefit (Fey and Birkinshaw, 2005; Kogut and Zander, 1992, 1996), whereas other partners can directly support each other in the search for SOI opportunities. The rate of exchange across logics differs from case to case and thus has an effect on both local and non-local search. Thus, the ability to identify innovation opportunities depends on the centrality and compatibility of logics (Besharov and Smith, 2014; Kogut and Zander, 1996). This work shows this more refined conception of variety creation and makes explicit that knowledge is embedded within or across different social norms and practices (Fiol, Pratt and O'Connor, 2009; Kogut and Zander, 1992, 1996; Lamont and Molnár, 2002).

Following these elaboration, the research also adds that *local search can also occur inside and across other institutional logic spheres*. Prior studies have treated *local search* as a technological phenomenon, emphasising the proximity of (technological) knowledge and a high path dependency on existing problems (Laursen, 2012; Rosenkopf and Nerkar, 2001). This study shows that local search can be embedded in

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different types of logics. Indeed, all local searches were *embedded within a dominant logic* that reinforced and extended an existing behaviour. In other words, local search in discrete logics involved a search for behavioural (in addition to technical) refinements within the core logic. This complements prior studies that argued that local search is about technological and commercially-oriented improvements based on prior knowledge (Fleming and Sorenson, 2004; Rosenkopf and Nerkar, 2001). From this follows that local search refines existing knowledge that supports technical and behavioural improvements in a discrete *dominant* institutional logic.

In the case of non-local search, the work also illustrates three *different variants of dominant, aligned, and estranged logics*.

Dominant non-local searches involve other institutional sources but focus on opportunities that meet the central aim of the dominant logic. Prior studies have illustrated this point, emphasising commercially oriented, "irresponsible" slack search (Levinthal and March, 1981, p.309) and commercial experiments (Laursen, 2012; Levinthal and March, 1981; March, 1991) that may have involved universities or other institutions (Hughes, 2012; Laursen and Salter, 2004; Perkmann and Walsh, 2007). However, a majority of scholarly works have been *commercially oriented* (Laursen, 2012; Laursen and Salter, 2006; Savino, Messeni Petruzzelli and Albino, 2015), with a limited focus on institutional pluralism as a variety-creating feature. For example, Laursen (2012) acknowledged that scientists and organisations, such as supplier firms, bring "different norms, habits, and rules, which require different organisational practices to make the search process successful" (Laursen, 2012, p.1182). However, these norms, habits, and rules were not further specified but were assumed to serve a commercial purpose. Other scholars have also made only limited references to the contributions of other discrete logics, concentrating on the commercial exploration of future business knowledge (Laursen, 2012; Levinthal and March, 1993; March, 1991). Clearly, this research classifies prior studies in search as embedded in a dominant logic and further provides evidence of *peripheral* logic contributions.

Aligned non-local search represents a second variant, focusing on opportunities that meet multiple aims of shared institutional logics. This approach has often been implied in the SOI literature (Elkington, 1997; Hahn et al., 2015; Klewitz and Hansen, 2014).

The central premise is that the search for social, environmental, and commercial innovations requires an alignment with wider societal expectations (Adams et al., 2016; Bessant, 2013; Seebode, Jeanrenaud and Bessant, 2012). Consistent with these contributions, the research shows that an aligned non-local search generates more sustainability-oriented innovation opportunities. The empirical analysis illustrates this by an increased range of realised product, process, business model and system-level opportunities, and the absolute number of realised opportunities, which were the highest when compared to other logic relationships.

Benefits were also clearly generated for a wide range of social groups represented by the different institutional logics. Consequently, aligned non-local searches considered partners' goals and facilitated collaborative learning. Moreover, the free exchange of knowledge across partners helped to concurrently achieve the objectives of multiple logics.

Estranged non-local searches also focus on opportunities connected to the primary goal of the dominant logic, but they are characterised by incompatibilities. Past studies have illustrated this fragmentation, with partners suggesting different strategies for addressing these institutional tensions (Hahn et al., 2015; Oliver, 1991). What this study adds is a search perspective that describes the potential difficulties to identify opportunities as a result of incompatible practices. The findings illustrated that less successful searches increased knowledge fragmentation, as partners struggled to overcome their differences. It thus follows that a successful non-local search *reduces knowledge fragmentation* by means of different paradox strategies that attend to competing demands simultaneously (Hahn et al., 2015; Lüscher and Lewis, 2008; Smith and Lewis, 2011). Indeed, the research adds that estranged non-local search implies a search for such strategies that bridge potential contradictions in a shared activity. The innovative outcome of these estranged logics operating together is the ability to navigate and sense make these tensions on an ongoing basis. Nevertheless, as the research shows, finding such strategies can be time-consuming and hamper the exchange between diverse non-local knowledge pools.

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There was no evidence for a *contested non-local search*. The reasons that this variant was not observed are worth discussing. Past studies have discussed examined contested logics as part of hybrid organisations (Battilana and Dorado, 2010; Haigh et al., 2015; Hockerts, 2015; Jay, 2013). In these studies, a dual purpose and its competing implications for practice were investigated. Often, these tensions were described as sources for innovation opportunities that resulted in new mission purposes and public-private service offerings (Jay, 2013). In this respect, hybrid organisations were innovative, with their innovations resulting from contested mission purposes that successfully avoided mission drift and reduced the gap between incompatible logics (Besharov and Smith, 2014; Jay, 2013; Kraatz and Block, 2008). As a result, contested logics promised a high innovation potential, due to their ability to bring together seemingly incompatible mission purposes.

The findings illustrate that *hybrid organisational forms* embody institutionally distinct organisations that bring together multiple logics in a voluntary context. This voluntariness fosters a search for aims that are shared across partners. Unlike other studies, this study did not observe any instances in which logics were forced into association (Pache and Santos, 2010). Rather, the findings demonstrated that voluntarily created hybrid organisational forms have an especially strong need for a shared vision to guarantee their stability. Other, more contested mission purposes are likely to result in mission drift or in the dissolution of the hybrid organisational form (Battilana and Dorado, 2010).

6.2 Creating sustainability-oriented innovation opportunities from institutional pluralism

6.2.1 Impact of logics on sustainability-oriented innovation opportunities

Finding 4: *Aligned logics have a positive impact on SOI opportunities.*

This finding contributes to the literature in that it suggests that some logics relationships are more favourable than others for generating SOI opportunities. As noted in section 6.1.2, aligned logics require the integration of multiple mission purposes, while at the same time permitting an effortless exchange of knowledge across institutional

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boundaries. This has notable implications for the potential combinatory permutations of logics and variety creation more generally.

The research on data recombination in organisational search processes stresses the importance of obtaining a variety of knowledge elements from different sources and proximities (Fleming, 2002; Laursen and Salter, 2006; Savino, Messeni Petruzzelli and Albino, 2015). As outlined in chapter 3, engaging external partners in the search for innovation may include low-tier suppliers, competitors, universities, or other engagements (Ahn et al., 2016; Laursen and Salter, 2004; Minshall et al., 2010; Perkmann and Walsh, 2007). However, this study stresses the utility of institutional boundary-spanning activities with unusual partners, such as governments, local communities, and NGOs. In this regard, it is in line with studies that call for more research on non-pecuniary open innovation (Adams et al., 2016; Bessant, 2013; Holmes and Smart, 2009; Seebode, Jeanrenaud and Bessant, 2012; West et al., 2014; West and Bogers, 2014), as the focus on different types of institutional logics permitted a thorough analysis of partners' discrete SOI motivations. Thus, this work moreover extends studies on organisational and technological exploration (Rosenkopf and Nerkar, 2001), and shows that high alignment between logics lead to higher levels of openness. Indeed, these calls have focused mostly on economic implications and thereby remained ambiguous with regard to the types of relationships that partners should establish in multi-institutional settings. Moreover, unusual partnerships weren't studied with regard to the challenges of collaboratively innovating for sustainability.

This study demonstrates that an *aligned approach* to SOI supports the stability and diversity of the logics in the particular hybrid organisational form, which the literature has treated as a voluntary coalition of unusual partners. In terms of diversity, Jay (2013) has suggested that innovations did not always result from combinations of multiple logics – instead, some initiatives failed because partners got stuck with competing demands, while others succeeded, because there were linguistic hooks that enabled higher levels of alignment across multiple partners (Jay, 2013). Owing to these tensions, the diversity of proposals sometimes made it difficult to identify a shared opportunity. This study also builds on that finding, indicating that aligned mission purposes make SOI opportunities more likely. The reason for this increased likelihood is the access to

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diverse pools of knowledge across logics. Each logic therefore contains know-how that, when combined in alignment, increases both the range of opportunities. Indeed, the findings illustrated that aligned approaches delivered more opportunities for innovation. Aligned logics concerning sustainability-oriented innovation show an enhanced potential and capacity for it to be realised for sustainable value creation.

6.2.2 Type and scope of sustainability-oriented innovation opportunities

Finding 5: *A higher number of logics was associated with the increased scope of SOI opportunity.*

This finding suggests that a greater overall number (and range) of product, process, business model and system-level innovation opportunities emerged from corporate interactions with a greater number of logics. More specifically, the integration of partners with distinct institutional logics (e.g., government or civil society actors) made a wider scope of opportunities more likely. Past studies have not addressed a limited scope (or range) of sustainable products (Hansen, Grosse-Dunker and Reichwald, 2009), business models (Boons et al., 2013), and "system-level" innovations (Gaziulusoy, Boyle and McDowall, 2013; van Mierlo and Leeuwis, 2010) for markets and society at large.

This study extends the existing literature by offering a more refined description of embedded institutional environments and the opportunity scopes resulting from them. Thus far, institutional embeddedness has not been considered, with studies in this area restricted to commercially oriented firms, market, and industry contexts (Crossan and Apaydin, 2010; Fleming, 2002; Laursen, 2012). While this focus has led to insights regarding products, processes, and business models, the wider implications for society have been overlooked (Gavetti, Levinthal and Ocasio, 2007). This study illustrated that institutional embeddedness includes the social behavioural norms of different groups with distinct bodies of knowledge and experience. Thus, integrating these norms increases the scope for opportunities within a hybrid organisational form, because the product, process, business-model, and system-level outcomes depend on this amalgamation.

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Of special interest is the finding that the presence of three or more logics generated system-level opportunities. This finding is in line with studies that have stressed the criticality of considering multiple stakeholder interests across wider societal contexts (Adams et al., 2016; Hahn et al., 2015; Halme and Laurila, 2009; Klewitz and Hansen, 2014). An increasing number of logics strengthens the capacity to meet a range of stakeholder demands, permitting searches *within and across* a wider range of institutionally diverse contexts. Potential opportunities for meeting the goals of all embedded logics result from this increased variety. Therefore, depending on the number of logics, partners may be able to vary their societal and environmental impact.

6.3 Contributions to theory

The previous sections have linked this paper's contributions to the literature. This section summarises these contributions and illustrates their theoretical value.

Generally speaking, this work has addressed calls on embedding search in wider institutional contexts (Gavetti, Levinthal and Ocasio, 2007). In doing so, this diversity was studied as a source for variety creation (Laursen, 2012).From this follows that this dissertation is a contribution to the organisational search, and particularly the variety creation literature as described by Laursen (2012). Indeed, this study led to three key theoretical contributions:

- *Institutional pluralism impacts variety creation for SOI*
- *Alternative search variants exist between search triggers and types*
- *Exchange of knowledge across logics differs. Increasing institutional embeddedness increases the scope for SOI opportunities*

Institutional pluralism impacts variety creation for SOI. This study provided the basis for novel insights on the role of institutional pluralism and variety creation for sustainability-oriented innovation. In doing so, it is the first to collectively discuss *the integration of the search, institutional logics, and SOI literature streams.* In this regard, it follows calls to embed search in a wider institutional context (Gavetti, Levinthal and Ocasio, 2007) and to examine the search for sustainable opportunities with "unusual" partners (Holmes and Smart, 2009; Laursen and Salter, 2006; Seebode, Jeanrenaud and Bessant, 2012). Moreover, it uses hybrid organisational forms as empirical sites for

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studying innovation opportunities with multiple mission objectives as witnessed in sustainability-oriented businesses (Adams et al., 2016). Clearly, this contribution to the organisational search literature (Laursen, 2012) provides both a useful empirical approach and theoretical locus to explore institutional pluralism and variety creation in both pecuniary and non-pecuniary innovation contexts. As a result, this study is seminal in that it paves the ground for further studies concerning sustainability-oriented innovation opportunities in hybrid organisational forms.

Alternative search variants exist between search triggers and types. *The identification of local and non-local slack search variants* constitutes another contribution to the variety-creation discourse (Laursen 2012). Prior studies have linked slack with non-local, commercially oriented search (Greve, 2003a; Laursen, 2012) as well as pecuniary innovation settings (West et al., 2014). This research, however, studied non-pecuniary innovation opportunities and indicated that discretionary slack played an important role in institutionally embedded local and non-local search, with implications for the radicalness of innovation outcomes. Discretionary resources are used to support *both local and non-local search* in either commercial or non-commercial discrete logics, and they also furthered the collaborative exploration of sustainability-oriented opportunities. This study thus redefined the role of slack particularly in sustainability-oriented innovation contexts, as it illustrated that local and non-local slack search can potentially deliver both radical and incremental opportunities in non-commercial settings.

Exchange of knowledge across logics differs. Increasing institutional embeddedness increases the scope for SOI opportunities. This research demonstrates that depending on the number of logics and their relationships (Besharov and Smith, 2014; Laursen, 2012), institutional pluralism can be a source of variety. Indeed, institutional pluralism is able to mobilise discretionary resources and knowledge for both local and non-local search in two ways. First, i*nsights about the role of logic relationships* also add to understandings of variety creation (Kogut and Zander, 1996; Laursen, 2012). This study demonstrates that the exchange of know-how across a diverse set of values, norms and missions differs based on the proximity or knowledge and the centrality and compatibility of logics. In addition, the number of logics in hybrid organisational forms increases the institutional embeddedness, thereby increasing the partnerships' potential

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for SOI opportunities and the ability to source innovation opportunities from both pecuniary and non-pecuniary sources (West et al., 2014; West and Bogers, 2014).

6.4 Contributions to practice

The theoretical insights also had practical implications regarding organisations' ability to appraise CSR-related activities, so as to identify sustainability-oriented opportunities. It offers four contributions in that regard:

- *Hybrid organisational forms are vehicles for realising SOI opportunities*
- *Slack is crucial for exploring (and exploiting) SOI opportunities*
- *The relationship across logics is an important attribute in the delivery of SOI opportunities*
- *The number of logics ensures a wide integration of multiple stakeholder demands*

Hybrid organisational are vehicles for realising SOI opportunities. This study demonstrates that informal partnerships with trade associations, government institutions, as well as non-profit organisations and civil society stakeholders can deliver sustainable ideas opportunities. Following this outcome, this study encourages organisations to engage more in such partnerships that operate at the business-society interface with multiple objectives. These hybrid engagements are not only innovation sites but also ensure that a diversity of stakeholder groups develops ideas and opportunities around sustainability-related topics. Clearly, this study shows that such an approach can be successful. From this follows that this study encourages firms to strategically manage CSR-related projects as a way to generate sustainable impact across multiple hybrid organisational forms.

Slack is crucial for exploring (and exploiting) SOI opportunities. This practical contribution is important for organisations as it places the search for sustainable opportunities in a wider R&D context. More specifically, the study showed that slack investments were an important antecedent and also diverse with regard to the discretionary slack types. In other words, slack can originate from corporate funding used to identify sustainable opportunities, but also by means of more philanthropic engagements that do not necessarily require discretionary financial contributions.

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Knowing about these possibilities permits organisations to better understand and manage the resources that trigger the search for sustainable opportunities. The study's findings on slack moreover place additional sources of funding into a wider R&D context, which encourages corporate experimentation with sustainable value creation.

The relationship across logics is an important attribute in the delivery of SOI opportunities. The practical contribution of this study is that it provides a language that helps organisations *understand the relationships across different partners' mission objectives and logics*. Indeed, this study illustrates the benefits of aligning mission purposes of multiple logics between partners, but also shows that incompatible practices and mission aims can delay the identification of sustainability-oriented ideas and opportunities. In doing so, it provides a better understanding of organisations' explorative activities across institutionally diverse partners as these describes a continuous effort to integrate knowledge from a diversity of knowledge pools. This insight on logic relationships is valuable as this permits a a more explicit analysis of why some engagements are more or less successful in their exchange of knowledge.

The number of logics ensures a wide integration of multiple stakeholder demands. This practical contribution is valuable for appraising the *strategic possibilities of CSR and their ability to generate sustainable impact.* More specifically, *accessing and distributing knowledge across* multiple "unusual" partners ensures that stakeholders can support (or be supported) by other actors engaging in a shared mission objective that spans institutional boundaries. Clearly, engaging a mix of civil society, government or business representatives increases the likelihood that interests across stakeholders can be met at multiple levels – product, process, business model and system - through shared ideas and opportunities that support that particular cause. Organisations are encouraged to foster more "unusual" engagements as a way to meet stakeholder demands through innovation and opportunity.

6.5 Summary

This chapter has discussed the study's main findings and key contributions to the literature. The final chapter examines its limitations, as well as possibilities for further research.

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7 Conclusions and reflections

This chapter concludes this thesis, discusses the limitations of the research, as well as opportunities for further study. Finally, it closes with some personal reflections on pursuing doctoral studies.

7.1 Context summary

Organisational search is an important activity for driving the discovery of innovative ideas and opportunities (Cyert and March, 1963; Levinthal and March, 1981; March and Simon, 1958), and includes the commercial exploration and exploitation of ideas (Laursen, 2012; Laursen and Salter, 2006; March, 1991). However, past studies have primarily focused on opportunities with commercial potential (Laursen and Salter, 2006; Levinthal and March, 1981), as opposed to examining those with a wider environmental and social impact. Only recently has the academic community begun to consider organisational search for novel market offerings in the context of open innovation with not-for-profit sectors (Holmes and Smart, 2009). This work discusses innovation in a multi-institutional context and thus has identified an area of research that needs more research on the differences relating to non-pecuniary and commercially-oriented searches (West et al., 2014; West and Bogers, 2014). Open innovation approaches seek to engage a wider set of stakeholder groupings with a view to increase levels of creativity and thereby a broader variation in knowledge inputs (Laursen and Salter, 2004, 2006; Perkmann and Walsh, 2007). Such works proffer the merits of boundary-spanning behaviours but are limited to transcending disciplinary, departmental, organisational and sectoral boundaries. More specifically, no previous studies on how to create variety have considered the impact of transcending institutional boundaries and multiple institutional logics with their potentially divergent objectives. This study has addressed this knowledge gap and proposed embedding (knowledge) variety creation in a hybrid organisational form comprising a multiplicity of institutional logics.

Hybrid organisational forms "draw on at least two different sectoral paradigms, logics and value systems" (Doherty, Haugh and Lyon, 2014, p.2). They introduce logics and values through engagements between a company and other businesses, governments,

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local communities, and professional organisations (Greenwood et al., 2011; Thornton, Ocasio and Lounsbury, 2012). The distinct institutional logic objectives within hybrid organisational forms generate a capacity to meet multiple aims. Indeed, this capability is relevant to the discourse on sustainability-oriented innovations (SOI), as hybrid organisational forms can play a key role in creating social, environmental, and economic opportunities (Adams et al., 2016; Doherty, Haugh and Lyon, 2014; Haigh et al., 2015; Haigh and Hoffman, 2012).

Previous studies, however, have barely addressed hybrid organisational forms and their embedded institutional logics in the context of variety creation (Gavetti, Levinthal and Ocasio, 2007). Indeed, only one previous study has illustrated corporate search efforts with not-for-profits to generate knowledge variety as an input to future sources of innovation (Holmes and Smart, 2009). Yet, this study has not uncovered new understandings concerning the types of search and multiplicity of distinct institutional logics and their relationships; and implications for variety creation in the organisational search literature. This lack of emphasis on wider institutional phenomena in search processes has also been noted elsewhere (Gavetti, Levinthal and Ocasio, 2007) and stresses that the variety creation discourse is currently limited both in the literature on search and sustainability-oriented innovation (Adams et al., 2016; Laursen, 2012). Consequently, questions remain regarding variety creation, engendered by spanning institutional boundaries, in organisational search. Further, research into the role and impact of institutional pluralism in organisational search for SOIs was therefore considered warranted. The setting for this study was the hybrid organisational form, encapsulating a multiplicity of institutional logics, to serve innovation outcomes that meet economic, environmental and social goals.

The focus of this study was on exploring the impact of institutional pluralism on the organisational search for SOI opportunities. It addressed this phenomenon of interest in three stages. Firstly, this thesis introduced and secondly conceptualised hybrid organisational forms as a context for variety creation in organisational search for innovation. Finally, it discussed the important role of search triggers and types to uncover new variants that have provided contributions relevant to the organisational search literature.

7.2 Summary of the approach

This study adopted an exploratory, embedded case-study design (Yin, 2009), analysing 10 hybrid organisational forms in an automotive organisation. The central goal was to compare institutionally diverse engagements, examining their differences with regards to the resources invested, the types of searches conducted, the logic relationships present, and the types and range of opportunities. Qualitative data was gathered via 33 semi-structured interviews, which was supplemented by privately and publicly available sources. This data concerned relevant project engagements, painting an in-depth picture of 13 projects embedded in 10 hybrid organisational forms.

The resulting data was analysed via a grounded coding frame based on concepts found in the literature (Glaser and Strauss, 1967) and an examination of critical incidents (Chell, 2004; Flanagan, 1954). This process included a thorough investigation of the data, focusing on both sequences of events and the innovation opportunities that emerged from the incidents. Moreover, it was necessary to identify a coding frame that captured relevant portions of data. The patterns that ultimately emerged from the data involved a range of sub-constructs linked to the themes of search, institutional pluralism, and SOI opportunities. This approach enabled the discovery of patterns across the hybrid organisational forms

7.3 Summary of the findings

The findings offered evidence that suggests the presence of multiple institutional logics has an impact on organisational search and SOI opportunities. In particular, the study yielded five key insights: (i) the association of slack with the presence of two or more institutional logics (ii) the ability of logics compatibility and centrality to impact and mobilise variety creation ; (iii) the discovery that slack leads to local and non-local search variants; (iv) the positive impact of aligned logic relationships on SOI opportunities; and (v) the observation that a higher the number of logics increases the scope of opportunities.

Overall, the findings revealed that discretionary slack investments were antecedents for the local and non-local search for SOI opportunities. Such search is institutionally embedded, and so the multiplicity of logics and their relationships effected search

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outcomes, both realised and potential. Thus, this study found that institutional pluralism is a mechanism for variety creation in the organisational search for SOI opportunities. Moreover, the alignment (aligned logics) of multiple norms across multiple logic boundaries increased the range and number of realised and potential opportunities identified.

7.4 Theoretical contributions

Organisational search drives the discovery of innovative ideas (Cyert and March, 1963; Levinthal and March, 1981; March and Simon, 1958), and leads to market exploration and exploitation opportunities (Laursen, 2012; Laursen and Salter, 2006; March, 1991). Previous research has largely been concerned with the commercial potential of such opportunities (Laursen and Salter, 2006; Levinthal and March, 1981), as opposed to examining their broader environmental and social impact. In more recent times, the organisational search for novel market offerings with not-for-profit sectors has begun to call for further contributions on non-pecuniary open innovation (Holmes and Smart, 2009; West et al., 2014; West and Bogers, 2014). In addition, scholars also proposed investigating the role of search in an institutionally embedded setting (Gavetti, Levinthal and Ocasio, 2007), additional research on variety creation in search (Laursen, 2012), as well as more empirical research on SOI in general (Adams et al., 2016; Klewitz and Hansen, 2014; Seebode, Jeanrenaud and Bessant, 2012). These calls have led to a focus on organisational search, particularly the engagement of a wider set of stakeholder groupings in hybrid organisational forms, because previous studies on variety creation in organisational search have not considered the impact of transcending institutional boundaries and multiple institutional orders/logics with their potentially divergent missions and goals.

This study proposes embedding (knowledge) variety creation in a hybrid organisational form comprising a multiplicity of institutional logics, thereby contributing to the literature on organisational search, and particularly variety creation (Laursen, 2012), in the field of innovation management. More specifically, this study proposes that institutional pluralism is a further mechanism for variety creation. In doing so, three key contributions are made:

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- *Institutional pluralism impacts variety creation for SOI*

- *Alternative search variants exist between search triggers and types*

- *Exchange of knowledge across logics differs. Increasing institutional embeddedness increases the scope for SOI opportunities.*

Section 6.4 described these three contributions in more detail and demonstrated the relevance of innovative engagements with "unusual" partners in non-pecuniary open innovation settings (Holmes and Smart, 2009; Laursen and Salter, 2006; Seebode, Jeanrenaud and Bessant, 2012; West et al., 2014; West and Bogers, 2014). Clearly, this study positioned sustainability-oriented businesses as aspiring to meet sustainability-related objectives and simultaneously embed organisations in a wider institutional context, and particularly hybrid organisational forms (Gavetti, Levinthal and Ocasio, 2007). This study therefore makes an important overall theoretical contribution for the variety creation discourse as it considers unusual partners' institutional logics as wider non-pecuniary sources for variety creation.

7.5 Practical contributions

This study also made practical contributions, offering four options that organisations can use to evaluate their CSR activities aimed at variety creation. These included the exploration of SOI activities, the relationships among different partner's logics, and the different options regarding slack funding and search. The following four recommendations followed from these insights:

1. *Consider hybrid organisational forms as a vehicle for realising SOI opportunities*. Organisations conduct CSR-related activities, but may be faced with the challenge of appraising the impact of their undertakings. This study helps organisations understand that these undertaken activities can be understood as hybrid organisational arrangements that support cross-institutional functions for a diversity of stakeholders. Understanding this permits firms to influence and direct activities more specifically for the purposes of sustainable value creation, thereby ensuring that organisations generate wider impact in their search for opportunities in wider institutional contexts.

2. *Consider slack as crucial for exploring (and exploiting) SOI opportunities.* Organisations performance measures are often supportive of financial

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performance metrics and measurements of revenues and costs. A sustainability-oriented innovation approach requires a wider integration of resource, including time, resources, and access to discrete stakeholder contexts. This study offers an approach to include such investments in the performance measurement of sustainability-oriented organisations. Indeed, slack investments are important for SOI as it offers opportunities for collaborative local and non-local search across government, business and civil society sectors.

3. *Consider the relationships between logics.* So far, business makers have struggled to identify the underlying value barriers and enablers to sustainability-oriented innovation. This study uncovers those barriers through considering the relationship across multiple institutional logics. In addition, it proposes that an alignment of shared mission purposes makes SOI opportunities more likely. Companies can therefore use these results to understand the challenges of creating sustainable value by considering logic relationships in the transfer of cross-institutional logics.

4. *Consider the number of logics involved.* So far, businesses had a limited understanding on the effectiveness of engaging with multiple sectors and the opportunities generated. This study shows that sustainability-oriented innovation opportunities will likely emerge when involving a more diverse range of partners. This is an important practical contribution as it encourages firms to foster more engagements with unusual partners for the purposes of sustainability-oriented innovation.

7.6 Limitations

This study also faced a number of limitations. A general limitation concerned the issue of *author bias,* and this factor had an effect on the entire research process. In short, the selection of relevant research streams, methodologies, findings, and interpretations cannot be entirely separated from the author's perceptions of the phenomenon of interest. As a consequence, the decisions made during all phases of the project introduced this bias. For this reason, it was important to continuously re-evaluate the research process, as well as to challenge and amend pre-existing assumptions and expectations. However, completely eliminating this author bias remained a challenge.

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Moreover, it was difficult to access multinational organisations searching for SOI opportunities with so-called unusual partners. At the beginning of this study, the author expected to be able to access more companies, and other multinational firms were indeed contacted via the Cranfield corporate network, personal contacts, and direct inquiries. However, this process was more difficult than anticipated, with firms failing to respond to repeated requests. Moreover, the structured approach to case selection, when combined with these access-related limitations, resulted in only a few candidate organisations. While this approach ensured that the selected company was a representative case in terms of SOI activities, it also made it difficult to find another sustainability-oriented organisation, which would have allowed for a comparison of data. Nevertheless, AUTO did meet the study's inclusion criteria, suggesting that the findings may also apply to other similar organisations.

Another limitation is that past behaviour was studied as a predictor of future behaviour. This implies an information and positivity bias, because interviewees reported on successful past events rather than on unsuccessful ones. In short, the interviewees provided *partial information,* in the sense that their responses were skewed towards successful incidents. Indeed, the interviewees were not willing or able to share their failures, which led to two countermeasures. First, the author encouraged conversations about projects that had failed or faced conflicts between partners. Second, publically available information was integrated into the analysis to ensure that all relevant incidents were captured. Both measures ensured that the data was complete and provided a wider picture of potentially conflicting incidents. For example, the interviewees describing the car-sharing initiative were reluctant to share the challenges they faced in dealing with French city administrators. However, the author found a newspaper article about this project that reported on the estrangement between the new elected mayor and AUTO. Consequently, this strategy minimised the potential for skewed information.

In addition, *fewer interviews* than originally anticipated were conducted with AUTO employees. To the author's surprise, the interviewees were unexpectedly reluctant to suggest interview partners and share resources during the data collection phase. This made it very difficult to access relevant stakeholders across the organisation. A possible

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reason may be AUTO's organisational culture. All of the interviewees made clear that they were not willing or able to provide access to other members of the organisation. As a result, fewer interviews took place than had been initially expected, as the interviewees claimed that additional conversations would have led to redundant narratives. As a countermeasure, the author conducted research on potential contacts and then presented specific names to the interviewees, and this approach helped increase the number of interviews. Qualitative interview data was supplemented and triangulated with other privately and publically available data.

Another limitation linked to the number of interviews concerned the theoretical saturation of the data. One could argue that the limited number of interviews meant that the data did not generate a complete picture of the phenomenon of interest. However, after transcribing more than 300 pages of data, it became clear that the herein introduced concepts of local and non-local slack search reappeared throughout the interviews, as did notions of centrality and compatibility. In addition, it was also helpful to estimate whether examining more of the identified 53 projects would have yielded further insight. A short analysis of all 53 projects revealed that further examination of them would simply support and reaffirm the five patterns identified from the 10 case narratives. It would have been interesting to examine all 53 cases in detail, creating a more accurate picture of sustainability-oriented activities. Yet, while this data was not included in the analysis, this recurrence of key themes signalled theoretical saturation and also indicated the data's reliability. Therefore, the empirical findings were robust and able to support theory development.

It should also be noted that that data was cross-triangulated with publically available information. In other words, publically available information from the Internet was compared with the interview transcripts and integrated into the analysis as needed. In addition, final conversations with the main contact person served to validate the study' key claims. This final check provided further support for the study's conclusions and ensured that the reduced sample had not affected the quality of the outputs.

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7.7 Dissemination and further research

While this study faced a number of limitations, it nevertheless makes significant contributions to the search literature. Given the diversity of the findings, there are plans to share the outcomes of this thesis.

This study also proposes a number of future research opportunities. For example, this study should be repeated by other scholars within another sustainability-oriented organisation to reinforce its cross-case applicability. This research should take the form of a qualitative and exploratory case study drawing on a range of primary and secondary sources. An alternative approach would be a case study addressing variety creation in more depth within *one or more* hybrid organisational forms. In particular, more closely examining the *rates of generated and exchanged knowledge across* dominant, aligned, estranged, and contested logics would be of interest. Time and resources permitting, such a study could also be longitudinal, addressing temporal events reflecting variety creation across different logics.

Further research could also explore search triggers and types, investigating, for example, various problemistic local and non-local search variants. For instance, in some cases, institutionally diverse peripheral partners might provide discretionary resources to a dominant logic. Such an analysis would complement current understandings of slack search variants, shedding light on common search triggers in multi-institutional contexts.

Another future research direction would be to explore the effects of different types of financial, employee, and resource investments on the search for SOI opportunities. More specifically, Levinthal and March's model of adaptive organisational search could be investigated in regard to how slack and problemistic search is instigated and distributed across multiple logics. Such a study could generate a model describing the concept of *hybrid* organisational adaptation in more detail.

Further research opportunities also exist with regard to inflection points for local and non-local search across partners in hybrid organisational forms. This study did not take into account the fact that hybrid organisational forms can contain multiple partnerships and potentially ambidextrous search relationships. However, hybrid organisational

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forms can theoretically search for refinements and innovations at the same time. It would be interesting to investigate ambidexterity in the context of a hybrid organisational form.

Future studies could also test discrete logic types and their implications for (radical) SOI opportunities. For example, do specific logic types increase the likelihood of radical innovation opportunities? In this study, the sample did not contain any logics related to religion or family. Researchers could examine whether these two logics have any relevance when it comes to the generation of SOI opportunities.

Further study on hybrid organisational forms as vehicles for SOIs is also needed. Therefore, future research could compare hybrid organisations and hybrid organisational forms, focusing on the implications for variety creation.

7.8 Reflections

7.8.1 Observations on the research process

This doctoral thesis is the outcome of a long learning journey, and this section reflects on the research process, and especially on the challenges that arose.

In the beginning, the sheer range of research opportunities overwhelmed me, as I had explored numerous sustainability-related topics in detail. At the same time, I wanted to make rapid progress in my work, and so I hoped to speed the PhD process. However, over the past five years, I learned that speeding up learning processes is difficult, if not impossible. Rather, such processes take time and require significant reflection time.

The research process taught me a number of lessons, and these were related to confidence, clarity, and scope.

Confidence was an important theme, because I initially did not believe in my own ideas. I felt as if I did not know enough about the three literature fields informing my study. I had to read extensively to reduce this lack of confidence. Over time, I learned that a thorough knowledge of the concepts under investigation afforded me self-assurance, and so my doubts shrank considerably.

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I also observed that my lack of confidence affected my behaviour in interactions with others. For example, I did not always ask more experienced scholars for help, and I did not proactively promote my ideas to a wider audience as much as I could have. In fact, I invested most of my time in conducting a deeper analysis and integrating the different strands of the literature. Thus, my confidence-building efforts were very much focused on sharpening my ideas in written form. This dissertation hopefully reflects this development, and it is my belief that the research process has made me a more confident person.

Clarity was also a key challenge. In fact, I discovered that I have a tendency to quickly jump to conclusions. This discovery was illuminating, but it also meant I had to learn to step aside and consider the reader's position during the writing process. Viewing the paper from this perspective made my ideas clearer, even if it took a considerable amount of time.

Scope also presented a challenge, as I had to position different literature domains and terminologies. I initially failed in this regard, as I struggled to bring together the theoretical underpinnings of each research area. I ended up reading articles and books on numerous issues related to organisational sociology, search, and SOI and eventually found potential overlaps between them. However, this process took a long time, as I needed to gain an understanding of highly diverse and complex literature domains. Then, as a second step, I had to narrow my PhD research question, making it more specific. This process was sometimes challenging, because the different bodies of literature used very different terminologies and featured unique theoretical underpinnings. I hope that this dissertation reflects my work to create a unified and unambiguous terminology.

I now turn to my personal reflections on my academic journey.

7.8.2 Personal observations

This section contains my personal reflections on the past four years as a PhD student. Deliberating on my experience was important for me—as it might be for readers as well—as it revealed the ways in which I have grown on both a personal and a professional level.

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Before I began this PhD research process, I did not think of myself a skilled learner or scholar at all. In practical terms, I was not overly fond of books, and I was disinterested in theoretical considerations. These preferences were the result of my lack of focus in my younger years. In fact, teachers suspected that I had attention deficit hyperactivity disorder, which turned out to be untrue. However, it led some teachers to believe that I was an impeded learner and a "waffler" who needed special treatment. For many years, I carried the belief that I was not capable of succeeding academically or clarifying my thoughts in a coherent manner.

After school, I therefore actively avoided academic institutions and instead became an entrepreneur. This route was also challenging, and so I switched courses after some time. However, this experience led me to believe that I was capable of *running things.* Thus, even though I did not see myself as well-suited for learning, I decided to follow my intuition and enrol in a university course. I believed that I could at least manage that task. As a result, I treated this new environment like a continuous self-improvement project up until my master's course in sustainable manufacturing at Cranfield University. That experience demonstrated that I was willing to work to steadily improve my grades. When I began my higher education, my grades were rather low. However, by the end of my Master's program, I had achieved a first class degree and an offer to start a PhD programme. Perhaps I was not a slow learner, after all.

Indeed, I saw this PhD program as an opportunity to leave aside my assumptions. I thus accepted the chance to work with PhD students from Cambridge, Loughborough, and Imperial via fully paid EPSRC scholarship at the Centre for Industrial Sustainability. Moreover, my sincere interest in sustainability and my desire to learn more about that topic prompted me to finally embark on my PhD journey in 2012. Thus, I accepted the challenge of sharpening my ability to express my ideas. I always knew that improving my oral and written communication skills would mean a lot of hard work.

It took me a long time to be able to *express my ideas clearly* in written form. First, I had to learn to simplify my sentences, explain my hypotheses, and systematically justify my arguments. However, I eventually realised that I had enough experience to overcome these challenges. It took me three-and-a-half years to discover the roots of the problem: I was using long-winded sentences, avoiding examples, and overusing passive sentence

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constructions. On the basis of this insight, I changed my writing and speaking habits. As a result, I improved the clarity of my writing, as I was suddenly able to convey my ideas more clearly to others. Evidently, these changes had been successful.

For me, this PhD program has been a tough but rewarding journey. It has freed me from my pre-existing assumptions and equipped me with a broad set of analytical and communication skills. I can now say with certainty that I am neither a slow learner and nor incapable of expressing my ideas.

Thank you to all those involved for this truly transformative experience.

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9 Appendices

Appendix A Interview protocols

A.1 Pilot interview protocol

Interview protocol:

presented after initial contact regarding the research project has been made and once a potential collaboration has been identified for further exploration

Establish rapport:

Researcher introduction, description of the research project, and clarifying confidentiality and anonymity of the study.

What is observed		Research questions	Interview questions
Contextual conditions explores the firms understanding of innovation and its intent in the context of sustainability, general approach to the involvement of non-profit partners in the search for innovations, purpose and goals of a specific collaboration and its search aspirations	**Institutional logic –** explores the logic/rationale and underpinning values driving action	What moderating contextual conditions impact these relationships?	1. **In your own words please describe the mission of your firm and the collaborative engagement?** 2. **In your own words please describe the rationale behind your firm's collaborative engagement with the NGO/NPO and in a general sense?** 3. **Please do go one to explain this rationale more specifically in the context of searching for innovation opportunities?** 4. **In your view, what mission is the NGO/NPO setting out to achieve in the collaboration?** 5. **How do you reflect on the different missions and goals, i.e. in terms of their compatibility?**
	Search features – explores the broad and narrow nature of the search process		6. **Can you tell me more about what the search activities entail, i.e. searching in terms of new or familiar territories?**

Paradoxical tensions – explores the critical incidents (tensions)	What are the tensions experienced by corporates in their collaborations with NGOs/NPOs in search of sustainability-oriented innovations?	**7. In your words, can you describe an incident during the early stages of the collaboration where your aspirations/ goals appeared to be quite distinct?** *Additional probing questions:* • How critical was this incident to the aims of the collaboration? • What were the goals/aspirations of the two organisations? • Why do you think they were different? How different? • Did they seem incompatible? Why? • Was this incident unexpected (a surprise)? • What were the effects/implications of this situation and how you managed the collaboration? What changed?
Reconciliation – explores the reconciliation strategies	What reconciliation strategies are deployed to address them?	**8. As a result of the incompatibility you discuss, please explain what attempts were made to help address the situation (i.e. the conflicting incident)?** *Additional probing questions:* • What were the resolving activities? • What did the activity involve? • Was this an effective course of action? Why? Who was involved? • What would have not been helpful in resolving the incident? • On reflection, what else might have been done to resolve the situation?

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Search outcomes – explores the search outcomes	What are the relationships (or patterns) between tensions and reconciliations strategies?	**9. What were the consequences that resulted from this particular incompatibility/ conflicting issue, either for your organisation or the collaborating NGO/NPO?** *Additional probing questions:* • Was there a reoccurrence of conflicting incidents? • Did the goals/aspirations seem more aligned following resolution? In your own words please explain how? **10. How did your working collaboration and/or the project change as a result?** *Additional probing questions:* • Did goals/missions change? • Did you feel you were able to meet environmental, economic and social aims (each other's separate or joint goals)?
	What learning about 'searching collaboratively' has taken place?	**Would you change any aspects of how you collaborate with NGOs/NPOs in the future?** **11. What is your main personal learning in working with NPO/NGO sectors for the purpose of innovation?** **12. Reflecting on your experience – how might you summarise the main challenges?**

A.2 Second interview protocol

Stefan Hemel, Doctoral Researcher, Cranfield University

PhD area of interest:

I am keen to generate better understating about corporations working in collaboration with non-profits organisations to pursue sustainability-oriented innovations.

I am very interested to learn about your experiences of collaborative projects with non-profits sector/organisations NPOs that support innovation at [your company] Please feel free to answer the questions in your own words, and elaborate using specific examples/stories wherever possible. Please do also bring any relevant corporate reports/documentation that might be a useful aid in providing explanations.

Interview questions:

1. In your own words please describe the purpose of any collaborative engagement with NPO (or NGO) that you have been involved in?

2. What kinds of outcomes does your company expect from such arrangements?

3. Please explain their relationship to innovation (in broad or specific terms) at your company.

4. What similar or dissimilar organisational practices and goals did you or your company encounter when working with NPO (or NGOs)

5. Were there specific behaviours and attitudes that were particularly important to you and your engagement?

6. How did you/your company respond to these differences/similarities - what worked well and what didn't?

7. What outcomes resulted from this particular challenge, either for your organisation or the collaborating NPO (or NGO)?

8. Reflecting on your experience of such collaborations – how might you summarise the main challenges in working with NPO (or NGO) sectors for the purpose of innovation?

I will be keen to ensure my notes are a true representation so I would be extremely grateful if I could contact you should I have any need to clarify details.

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A.3 Final interview protocol after refinements

Interview protocol

I am keen to deepen my understanding of how variety (induced by different institutional actors i.e. corporate and non-profits) in the search for sustainability-oriented innovations impact the range of opportunities identified.

I will send an accompanying letter that clearly makes reference to the SOI projects selected inquiry, confidentiality, anonymity use of tape recorder and bringing any relevant corporate reports/documentation that might be a useful aid in providing explanations.

No.	Interview Questions and Probes	Identify
1	**In your own words please describe the project?** – It's purpose? – What was the project for?	• Search aspiration
2	**What is this project addressing a current or future business need?** – In your own words can you describe this need/potential market? – How was this project resourced (financially)?	• Search trigger (Problematic/slack)
3	**Which organisations/ (How many NPOs/NGO) were involved?** – What were their business/social aims? – What were their various roles/contributions in the collaboration?	• Search type (local/non-local) • No. of institutional logics • Mission orientation (e.g. purpose driven)
4	**In your own words can you describe the frequency and intensity of the partners' interactions during the course of the project?** – How often did you consult each other/meet/co-locate?	• Search intensity
5	**Given the different organisations and types were there specific perspectives that appeared novel to you?** – Can you give me an example to explain? – Can you describe how they assisted/hindered your project?	• Framing/reframing incidences
6	**How were they similar or dissimilar from your own established norms and practices?** – Can you describe how differences/similarities assisted/hindered you/project? – Can you give me an example to explain? – Were they a common occurrence? – How did this impact you/project outcomes?	• Tensions (between logics) • Types of tensions
7	**How did you and the team respond to the different perspectives?** – What worked well and what didn't?	• Reconciliations (between logics)
8	**How would you describe the outcomes of this project?** – For your organisation or the collaborating NPO (or NGO)? – Do you think the project achieved its aims?	• Range of innovation opportunities, i.e. product, process, reposition, business model)
9	**On reflection how might you summarise the main benefits and challenges in working with NPO/NGO in the search for innovation opportunities?**	• Benefits/Challenges
10	**On reflection how might you do things different in such future collaborations?**	• Learning

I will be keen to ensure my notes are a true representation so I would be extremely grateful if I could contact you should I have any need to clarify details.

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Appendix B – Project list development

Note: Highlighted projects have been selected for further analysis.

#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
1	**Car-sharing vehicle-testing**	French city administration, industrial partners	Test car-sharing technology and business model	Explore future sustainable business model	Medium	Presentation	Web material, promotional video	High	Yes
2	**Car-sharing commercial experiment**	Italian city administration, community enterprises, mobility sector businesses	Test car-sharing business model	Explore future sustainable business model	Good	Presentation	Newspaper articles, web material	High	Yes
3	**Sustainable supply chain reporting**	Industrial partner	Facilitate sustainable supply chain reporting	Improve sustainable business processes	Good	No	Web material	High	No
4	**Ambulance by Air charity**	NGO	Financial support for air ambulance	Increase community impact	Poor	No	Web material	Low	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
5	**Responsible Business Network**	NGO	Voluntary participation in local community projects	Increase social impact nationwide	Poor	Presentation	No	Low	No
6	**Sustainable mobility project – trial city #1 (BK)**	Trial city administration, industrial partners, local businesses, local communities, local government, police	Explore integrated solutions for sustainable mobility	Explore future sustainable business model	Good	Presentation	Newspaper articles, news releases, promotional video, web material	High	Yes
7	**Circus Visits for Children charity**	NGO	Financial support to increase positive impact for children	Increase community impact	Poor	No	Web material	Low	No
8	**Citizens Advice Bureau**	NGO	Financial support to improve quality of advice provided	Increase community impact	Poor	No	Web material	Low	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
9	**Post-traumatic Stress charity**	NGO	Financial support to improve citizens' mental health	Increase community impact	Poor	No	Web material	Low	No
10	**Just World Charity**	NGO	Financial support and community engagements across the UK and Africa	Increase social impact nationally and internationally	Good	No	Web material	High	Yes
11	**Community groups**	Community members	Provide conduit for local concerns about AUTO's practices	Increase community impact	Poor	Presentation	No	Low	No
12	**Bereavement support**	NGO	Financial support to improve citizens' mental health	Increase community impact	Poor	No	Web material	Low	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
13	**Football club engagement**	Community members	Voluntary support to increase positive impact in the community	Increase community impact	Poor	Presentation	No	Low	No
14	**Technical college engagement**	Community members	Provision of engineering-related know-how for course curricula	Improve community impact through education	Poor	No	No	Low	No
15	**Hydrogen in the UK Network**	Local government, industrial partners	Participation in working groups to facilitate a local hydrogen infrastructure	Create a hydrogen infrastructure system in the future	Poor	No	No	Low	No
16	**Automotive Association**	Professional NGO	Engagements in working groups on driving fatigue	Local community impact through better road safety	Poor	No	No	Low	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
17	**Sustainable mobility project – trial city #2**	Trial city administration, industrial partners, local businesses	Influence trial city's mobility vision	Explore sustainable urban infrastructure solutions	Good	No	Newspaper articles, meeting minutes, web material, presentations	Medium	No
18	**Cricket club for disabled persons**	Community members	Financial and voluntary support to improve participation by disabled individuals	Increase community impact	Poor	No	Web material	Low	No
19	**European Union consultation working group on a EU directive**	EU government officials	Influence dialogue on waste electrical and electronic equipment directive	Influence consultation process	Good	No	No	Medium	No
20	**Supply Chain Sustainability Working Group**	Manufacturers, suppliers, professionals, sustainability-focused NGO	Improve sustainable supply chain procurement practices amongst the	Improve sustainable business processes	Good	Presentation	Web material	High	Yes

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
			supplier base for all manufacturers						
21	**Food Bank Support #1**	Community members	Financial and voluntary support to financially needy individuals	Increase community impact	Poor	No	Web material	Low	No
22	**Support of intensive care for infants**	NGO	Financial support for parents with severely ill infants	Increase community impact	Poor	No	Web material	Low	No
23	**National Health road safety partnership**	NGO	Financial support to improve road safety initiatives	Increase community impact	Poor	No	Web material	Low	No
24	**Industrial Cadets**	Schools	Provision of know-how to supply insights into	Increase wider societal	Medium	Presentation	No	Medium	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
			engineering for youngsters	impact					
25	**Technical College Academy**	Technical college	Provision of know-how for curricula, with the goal of improving engineering education	Increase community impact	Poor	No	No	Low	No
26	**Apprentice Scheme**	Regional government, professional organisations, local university	Generate an apprentice talent pipeline for AUTO and other regional businesses	Increase wider regional impact by offering engineering services	Good	Presentation	No	High	Yes
27	**Biodiversity education project**	Scientific NGO	Supply biodiversity-related teaching materials to European school network	Increase environmental impact, at both the international and the community	Good	No	Online resource, web material, news releases	High	Yes

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
				level					
28	**Lean approach seminar**	Local industries, teachers	Provide production-related education as a funding stream for social contributions	Increase community impact	Poor	Presentation	No	Low	No
29	**Low carbon vehicle partnership**	Regional government, universities, NGOs, industrial partners	Explore future mobility solutions in working groups	Increase environmental, commercial, and community impact	Poor	No	Web material	Low	No
30	**Eco-headquarters development**	Scientific NGO	Improve biodiversity at local headquarters	Increase wider environmental and social impact	Good	No	Promotional video, news release, web material	High	Yes

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
31	**Childhood charity**	NGO	Financial support to improve quality of life for disenfranchised children	Increase community impact	Poor	No	No	Low	No
32	**Responsible mineral trade working group**	Industrial organisations, international government officials, policy-makers	Improve supply chain for conflict-sourced materials	Improve sustainable business processes	Good	No	Web material	Medium	No
33	**Doing the Most Good charity**	NGO	Improve disability support and community engagement	Increase community impact	Poor	No	Web material	Low	No
34	**Road safety education project**	NGO, local Schools, police	Make films to improve awareness of road safety in local schools	Increase community impact	Good	Newsletter	Web material	Medium	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
35	**Maritime Youth Charity**	NGO	Financial support for children's sailing and adventure program	Increase community impact	Poor	No	Web material	Low	No
36	**See Inside Manufacturing partnership**	NGO	Provision of engineering know-how for pupils	Increase wider societal impact	Poor	Presentation	Web material	Low	No
37	**Sight Loss charity**	NGO	Financial support to individuals affected by sight loss	Increase wider societal impact	Poor	No	Web material	Low	No
38	**Technology Challenges**	Schools, providers of educational materials	Hold contests in schools to foster interest in engineering	Increase wider societal impact	Medium	No	No	Medium	No
39	**Food Bank Support #2**	Community members	Provision of time and money to support financially	Increase community impact	Poor	No	Web material	Low	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
			needy individuals						
40	**Local Wildlife Trust**	NGO	Provision of time and money to support environmental conservation in the community	Increase community and environmental impact	Poor	No	Web material	Low	No
41	**Eco-park development**	Scientific NGO	Create an eco-park at the production site	Increase wider environmental and social impact	Good	No	Promotional video, news release, web material	High	Yes
42	**Local Nature Partnership**	Regional government, universities, NGOs, industrial partners	Create a green economy in the region	Increase wider environmental and social impact	Good	Internal documents	Web material	High	Yes

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
43	**Trust for Children**	NGO	Financial support for children with brain injuries	Increase community impact	Poor	No	Web material	Low	No
44	**Diagnose Car project**	Regional government, industrial partners, professional organisation	Donation and rotation of cars across technical colleges	Increase wider social impact	Good	No	Web material	High	Yes
45	**The Art of Manufacturing partnership**	Professional NGO	Provision of engineering know-how	Increase wider societal impact	Poor	Presentation	No	Low	No
46	**Business support programme**	Local businesses	Supply production system know-how to local manufacturing businesses free-of-cost	Increase regional and societal impact	Poor	No	Promotional video	Low	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
47	**Charity support programme**	NGO	Supply production system know-how to local charities free-of-charge	Increase regional and societal impact	Poor	No	Promotional video	Low	No
48	**Online education support programme**	Technical colleges	Improve access to, and quality of, education materials across European technical colleges	Increase international and societal impact	Medium	No	No	Medium	No
49	**National Hydrogen Mobility Working Group**	Industrial partners	Participation in working groups aimed at fostering a national hydrogen industry	Increase wider environmental, social, and commercial impact	Poor	No	Web material	Low	No

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#	Project	Partners	Objective	Aim	Interview data coverage	Corporate documents	Public data sources	Data granularity	Further consideration of source
50	**Local fire and rescue department**	Public organisation	Supply of trial vehicles used for education and training, thereby increasing road safety	Increase local, national, and international social impact	Good	Presentation	Web material, news release	High	Yes
51	**Volunteer programme**	Community members	Volunteer support for community projects	Increase community impact	Poor	No	No	Low	No
52	**Working assets programme**	Community members	Supply of work experience to disenfranchised individuals on production site	Increase community impact	Good	Presentation	No		No
53	**Young Engineers partnership**	Schools	Provision of engineering know-how	Increase wider societal impact	Medium	Presentation	No	Medium	No

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Appendix C Data on critical incidents

C.1 Car-sharing initiative

No.	Incident	Sub-constructs	Quotes	Source
1	Opportunity presents to explore latest-technology car-sharing business model in a French city	Non-local search	There could be a 4.5b+ industry out there on the streets of Europe in car-sharing. Therefore, we believe that by putting [our] cars into city-based mobility schemes, we will get a different type of customer with proper driving experience.	Sr. Manager 14
2	Partnership created with French city and mobility-related companies to trial business service	Dominant market and corporate logic; peripheral state logic	This is a core business activity, which has CSR connections and effects. […] I agree it is run along the side, but if you think of the halo effect of a project like that, yes, it is contributing to reducing congestion in a city, it is contributing to reducing emission, it is providing alternative mobility for the future, so, you know, it fits, even though it might not have the prime aim of CSR.	Sr. Manager 14
3	Eco-vehicles provided; mobile app connected partner offerings; charging stations established across the city, parking bay monitoring promised by city	System-level opportunity	[We] needed the support of the city [and] of other stakeholders. [We] needed to study consumer behaviours [and try] to understand how we can make business in a different stakeholder environment. I think we have 27 [charging] stations across [the city] now.	Secondary source
4	New mayor refuses to provide further city support; possibility of trial being cancelled	Estranged state logic	Suddenly, we were told that security cameras were too intrusive [...] The new mayor is an environmentalist, but he was elected with the backing of far-left parties for which working with big capitalist corporations, such as AUTO, represents a problem. [...] He hasn't called the project into question, but he doesn't like to be photographed with AUTO.	Secondary source

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No.	Incident	Sub-constructs	Quotes	Source
5	Provision of new cars due to vandalism, resolution of technological difficulties.	Slack search; product opportunity	We were happy with the technology […] We got 800 customers on board, the utilization worked.	Sr. Manager 14
6	Car-user club created; continuation of trial in French city.	Process opportunity	For some of the highly active users, an exclusive 'Users' Club' has been created. For the partners, it is a way to pick up on suggestions they may have, ensuring the service responds even better to their mobility needs.	Secondary source
7	Search for locations for further trials of car-sharing business services	Non-local search	The proposal was perhaps offered to us, rather than AUTO searching what was the optimum location in Europe to launch such a service. None of these decisions were optimal, so there are some lessons [we took away] in terms how you choose the location.	Sr. Manager 14
8	Partnership established with small, community-run sustainable start-up	Process opportunity; market and corporate logic	What they also bring to the party is their experience on how to choose a location, and therefore, they've got a fairly sophisticated way of assessing the city based on its population density, the age profile, the education profile, the car-ownership profile, public transportation usage, and many other things. We selected two cities based on their methodology.	Sr. Manager 14
9	Knowledge-transfer regarding different business-model opportunities.	Business-model opportunity	We are testing three business models, actually, using the minimum number of cars, which we believe is 25 in each location.	Sr. Manager 14
10	Formation of new trial projects, search for locations, more cars invested	Slack search	[This trial] is a commercial experiment to prove commercial sustainability.	Sr. Manager 14
11	Wheelco becomes strategic advisor and part of AUTO's mobility team	Process opportunity	What I have actually done is employ two of the directors from Wheelco as contractors in my organisation. So, the chairman of the company works for me now, two days a week. [So], as I say, they are not a car-sharing provider in this	Sr. Manager 14

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No.	Incident	Sub-constructs	Quotes	Source
			sense of the relationship; they are an advisor, they are part of my team, they are part of the mobility team.	
12	Two new trial locations identified	Non-local search	The [distributors] make the approach to the local government and negotiate with the guys from Wheelco in the background, who advise them what are the right questions, what are the objectives.	
13	AUTO invests more cars and resources in Wheelco	Business-model opportunity	[Our partner] believed that their business model from the UK was transferable to other countries, but they lacked a culture of the financial [ability], the linguistic skills, and [the] resources to make that transition.	Sr. Manager 14
14	AUTO refines commercial trial experiment	Potential business-model and product opportunities	After nine months, at the end of this year, I want to be able to track the rate of customer acquisition, the number of hours per car per day used, revenue per month, and profit per month and say that all of those KPIs have crossed the line to the target and therefore we could be confident that we will be hitting our target for break-even on time [...] And, I think once that we're through the pilot stage, that will be the technological platform on which to experiment a little bit and develop the offer into other mobility solutions potentially [...]. We're also using it as a marketing tool, the vehicles always have got to be looking like new, which is a challenge with all the dents and damages you get in car-sharing. [...]	Sr. Manager 14

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C.2 Sustainable Development Coalition

No.	Incident	Sub-constructs	Quotes	Source
1	Opportunity to explore sustainable mobility solutions in six international trial cities	Business-model opportunity	It's an industrial NGO, and that's quite important as well. It's not a classical industry lobbying association. It's an association with an eye on what is good for the environment and society, and how this can be combined with business.	Sr. Manager 4
2	AUTO joins SDC, which facilitates a dialogue between different mobility sectors, cities, local business organisations, governments, and communities.	System-level opportunity; aligned community, corporate, state, and professional logics	First, we get access to the city—that is the first. Because we come as a group […] maybe individually we would have access to one person, but you also depend on whether the person likes you or not, but it's a more systematic approach, and what also is valuable is that we do not speak to just one person.	Sr. Manager 4
3	AUTO is asked to lead an trial in an Asian city, and establishes a working group with industrial partners, the local government, police, local businesses, and communities to explore sustainable mobility	Process opportunity	We have a methodology, and to each step, the city agrees. So, it's not that we say 'We have a solution, we want you to buy this'. No, we follow a certain logic that then—if that solution comes out as one of the good solutions—we of course offer to implement it in the city, and then this would be a business case for us. [So], it can be that you offer the [city] hybrids, fuel cell cars, but in the same portfolio, it might be that another company is providing a different type of car-sharing [or] another software [solution] to improve, for example, the real-life data and information that the city is currently collecting.	Sr. Manager 4
4	GASD provides a database of best practices in different "priority areas", agreed upon by all industrial members for use in trial cities.	Process opportunity	We have developed a kind of toolbox with more than 200 global best-practice examples, so it's an access database.	Sr. Manager 4

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No.	Incident	Sub-constructs	Quotes	Source
5	Evidence- and expert-based research into key priorities and needs results in six areas of focus: greenhouse gases, congestion, travel time, air pollution, comfort, pleasure, and energy efficiency	Process opportunity	So, we have 22 indicators, [and] if a city selects 3 or 4 priorities, we can highlight them, and then as a first attempt, we get a list of all projects that can address these topics. So, that's the starting point for our discussion.	Sr. Manager 4
6	Review of key priorities with stakeholders in a working group results in a portfolio of best-practices, agreed upon by all partners, and the selection of a trial location, namely, an arterial road	Aligned, non-local search	So, we calculate the spider chart […] [in a] fact-based [manner]. Then we discuss with the cities what are the priorities, and then based on the priorities, we propose solutions.	Sr. Manager 4
7	Establishment of trial and search for solutions	Process opportunity; non-local search; state, community, professional, and corporate logics	So, we selected a certain area around the main road, and we set as a target [that] we want to increase the average speed of today from 10km/h to 20 km/h, because a more smooth traffic flow also reduces CO2, reduces emissions and improves safety […] Therefore, we studied what is the root cause of this, and one of the root causes is that in this area, there are a number of international schools. When parents drop off their children in the morning, they blocked two out of four lanes. So, of course, [there was] huge congestion.	Sr. Manager 4
8	Involvement of business capabilities, provision of technical solutions and know-how in	Business-model opportunity	We introduced a bus shuttle [...], and now these businesses allow the parents to drop off their children on their grounds. So, not anymore on the street, but now they use private [parking bays] [...] the police is now regulating all traffic blocking one lane [at the school] […], we [also] negotiated with the police, with	Sr. Manager 4

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No.	Incident	Sub-constructs	Quotes	Source
	collaboration with the city		several of the big businesses as well in this area, to have a wider flexible working time spread. There are police boxes at each of the crossings, and so they manually change the traffic lights. […] That freed up some of the capacity. We did [this] together with the city and together with the police.	
9	Successful reduction of traffic, review of bus shuttle scheme; introduction of badges to counter security concerns	Process opportunity; non-local search; community, corporate, and state logics	Like […] in the school case […], we had some discussions with the parents […] with a couple of thousand parents […], and maybe 150 finally said at the meeting […], 'Yes, we want to use the system'. […] Therefore, we encouraged the parents to use the shuttle bus for the children, and so we introduced a badge system […] so the children badge in when they go into the bus, and they badge in when they leave, so the parents get the information on their mobile phone. Therefore, we want to get this kind of practical information on how can we overcome, let's say, the feeling of insecurity […], in this case to motivate the take up of a shuttle bus.	Sr. Manager 4
10	AUTO continues funding experiment to search for system-level, business-model, and product development opportunities	Potential system-level opportunity	This [project] is still going on. Therefore, we did the first trial [...], and now this will go on until 2017. So, this will be sponsored by the AUTO mobility fund […], and the idea is after we deeply understand the issues of this specific area, we will transfer this as a next step to other areas, and then potentially to the whole city, and then transfer this to other [Asian] cities.	Sr. Manager 4
		Potential business-model opportunity	I think what we here tried to do is an inclusive business approach […] what we want is to contribute to the society but also try and make a business case out of this.	Sr. Manager 4
		Potential system-level opportunity	Of course, what we need to prove is the real benefit for the cities […], of course, the cities' expectations is not just doing a nice project, because we're not academics in the end, so they want to do real projects and see that we can help them.	Sr. Manager 1
		Potential product and business-model opportunity	Therefore, you get an opportunity to develop your product [and] to understand how society would like your product to develop in the future, so everybody can see why actually SDC are doing that, and that's their purpose for doing it. Nobody can do it on their own, but together they can do [it].	Sr. Manager 4

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C.3 Just World charity

No.	Incident	Sub-constructs	Quotes	Source
1	Opportunity to become a key supporter of JWC; AUTO sees opportunity to deliver a societal and environmental impact on a larger scale	Process opportunity; dominant community logics, with a peripheral corporate logic	So, actually, they had approached our agency or one of our marketing agents and said […], 'Can you put us in touch with AUTO?' […] We ended up meeting with JWC, and they discussed with us the opportunity of being one of their tier-one supporters	Sr. Manager 7
2	AUTO launches a fundraising campaign across all company divisions in the UK; £775k raised for JWC	Process opportunity; slack funding	For the first time, we collaborated with the factory, all of our dealers, all of our staff, so all [AUTO] entities [...] behind one cause […] and we raised £775,000.	Md. Manager 6
3	AUTO seeks to further its community impact and identifies a list of funded NGOs and community groups	Process opportunity:	One of the things, our dealers are not particularly resourceful and find out in their local area which [NGOs exist]. Therefore [...] we would put [JWC-sponsored charities] in touch with the dealer and see what else the dealer could do to support that need. So again, did they need resources in terms of people, did they […] sometimes they need cars to borrow, to transport people around? […] Sometimes they need the premises to borrow to do activities themselves […], so we put them in touch with those to see how they could engage.	Md. Manager 6
4	Local distributors are encouraged to contact local groups from JWC's list	Potential process opportunity	So, it's identifying the right charities, and trying to link up […] and the partners to link together.	Md. Manager 6
5	Identification of further opportunities for employees to have an impact on their communities	Potential process opportunity	It is [not always] about giving money […] actually, it is as much about getting your employees involved in the community. It's an education process, and that's part of our job, to try and educate them, actually [to engage more in the community].	Sr. Manager 7

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C.4 Supply-chain sustainability working group

No.	Incident	Sub-constructs	Quotes	Source
1	Working group on supply chain sustainability seeks to improve sustainable supply-chain practices amongst suppliers	Process opportunity; local problemistic search	[Our interest was to collaboratively] improve the sustainability in our supply chain […] because, of course, we can tackle different points individually […], but maybe when we do it together, it will be more efficient, it will give the scale, and it will bring better results.	Md. Manager 12
2	NCSR invited as facilitator to help improve supply-chain sustainability across supplier networks	Process opportunity; Narrow corporate and peripheral community logic; local search	So, we do not share [practices] among us, we send [our input] to NCSR. So, their core job is to facilitate those conflicts of interests and confidential areas as well […].	Md. Manager 12
3	NCSR facilitates the confidential exchange of procurement-benchmarking guidelines among manufacturers to make reporting systems more efficient	Process opportunity; local problemistic search	So, we set up our guidelines, and defined that this group is a European automotive working group, [and it] has [a set of] guidelines in terms of CSR. [Then, NCSR] put [all of the OEM data] in the matrix […] without the names, for example, that's the performance for the child labour […] the first company is saying this, the second company is saying this.	Md. Manager 12
4	Supplier-benchmarking guidelines established and communicated via national supplier trainings	Local exchange of knowledge with suppliers	We put base[line criteria], because we had to draw somewhere the line. We also looked together at [improving] the CSR questionnaire […] and gave trainings for suppliers.	Md. Manager 12

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5	Suppliers note overlapping CSR surveys across manufacturing suppliers. A shared questionnaire for all suppliers is established by all participating manufacturers	Process opportunity	We looked together at [improving] the CSR questionnaire, [as it] it turned out that all of us as separate OEMs, we are sending the CSR questionnaire to our suppliers and trying to assess their CSR performance[...]. So, [the idea arose to] create one questionnaire which we could utilize [and that] suppliers could fill in [once …], and whichever OEM is asking, they will just come and send it back […] or keep the electronic version and then resend it.	Md. Manager 12
6	Potential opportunities to tighten questionnaire standards and conduct assessment rankings across manufacturers	Potential process opportunity	Of course, if we are talking about the questionnaire, it's just to collect the questionnaire—at this stage, we are not doing any kind of assessment […] so we don't have the common ranking […] maybe one day we will get there, but not now.	Md. Manager 12
		Potential process opportunity	We don't have such clear targets, but yes, as we are evolving, all of us are evolving, so our guidelines can go up, improve […], we can expect more […], we are coming back to this discussion on a regular basis if there is something that we should consider.	Md. Manager 12

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C.5 Apprenticeship scheme partnership

No.	Incident	Sub-constructs	Quotes	Source
1	AUTO notices the declining quality of candidates for production maintenance roles	Problemistic search	The reason that we started running apprenticeships was, actually, historically we had a turnover problem with our maintenance staff. So, actually, we had problems in retaining them, we had such a high turnover.	Sr. Manager 13
2	AUTO establishes an internal production maintenance scheme in collaboration with a local university	Problemistic search; process opportunity	So, we designed the course for the qualification, [but] we do extra to the qualification. So, [we train participants on] things like [our philosophy], we do a lot of experientials with them, on personal development, [and this] is additional to what they would get at college. They don't just get the qualification, [...] we design it for our own apprentices, and the qualification is plus alpha, so there is a lot more in it.	Sr. Manager 13
3	Limited company-internal talent pool in production maintenance drives AUTO to halt the scheme and hire externally, with poor results regarding the quality of candidates; production maintenance program reinstated.	Problemistic search	We went down the external hire route, [and] it gave us a high turnover. We found that they were coming in, getting training into AUTO's philosophies and skills, and then stamping it into the CVs, and then moving on [...] they were just using us as a stepping stone to move into bigger and better things, and it's been quite painful for us, because we did a lot of training with these people.	Md. Manager 16
4	Launch of four-year apprenticeship scheme as an external talent pipeline	Process opportunity; system-level opportunity	We developed an apprenticeship programme to train our own maintenance engineers for maintenance. We have, over the years, [developed relationships with] SMEs, colleges, local colleges we also collaborate with. Moreover, there are private training providers, and these are partnerships working as well […] We want to be the best in the UK to support UK PLC.	Md. Manager 16
5	Low turnover results in underused state-of-the-art training facility	Process opportunity; problemistic non-local search	We came to a point where, because the scheme has been so successful, everybody has been moving into production, we are not seeing turnover. […] We're seeing a low turnover, […] so, actually, what happens is that we got to a point where headcount-wise, we didn't need any more apprentices.	Md. Manager 16

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No.	Incident	Sub-constructs	Quotes	Source
	SMEs ask AUTO for support, and it considers opening the scheme to them	Process opportunity; non-local slack search	We had unused capacity in the training centre. [So], we had to make a decision. Do we work with external partner companies who have been asking us [for help] or do we say—actually, we'll close our apprenticeship down and we'll turn it back on when we need it?	Md. Manager 16
6	AUTO decides to open the scheme and approaches SMEs	Business-model opportunity	We approached our supplier partners, both initially to the factory and said […] 'Would you like us to be your training provider? We can grow your talent; this is what we do. We will not take them off you, we won't poach them.' [Now] we're providing apprenticeships for SMEs and for our suppliers. And, in fact, at the moment, nearly all our apprentices are from SMEs and suppliers.	Sr. Manager 13
		Process opportunity	They go through the exact same recruitment process, the exact same testing, exactly the same programme as an AUTO apprentice would do. We provide them with the workware, they come through the scheme. […] I support them with advertising the whole programme, I engage with schools, I engage with the local councils, the advice and guidance tutors from the schools, the careers people, and all the companies. We [as organisations] all got our own objectives individually and in our organisation—but there is one common goal out there, which is making sure we've got good apprenticeships.	Md. Manager 16
		System-level opportunity	In the UK, there is statistics on smaller companies […] doing apprenticeships is horrendous. It's something like 10%. […] So, its about skilling the whole of the midlands but the whole of the UK by aligning everybody's apprenticeships.	
7	AUTO grows talent pipeline for engineers in the region	Potential process opportunity	It is about making sure that there are opportunities for young people particularly to enter the workforce, that there are opportunities for high-quality apprenticeships available and that smaller companies and other companies that lack the provision or the know-how have got access to high-quality facilities and training, [which AUTO provides].	Sr. Manager 13
		Potential business-model opportunity	I am looking at what other apprenticeship schemes we can run, so business admin apprenticeships, other production apprenticeships, anything else that we can bring into the apprenticeship framework […] my image would be that this training centre has got 20 classrooms full every week […] so that's the image.	Md. Manager 16
		Potential system-level	We could almost say that we are going to be a training academy for the sector.	Md. Manager

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No.	Incident	Sub-constructs	Quotes	Source
		opportunity		16

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C.6 Gingko partnership

No.	Incident	Sub-constructs	Quotes	Source
1	International AUTO headquarters releases corporate aim of improving environmental performance; production site becomes a trial location to explore sustainable manufacturing and biodiversity-related practices	Process opportunity; non-local search	Basically, [AUTO] decided to make [a Japanese production site] a model plant of sustainable manufacturing thinking, […] so they started that […] they were doing it for two and three years, and they started to launch it in each region, and they chose our plant as the European region launch. So, that's how we became a sustainable manufacturing plant.	Md. Manager 11
2	Opportunity to support better biodiversity-related practices	Process opportunity	We had to manage the landscape, [and it was] just a normal requirement within the planning commission. [Then] we realized that there was a value to nature of our land, so we had to plant trees as part of the business environmental plan at the beginning, and from that, we realized that there was this opportunity that started to emerge, [as] there is no value for nature in particularly close-mown-off grass; it doesn't provide a home or provide food to other species, and naturally, it's quite expensive to maintain, because you're cutting it every two weeks. So, all of these things added up to saying [that] we will need to change the way in which we manage.	Sr. Manager 1
3	Completion of an on-site environmental survey by a local wildlife trust; rare species are identified; opportunity to protect endangered species, but	Process opportunity	[We] started to work with the Local Wildlife Trust, and they helped us then to start to consider how many species that we were attracting, how many of those were rare species. [Then] they started to give us ideas on how we might manage the environment in a slightly different way that would improve the impact of birds and insects and anything else on the site, […]so they tried to do that, and we got to a good point.	Sr. Manager 1

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No.	Incident	Sub-constructs	Quotes	Source
	expertise required			
4	Rare species are identified, instigating a search for experts to support the conservation and dissemination of rare species; Gingko is identified	System-level opportunity	We realized that there was a value to nature of our land. So, we have land of something like 680 acres, which is a big stretch of land. [AUTO] tried to engage with a consultant […] that didn't really work […] they got involved with one university […] that wasn't really taking them much further […] and then one of my colleagues heard an interview with Gingko on the radio and said 'Why don't we try them?' and AUTO started to work in partnership with Kew to make landscape management for biodiversity.	Sr. Manager 1
5	Gingko and AUTO meet and sign a memorandum of understanding that outlines the areas of collaboration, including the creation of an eco-park	System-level opportunity	The whole concept was to create a manufacturing facility in an ecological park. [...] Therefore, we then could convert industrialised areas into natural resource to expand the natural resource, which is actually under threat from industrialisation. So, as you are industrialising, you are trying to build [premises] that obviously meet with their principles of restoration and preservation.	Md. Manager 24
6	The scale of the landscape restoration project leads to the development of less expensive harvesting technologies for AUTO's eco-park; harvesting costs decline from £17 per square metre to £2.30 per square metre; green-grid established for rare species migration and biodiversity corridors;	Process opportunity	When we started, we set a target to restore 680,000 square metres on-site [...] So, the first one was the face of the building, [...] which is about 16,000 square metres, […] and now we are doing the back faces of the buildings.	Md. Manager 24

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No.	Incident	Sub-constructs	Quotes	Source
	16,000 square metres of land converted			
		Process opportunity	To do this type of restoration is expensive […] originally, when we started it, it was around £17 per square metre [and] in order to restore a large area like 250,000 square metres, you can't do it at £17 per square metre. You've got to get it down to less than a pound a square metre. So, we've been working with them, and then we developed a method to restore, […] which is less than £1 a square metre. In addition, we are down at £2.30 GPB […] £from 17 GBP a square metre, and as we scale, we should get the economies of scale.	Md. Manager 11
		Process opportunity	And, obviously, the benefit is that you're increasing the ecological resilience you create in the network of rows, hedgerows, and trees that connect the outsides. So, that increases ecological resilience, usually pathways or species that migrate for genetic diversity to occur.	Md. Manager 11
7	Eco-park concept is transferred and copied by national headquarters	Process opportunity	[The production site] had the relationship originally with Gingko […], so [our headquarters] sort of were much smaller […] our site was a lot smaller than theirs, but we sort of replicated what they had done there […] instead of making "eco-park" we decided to make "eco-HQ" and use the relationship with Gingko in the same [way]. So, Gingko helped us find the right landscape gardener to do the work in the first place, they came here and gave regular talks to staff to give them the real professional understanding about what we were doing, why we were doing it, and why it was important, so it was just not us.	Md. Manager 6
8	Involvement with Gingko fosters engagement opportunities with Local Wildlife Trust	Process opportunity	The other thing we forged more is the relationship with the Local Wildlife Trust […] but what the [relationship with Gingko] has done […] and that's interesting […] it started with eco-HQ but has now developed in supporting this.	Md. Manager 6
9	Eco-park concept is transferred and copied	Process	I saw that it was good, and I said, 'I need to do something here and at [another	Sr. Manager

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No.	Incident	Sub-constructs	Quotes	Source
	by European headquarters	opportunity	location]', which is here at our R&D site […] and the parts warehouse.	1
10	European headquarters produces a blueprint document for scaling the eco-park concept to other sites	Process opportunity	I want to use these as models for the other parts of the organisation.	Sr. Manager 1
11	AUTO identifies the possibility of engaging with Gingko in a biodiversity awareness project with the EEN	System-level opportunity	So, Gingko had a program that was called 'The Great Plant Hunt'. So, they have developed materials for all these [primary-school] age ranges and effectively had already created a [biodiversity awareness programme].	Md. Manager 2
12	The EEN starts working with Gingko and AUTO after recognising an opportunity to disseminate Gingko's school material through its network, thus promoting biodiversity internationally	Aligned community, corporate, and peripheral state logics; non-local search	We actually make [the school material] available and provide the tools for both schools and communities to be able to come and get inspiration to do something locally.	Md. Manager 19
13	The EEN translates Gingko's course materials into 10 European languages for EEN's network of European schools	Process opportunity	Gingko had done some work on biodiversity education, so what we [as the EEN] did was, [we took Gingko's] course, called 'The Great Plant Hunt' [and asked the EEN to] translate it into 10 other countries' languages.	Md. Manager 2
		System-level	Then we're launching it in those countries through EEN's network. We've now	Sr.

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No.	Incident	Sub-constructs	Quotes	Source
		opportunity	got already around 300 schools that are signing up to participate in this program [….], and, of course, we help people grow and grow.	Manager 1
14	AUTO connects Gingko with international headquarters and provides third-party funding for five years through an acclaimed institution to foster a long-term relationship	Aligned community and corporate logics; slack; non-local search	Gingko are going to go to countries where they've never been able to have a presence before, […] so their level of awareness as a scientific institution in plants and what have you will be enhanced, because they are going to be seen in 10 countries in which they weren't seen before.	Sr. Manager 1
15	Scaling of eco-park and biodiversity awareness concepts; continuation of the work outlined in the agreement; support of research on biodiversity	Potential system-level opportunity	We've got another 13 warehouses, we've got 30 office buildings owned by our sales and marketing operations […] there's vehicle hubs, […] and then if we're really ambitious, we can go to the dealers, and we've got about 3,000 dealers across the European marketplace, […] so we've got a long way to go.	Sr. Manager 1
		Potential system-level opportunity	And, I suppose that our ideal goal of operating is that it actually becomes a resource for education.	Md. Manager 19
		Potential process opportunity	Currently, we're only attacking two school years, […] so young children and the next year up, […] and we would like to extend, […] so we extend the materials over time.	Sr. Manager 1
		Potential process opportunity	The memorandum of understanding really covered areas around the manufacturing facility, around opportunities of the products, opportunities for promotion and proper relations, and opportunities for scientific research. [But] it's still to be developed, [as] they were going through all sorts of restructuring and reorganisation.	Md. Manager 11

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No.	Incident	Sub-constructs	Quotes	Source
		Potential process opportunity	So, we fund SOPK [to] start up a [research] unit […] which will be purely, basically sponsored by AUTO's money and a little bit of match funding for the next five years to then do [species] assessments over the five-year period.	Sr. Manager 1

C.7 Road Safety Education partnership

No.	Incident	Sub-constructs	Quotes	Source
1	The RSE asks AUTO for donations	Community logic; slack	RSE applied for part of [AUTO's social contributions fund], which was the initial approach. So, I think they [had] three years' worth of funding, and then we decided that it was important to take it outside that process and do it more as a relationship rather than a fund application.	Md. Manager 6
2	AUTO assesses the application, approves three years of funding, and donates a car	Process opportunity	We knew we could provide them with a vehicle [to support the road show]. […] The movie show performance was made possible due to the generosity of AUTO.	Md. Manager 7
3	AUTO seeks opportunities to support RSE achieve proof of concept and promote road safety education	Process opportunity	Well, then we could use it potentially, how we do some young driver education online, whether it's online, or through an app, we could use some of that information to support activities that we could do as well, […] so education is an interesting one for us.	Md. Manager 18
		Process opportunity	They were very interested in how we could help them with proving proof of concept that actually have an actual effect on young adults' driving styles.	Md. Manager 6

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C.8 Local Nature Partnership

No.	Incident	Sub-constructs	Quotes	Source
1	Government report tasks regions with forming a panel comprised of industry, government, and community stakeholders with the goal of fostering a green economy	State, community, corporate, and market logics, non-local slack search	The central themes of the white paper are that economic growth and the natural environment are mutually compatible, nature is good for people's physical and mental health. In the past, environmental action has often been done on too small a scale.	Secondary Source
2	Launch of the LNP; AUTO joins and contributes £10,000 and in-kind support	System-level opportunity	We're heavily supporting the LNP. We support that financially, we support that practically with our room, we support that with our reputation, if you know what I mean.	Sr. Manager 8
		System-level opportunity	You learn a lot about what's going on. You learn about what's happening in the region, the area, […] and then you find opportunities for sharing new ideas and things.	Md. Manager 11
3	Search for consensus regarding natural capital strategy	Non-local search; estranged market, community, and state logics	Yeah, so, our strategy at the moment is to focus on natural capital and how developments are happening in the area […] we might, for example, want to say that we are aiming for 20% tree cover or whatever it is, you know […] so that kind of thing, [but] with such a broad range of board members, it means that there are not always agreements and consensuses about where the priority should be.	Md. Manager 21
4	Natural capital group establishes an integrated database for influencing planning commissions	Process-level opportunity	[The group] tried to [create a database and] identify the natural capital assets within the region, pulling together data from various statutory bodies. [For example,] the environment agency might have data on water, local authorities might have data on air quality, and local authorities monitor minerals, so what untapped minerals exist in the region. [There are] various natural capital aspects, [such as] species [or] habitats. So, that was a big project we did last year to try to bring all that data together.	Md. Manager 21

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No.	Incident	Sub-constructs	Quotes	Source
5	Struggle to develop a coherent strategy to influence future projects; need to weigh commercial versus community interests	Estranged market, community, and state logics	We also have a strategy group. So, although the LNP has been running for a few years, we still don't have a strategy. Therefore, with such a broad range of board members, it means that there are not always agreements and consensuses about where the priority should be […] some people are more focused on protecting nature in a conservational sense, whereas others are a bit more, kind of, using developments to finance environmental improvements.	Md. Manager 21
6	Previous green infrastructure plan needs updating; opportunity to weigh in on green economy theme and suggest green infrastructure projects	System-level opportunity	We brought together a green infrastructure strategy for the region, so we developed this about six years ago. However, the organisations that developed that […] the strategy is out of date, really, and needs to be viewed and refreshed, so we got together again—a group of stakeholders across the area—and got them to bring forward green infrastructure projects.	Md. Manager 21
7	Partnership becomes part of the local steering group	Process-level opportunity	The county council commissioned the [planning commission] report, the local nature partnership is on their steering group of the vision, […] so we are kind of one of the key stakeholders to be able to influence other organisations.	Md. Manager 21
8	AUTO continues engagement with LNP to influence the regional discourse on a green economy	Potential process-level opportunity	[A key benefit is] the opportunity to influence, […] so we kind of have influence in that way as well […] so that's another way in which it is beneficial to the other organisations.	Md. Manager 21

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C.9 Diagnose Car partnership

No.	Incident	Sub-constructs	Quotes	Source
1	AUTO seeks opportunities to donate cars for technical education, but struggles to find an effective solution	Local slack search	We received a request from many schools constantly asking for support. And, generally, you said, 'Which school, and why? And, who is going to find the budget, and why that one and not that one? And is it because you're friends with that guy or you know? […] What's the logic, and what's the structure?' So we did not really know.	Md. Manager 3
2	The DCP asks for AUTO's support and suggests a rotation scheme for the donated cars to improve training for engineering students	Process opportunity	Then one school came and actually, it was one guy working at a school, but he was actually working at a slightly higher level, because he took it upon himself to say, "From a company point of view, it's difficult for you to answer the question of 'Why me, and why this one?'. So, what I am going to do is that I am going to network all the schools, and then if we get a donation or some equipment". And, we set up a rotation scheme, from school to school with those vehicles.	Md. Manager 3
3	AUTO donates one car in total for rotation across 20 schools and becomes part of an industry-sponsored benchmarking study on diagnostic equipment; manufacturers share their insights through Diagnose Car and generate beneficial knowledge for all parties involved.	Process opportunity	Then they weren't looking for just a car, they also wanted a diagnostic tool, and we said, 'That's interesting'. [We said to DCP that] we are doing a review about that diagnostic tool. So, how about we give you a car and a diagnostic tool and you develop a student project that works on comparing the tools with each other from the different manufacturers? Then we had a student project where they produced a comparison of all the tools regarding ease of use, speed, all the different aspect mentioned for that kind of thing.	Md. Manager 3

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No.	Incident	Sub-constructs	Quotes	Source
4	Diagnose Car grows into a network of 70 schools, and attracts more donations from manufacturers; AUTO continues its involvement with Diagnose Car.	Community logic	And now, at the moment, we have almost 50 cars, and we have 70 schools, 3 high schools, and some entrepreneurship schools, with part-time study and work, so I think we have around 80-85 schools who are involved in the project..	Md. Manager 20
5	Diagnose Car creates a central repository of learning materials, cars, and supplier equipment; more sponsors join the network	System-level opportunity	Our exercises are all on the website, so the teacher can log in, can go to the car he has at the school and then download the material. And, we also have around 10GB information around other subjects, not on the car, but on subjects like light systems, safety systems, so they can download the material that we get from the brands, and we can use them in the class.	Md. Manager 20
6	Diagnose Car seeks opportunities to expand its teaching materials and development opportunities, as well as to bring all of the schools together to form a buying syndicate	Process opportunity	When the school has to buy something, we all put it together, so we get a lower price. That is also what we start in the next school year. There are materials, now we all can get together.	Md. Manager 20
		Process opportunity	Yes, at the moment we are discussing about handbooks for the students—what [teachers] need to teach to the students [...]. At the moment, there is no handbook in those [technical] subjects. And now, we are making a book in collaboration with the federation with all the different subjects, and this next school year, we will go to different schools.	Md. Manager 20
		Process	Some of the teachers told us that they would like to give courses to other	

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No.	Incident	Sub-constructs	Quotes	Source
		opportunity	teachers, so we [will soon] start that.	

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C.10 Fire and rescue partnership

No.	Incident	Sub-constructs	Quotes	Source
1	Local fire and rescue department approaches AUTO for a donation of latest-technology damage-collision cars, so as to reduce costs	Local search; dominant community logic with peripheral corporate and state logics	Over the following four years, FRO has taken numerous vehicles, generously donated by AUTO, which have provided an invaluable opportunity for FRO to become a national leader in road traffic collision initiatives, fire-fighter training, and awareness training for other emergency services.	Secondary source
2	AUTO identifies an opportunity to give away trial vehicles	Process opportunity; slack search	When we build the vehicles, we have to build many trial vehicles, so as you can imagine, we are trying to put them together and take them apart and various things. Actually, once we are done with those vehicles, then we use them on-site as car run-arounds, but actually, we can't register them for the road.	Md. Manager 10
3	Donation of trial cars to fire and rescue department; reduces costs of latest-technology cars for damage-collision training; better cars for extrication practice	Process opportunity; business problem; community logic	So rather than scrapping those cars and actually paying to have them scrapped, we actually have a partnership. It's quite an unofficial partnership so we've never signed any contracts or anything like that. Whereby we donate the majority to those vehicles to FRO.	Md. Manager 10
		Process opportunity	So, of course, [our donation] saves the fire service money, 'cause they'd have to go to a scrapyard, and they'd have to buy vehicles, but the beauty of this is that they are cutting up vehicles that are the highest technology. So actually, what we have also done, is we've actually used [AUTO's] skills to train FRO how to use [AUTO's] technology.	Md. Manager 10
4	AUTO supports the creation of a "transformer car" in collaboration with a local university; this car	Product opportunity	So actually, what they've done with two of the vehicles, is that they've actually made them into vehicles that they can—rather than just cutting them up, ones that they can reuse. So, the 'transformer mark' 1 vehicle can be taken apart and put back together [to] show the fire-fighters where [the car] actually should be cut and how to extricate the causalities.	Md. Manager 10

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No.	Incident	Sub-constructs	Quotes	Source
	can be dissembled and reassembled, thus reducing the dependency on donations			
5	The FRO uses the transformer car for demonstrations, as well as to train other fire-fighters, ambulance staff, and students	System-level opportunity	They believe that thousands have benefited due to the demonstrations, […] so they actually take these vehicles to the emergency services show down in the country every year.	Md. Manager 25
6	Another replica is created, shipped overseas to developing countries, and used to train medical staff	Product opportunity	[Therefore, another] transformer vehicle was built and donated to an NGO [that] take[s] it to resource-constrained counties to train up fire-fighters. This has actually been all over the UK, and I think they have shipped [the car] over to Europe [and South Africa] as well.	Md. Manager 25
7	A second, more advanced transformer car is created with AUTO's cars in collaboration with a local university to illustrate safety systems	System-level opportunity; state and community logic, local search	The safety engineering simulator vehicle has also been built and [shows] actually, when you're in a collision, what will your vehicle do? The transformer cars provide a lot to the training to this, in relation to excavation techniques, hybrid familiarization, and safety road assistance.	Md. Manager 25
8	Set-up and scaling of training courses using transformer vehicles; this training includes refresher courses and professional development for fire-	System-level opportunity; state and community logics, local search	[AUTO's cars] are a fundamental part of the road traffic collision refresher program; its been delivered in the past three years, a number of refreshers that they carried out in three years, which is approximately 100 courses. […] They also have a regular course they deliver to new ambulance and police trainees in which they receive approximately two to three hours of road traffic collision training. […] Ambulance staff also uses this as part of their continuous professional development.	Md. Manager 25

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No.	Incident	Sub-constructs	Quotes	Source
	fighters, ambulance staff, and students			
9	Partnership is strengthened and search for new projects aimed at eliminating traffic casualties begins	Potential system-level opportunity	We're in discussion with FRO, the police, and the road safety partnership how we could work together with them to deliver something in AUTO's name in looking at road safety and improving the safety of the roads, or even if its just educating people.	Md. Manager 25
		Potential system-level opportunity	[We were approached by DFS], and now we're working with Derbyshire Fire and Rescue to try and understand the impact [our donations] have [on road safety…] What we are looking to do is to understand, actually, […] how many people have benefited?	Md. Manager 25

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Appendix D Case data

D.1 Car-sharing initiative

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		Its 'boom time' for car-sharing in Europe […] it is pretty obvious [that] the door […] won't be open forever in terms of new entrance to car-sharing. So, we reckon there is a [large] growth potential [for it].	Sr. Manager 14
	Trigger	Slack	[This project] is a commercial experiment to prove commercial sustainability. […] For AUTO, the key is to learn from the three-year experiment as it sorts out the business case for electric vehicles.	Sr. Manager 14
	Type	Non-local	This is probably the only commercial viability experiment at the moment, so there is a lot of focus on it. A lot of the other stuff is technology experimentation rather than commercial experimentation.	Sr. Manager 14
			We are testing three business models, actually, using the minimum number of cars, which we believe is 25 in each location.	Sr. Manager 14
Institutional pluralism	*Institutional logics*	Market and corporate logics	This is a core business activity, which has CSR connections and effects. […]	Sr. Manager 14
		Corporate and community logics	So, we found a partner in what might have appeared to be an unlikely partner, which is among the independent existing car-sharing partners—'cause it is a complete mismatch in scale, resource, and ambition, because these tend to be entrepreneurial start-ups, but those companies are everything that we are not and vice versa. [...] What I have actually done is employ two of the directors from Co-wheels as contractors into my organisation. Therefore, the chairman of the company works for me now two days a week.	Sr. Manager 14
		Corporate and state logics	The [distributors] make the approach to the local government and negotiate with the guys from Wheelco in the background, who advise them what are the right questions, what are the objectives.	Sr. Manager 14

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	Relationship	Estranged	Suddenly, we were told that security cameras were too intrusive. [...] The new mayor is an environmentalist, but he was elected with the backing of far-left parties, for which working with big capitalist corporations, such as AUTO, represents a problem. [...] He hasn't called the project into question, but he doesn't like to be photographed with AUTO.	Secondary source
		Dominant	The primary focus is to help our members to save money, reduce car ownership, and create a cleaner environment by making lower-impact transport options available to everyone. Because Wheelco is a community interest company, we reinvest profit into our operations to expand and improve the service.	Secondary source
		Dominant	I agree [social and environmental objectives] run along the side. However, if you think of the halo effect of a project like that, yes, it is contributing to reducing congestion in a city, it is contributing to reducing emissions; it is providing alternative mobility for the future, so you know it fits, even though it might not have the prime aim of CSR.	Sr. Manager 14
SOI opportunities	*Type*	System-level opportunity (project #1)	[We] needed support of the city [and] of other stakeholders. [We] needed to study consumer behaviours [and try] to understand how we can make business in a different stakeholder environment. I think we have 27 [charging] stations across [the city] now.	Sr. Manager 4
		Product opportunity (project #1)	We were happy with the technology.	Sr. Manager 14
		Process opportunity (project #1)	For some of the highly active users, an exclusive 'Users' Club' has been created. For the partners, it is a way to pick up on suggestions they may have, ensuring the service responds even better to their mobility needs.	Secondary source
		Business-model opportunity (project #1)	We got 800 customers on board, the utilization worked.	Sr. Manager 14
		Process opportunity (project #1)	The proposal was perhaps offered to us rather than AUTO searching what was the optimum location in Europe to launch such a service. None of these decisions were optimal, so there are some lessons [we took away from it] in terms of how you	Sr. Manager 14

			choose the location.	
		Process opportunity (project #2)	What they also bring to the party is their experience on how to choose a location, and therefore, they've got a fairly sophisticated way of assessing the city based on its population density, the age profile, the education profile, the car-ownership profile, public transportation usage, and many other things. We selected two cities based on their methodology.	Sr. Manager 14
		Process opportunity (project #2)	What I have actually done is employ two of the directors from Co-wheels as contractors into my organisation. So, the chairman of the company works for me now two days a week. As I say, they are not a car-sharing provider in this sense of the relationship; they are an advisor, they are part of my team, they are part of the mobility team.	Sr. Manager 14
		Business-model opportunity (project #2)	We are testing three business models, actually, using the minimum number of cars, which we believe is 25 in each location.	Sr. Manager 14
	Scope	Broad	I agree it's run along the side, but if you think of the halo effect of a project like that, yes, it is contributing to reducing congestion in a city, it is contributing to reducing emissions, it is providing alternative mobility for the future, so you know it fits, even though it might not have the prime aim of CSR.	Sr. Manager 14
	Realised opportunities	8	See opportunity type.	
	Potential opportunities	Business-model opportunity	After nine months, at the end of this year, I want to be able to track the rate of the customer acquisition, the number of hours per car per day used, revenue per month, and profit per month and say that all of those KPIs have crossed the straight line to the target, and therefore we could be confident that we will be hitting our target for break-even on time	Sr. Manager 14
		Product opportunity	And, I think once that we're through the pilot stage, that will be the technological platform on which to experiment a little bit and develop the offer into other mobility solutions potentially.	Sr. Manager 14
		Process	We're also using it as a marketing tool; the vehicles always got to be looking like	Sr.

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	opportunity	new, which is a challenge with all the dents and damages you get in car-sharing	Manager 14
	Process opportunity	The [distributors] make the approach to the local government and negotiate with the guys from car-share co-wheels in the background, who advise them what are the right questions, what are the objectives	Sr. Manager 14
	Business-model opportunity	[Our partner] believed that their business model from the UK was transferable to other countries, but they lacked a culture of the financial [ability], the linguistic skills, and [the] resources to make that transition.	Sr. Manager 14
Potential opportunities	5		

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D.2 Sustainable Development Coalition

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	Aspiration		[The SDC] is an inclusive business, because there should be a clear benefit, of course, for the citizens, and for the city as well. We do this with 15 other companies in a multi-industrial environment, and then, actually, of course, its end purpose is to make a business with the city.	Sr. Manager 4
	Trigger	Slack	So we started this in the beginning of 2013, so it's a three-year project.	Sr. Manager 4
	Type	Non-local	We have developed a kind of toolbox with more than 200 global best-practice examples, so it's an access database. So we have 22 indicators, [and] if a city selects 3 or 4 priorities, we can highlight them, and then as a first attempt, we get a list of all projects that can address these topics. So, that's the starting point for our discussion. [...] Then we go the next step in session with the companies and say that, 'Okay, these are the issues that we need to address, what the city needs to address'. So, what solutions that suit best to solve these issues. So, based on this […] we come to a first long list of what can be done or what would make sense for a city to implement.	Sr. Manager 4
Institutional pluralism	Institutional logics	State logics	We have several responsible persons of the city at a table. So, its ministries, even the police, are sitting at the table, so we can at the same time discuss the issues with all relevant parties. And, that makes it strong from the city for commitment, but also the industry side.	Sr. Manager 4
		Professional, corporate, and community logics	So you get the commune, we get the government, we get the infrastructure builder, you get something, and this, and this, and this, […] you put all of those together, and with all of those components, actually, you can deliver a solution that works.	Sr. Manager 1
		Market logic	Then we must consider what is our business model, then in the future, if there is a limited use for cars and a limited benefit.	Sr. Manager 1
	Relationship	Aligned logics	Its an industrial NGO, and that's quite important as well. Its not a classical industry lobbying association. It's an association with an eye on what is good for the environment and society, and how this can be combined with business.	Sr. Manager 4

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SOI opportunities	Type	System-level opportunity	First, we get access to the city, […] because we come as a group. Maybe individually, we would have access to one person, but you also depend on whether the person likes you or not. [Our approach] is a more systematic approach. What is also valuable is that we do not speak to one person only. So, the idea is after we deeply understand the issues of this specific area, we will transfer this as a next step to other areas, and then potentially to the whole city, and then transfer this to other [Asian] cities	Sr. Manager 4
		Business-model opportunity	Its an industrial NGO, and that's quite important as well. Its not a classical industry lobbying association. It's an association with an eye on what is good for the environment and society, and how this can be combined with business.	Sr. Manager 4
		Business-model opportunity	We introduced a bus shuttle, [...] and now these businesses allow the parents to drop off their children on their grounds. So, not anymore on the street, but now they use private [parking bays] [...] the police is now regulating all traffic blocking one lane [at the school] […] we [also] negotiated with the police, with several of the big businesses as well in this area, to have a wider flexible working time spread. There are police boxes at each of the crossings, and so they manually change the traffic lights. […] That freed up some of the capacity. We did [this] together with the city and together with the police.	Sr. Manager 4
		Process opportunity	We have a methodology. And to each step, the city agrees. So it's not that we say, 'We have a solution, we want you to buy this'. No, we follow a certain logic that then—if that solution comes out as one of the good solutions—we of course offer to implement it in the city, and then this would be a business case for us. [So], it can be that you offer the [city] hybrids, fuel cell cars, but in the same portfolio, it might be that another company is providing a different type of car-sharing, [or] another software [solution] to improve, for example, the real life information that the city is currently collecting	Sr. Manager 4
		Process opportunity	We have developed a kind of toolbox with more than 200 global best-practice examples, so it's an access database.	Sr. Manager 4
		Process opportunity	So, we have 22 indicators, [and] if a city selects 3 or 4 priorities, we can highlight them, and then as a first attempt, we get a list of all projects that can address these topics. So, that's the starting point for our discussion.	Sr. Manager 4
		Process	So, we selected a certain area around the main road, and we set as a target we	Sr.

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	opportunity	want to increase the average speed of today from 10km/h to 20 km/h, because a more smooth traffic flow reduces also CO2, reduces emissions and improves safety. […] Therefore, we studied what is the root cause of this, and one of the root causes is that in this area, there are a number of international schools. When parents drop off their children in the morning, they blocked of four lanes. So, of course, [there was] huge congestion.	Manager 4
	Process opportunity	Like […] in the school case, […] we had some discussions with the parents […] with a couple of thousand parents […] and maybe 150 finally said at the meeting, […] 'Yes, we want to use the system.' […] Therefore, we encouraged the parents to use the shuttle bus for the children, and so we introduced a badge system […] so the children badge in when they go into the bus, and they badge in when they leave, so the parents get the information on their mobile phone. Therefore, we want to get this kind of practical information on how can be overcome, lets say, the feeling of insecurity […] in this case, to motivate the take up of a shuttle bus.	Sr. Manager 4
Scope	Broad	The main obstacles were to change the behaviour of people, how to make them use the alternative options, and to change behaviour of business, and, of course, we were faced with many, many issues	Sr. Manager 4
Realised	8		
Potential	Business-model opportunity	I think what we here tried to do is an inclusive business approach […] what we want to contribute to the society but also try and make a business case out of this.	Sr. Manager 4
	System-level opportunity	And, this is still going on, so it was […] we did the first trial, and we investigated what are potential issues. […] Now this will go on until 2017. [This] will be sponsored by the AUTO mobility fund. So, the idea is after we deeply understand the issues of this specific area, we will transfer this as a next step to other areas, and then potentially to the whole city, and then transfer this to other [Asian] cities	Sr. Manager 4
	Product and business-model opportunity	Therefore, you get an opportunity to develop your product [and] to understand how society would like your product to develop in the future. So, everybody can see why actually SDC are doing that, and that's their purpose for doing it. Nobody can do it on their own, but together they can do [it].	Sr. Manager 4
	System-level opportunity	Of course, what we need to prove is the real benefit for the cities. […] Of course, the cities' expectations is not just doing us a nice project, because we're not	Sr. Manager 1

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		academics in the end, so they want to do real projects and see that we can help them.
Potential	4	

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D.3 Just World charity

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		Their principle driver is [that they] want a company who can help basically generate funds […] for them to reach the big limits they're always trying [to reach].	Sr. Manager 7
	Trigger	Slack	We obviously have the [social contributions fund], so there is lots of local community projects where people apply for funds, dealers are applying for funds to support local projects, and staff ask. So, we have that going already, and then we decided that we wanted to try and find something much bigger, much bigger scale [outside that fund].	Sr. Manager 7
	Type	Local	We tied up our dealers with some of our more local sponsored organisations by there […]so that we get this local link as well […] which was successful in a number of cases. And, in some cases, those relationships now are on-going, so they were almost introduced through JWC.	Md. Manager 6
Institutional pluralism	*Institutional logics*	Community and corporate logics	And, we discussed, or they discussed with us about […] that they would actually go and look for companies who they believe are, who have got the right CSR credentials. Clearly, […] our credentials fitted quite well with them.	Sr. Manager 7
	Relationship	Dominant	The first point is that we want to be part of the community […] that's the aim. We're not necessarily, in every interaction we have with the community or NGO or the organisation, looking for any benefit for us out of it.	Md. Manager 6
SOI opportunities	*Type*	Process opportunity	So, actually, they had approached our agency or one of our marketing agents and said, […] 'Can you put us in touch with AUTO?' […] We ended up meeting with Comic Relief, and they discussed with us the opportunity of being one of their tier-one supporters.	Sr. Manager 7
		Process opportunity	We would put [JWC-sponsored charities] in touch with the dealer and see what else the dealer could do to support that need. So again, did they need resources in terms of people, did they […] sometimes they need cars to borrow, to transport people around […] sometimes they need the premises to borrow to do activities themselves, […] so we put them in touch with those to see how they could engage.	Sr. Manager 7

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
		Process opportunity	For the first time, we collaborated with the factory, all of our dealers, all of our staff, so all [AUTO] entities [...] behind one cause, […] and we raised £775,000.	Md. Manager 6
	Scope	Narrow	This was a very successful way of introducing our dealers into projects that already existed in their towns and cities, and putting them in touch with them.	Sr. Manager 7
	Realised opportunities	3		
	Potential	Process opportunity	So, it's identifying the right charities, and trying to link up […] and the partners to link together.	Md. Manager 6
		Process opportunity	Is it [not always] about giving money […] actually, it is as much about getting your employees involved in the community. It's an education process, and that's part of our job, to try and educate them, actually, [to engage more in the community].	Sr. Manager 7
	Potential opportunities	2		

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D.4 Supply chain sustainability working group

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		So, we are meeting together, […] and we are looking from the perspective of what we could do together […] to improve the sustainability in our supply chain.	Md. Manager 3
	Trigger	Problemistic	[Our interest was to collaboratively] improve the sustainability in our supply chain, […] because, of course, we can tackle different points individually, […] but maybe when we do it together it will be more efficient, it will give the scale, and it will bring better results.	Md. Manager 12
	Type	Local	We put base[line criteria], because we had to draw somewhere the line. […] [We] looked together at [improving] the CSR questionnaire […] and gave trainings for suppliers.	Md. Manager 12
Institutional logic	*Institutional logic*	Corporate and community logics	We, [together with NCSR], are looking from the perspective of what we could do together, of course, by keeping aside the confidentiality of our businesses, the conflict of interests, all those types of things, so we need to follow very detailed steps and the process to keep everything according to law and stick to the rules and regulations	Md. Manager 12
	Relationship	Dominant	Of course, we set up our guidelines, so we defined that this group as an automotive working group [that has] those guidelines in terms of CSR and what is expected from our suppliers in terms of CSR [...] so the basis.	Md. Manager 12
	Type	Process opportunity	[Our interest was to collaboratively] improve the sustainability in our supply chain, […] because, of course, we can tackle different points individually, […] but maybe when we do it together it will be more efficient, it will give the scale, and it will bring better results.	Md. Manager 12
		Process opportunity	So, we set up our guidelines and defined that this group as a European automotive working group, [and it] has [a set of] guidelines in terms of CSR. [Then, NCSR] put [all of the OEM data] in the matrix […] without the names, for example, that's the performance for the child labour […] the first company is saying this, the second company is saying this.	Md. Manager 12
		Process	We looked together at [improving] the CSR questionnaire, [as it] it turned out	Md.

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
		opportunity	that all of us as separate OEMs, we are sending the CSR questionnaire to our suppliers and trying to assess their CSR performance. [...] So, [the idea emerged to] create one questionnaire which we could utilize [and that] suppliers could fill in [once] […] and whichever OEM is asking, they will just come and send it back […] or keep the electronic version and then resend it.	Manager 12
		Process opportunity	So, we do not share it among us, we send [our input] to NCSR. So, their core job is to facilitate those conflicts of interests and confidential areas as well. […] They put [all of the OEM data] in the matrix […] without the names, for example, that's the performance for the child labour.	Md. Manager 12
SOI opportunities	*Scope*	Narrow	So, we do not share [practices] among us, we send [our input] to NCSR. So, their core job is to facilitate those conflicts of interests and confidential areas as well. […] They put [all of the OEM data] in the matrix […] without the names, for example, that's the performance for the child labour.	Md. Manager 12
	Realised opportunities	4		
	Potential	Process opportunity	Of course, if we are talking about the questionnaire, it's just to collect the questionnaire—at this stage, we are not doing any kind of assessment, […] so we don't have the common ranking […] maybe one day we will get there, but not now.	Md. Manager 12
		Process opportunity	We don't have such clear targets, but, yes, as we are evolving, all of us are evolving, so our guidelines can go up, improve […] we can expect more […] we are coming back to this discussion on a regular basis if there is something that we should consider.	Md. Manager 12
	Potential opportunities	2		

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D.5 Apprentice Scheme

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		We didn't have any opportunities for young people. […] We didn't bring any youngsters into the business, so we didn't have any apprenticeships for external youngsters. In 2007, we designed a new scheme, and this was to have existing production members and then bringing in youngsters. Bringing them and starting our own apprenticeship scheme.	Md. Manager 16
	Trigger	Slack	We had unused capacity in the training centre. So, the decision was made by our management team, Paul Fitzpatrick and me leading that activity, […] lets see what we can do with external companies. […] We provide them with the workware, they come through the scheme.	Md. Manager 16
	Search Type	Non-local	Sometimes they'll ask us to comment on new policies take part in the consultation, sometimes they just ask us to speak at events in what they are trying to do. […] They sometimes take the view […] its perhaps better to hear it from industry rather than the policy implementer, [...] so it's that type of reciprocal partnership.	Sr. Manager 13
Institutional pluralism	*Institutional logics*	Professional and state logics	[Our apprentices] supports the UK PLC, […] that saying, […] it supports us as a company and supports UK PLC as a whole in the development of apprentices in the future, […] as a whole, […] I think it's three million apprentices by 2020, or something like that. […] It's all part of that bigger picture to bring apprentices into the UK.	Sr. Manager 13
		Corporate and community logics	Our main goal was being a good corporate citizen as well, [and], of course, we get some benefit. However, if we can make our supplier stronger, we can make our region stronger.	Md. Manager 16
		Market logic	We have to be more commercial. Therefore, if we can work out something about delivering apprenticeships [commercially], then we both can get a flight of that and then hallelujah.	Md. Manager 22
	Relationship	Aligned	We all have our own objectives individually and in our organisation—but there is one common goal out there, which is making sure we've got good apprenticeships.	Md. Manager 23

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SOI opportunities	*Type*	Process opportunity	So, we designed the course for the qualification, [but] we do extra to the qualification. So, [we train them on] things like [our philosophy], we do a lot of experientials with them, on personal development, [and this] is additional to what they would get at college. They don't just get the qualification [...] we design it for our own apprentices, and the qualification is plus alpha, so there is a lot more in it.	Md. Manager 16
		Process opportunity	We developed an apprenticeship program to train our own maintenance engineers for maintenance. We have, over the years, [developed relationships with] SMEs, colleges, local colleges we also collaborate with. Moreover, there are private training providers, and these are partnerships working as well. […] We want to be the best in the UK to support UK PLC.	Md. Manager 16
		Process opportunity	We came to a point where, because the scheme has been so successful, everybody has been moving into production, we are not seeing turnover. […] We're seeing a low turnover, […] so, actually, what happens is that we got to a point where headcount-wise, we didn't need any more apprentices.	Sr. Manager 8
		Process opportunity	We had unused capacity in the training centre. [So], we had to make a decision. Do we work with external partner companies who have been asking us [for help], or do we say—actually, we'll close our apprenticeship down, and we'll turn it back on when we need it?	Md. Manager 16
		Business-model opportunity	We approached our supplier partners, both initially to the factory and said, […] 'Would you like us to be your training provider? We can grow your talent; this is what we do. We will not take them off you, we won't poach them.' [So now], we're providing apprenticeships for SMEs and for our suppliers. And, in fact, at the moment, nearly all our apprentices are from SMEs and suppliers.	Sr. Manager 13
		Process opportunity	They go through the exact recruitment process, the exact same testing, exactly the same programme as an AUTO apprentice would do. We provide them with the workware, they come through the scheme. […] I support them with advertising of the whole program, I engage with schools, I engage with the local councils, the AIG advice and guidance tutors from the schools, the careers people, and all the companies. We [as organisations] all have got our own objectives individually and in our organisation—but there is one common goal out there, which is making sure we got good apprenticeships.	Md. Manager 16

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	System-level opportunity	In the UK, there is statistics on smaller companies […] doing apprenticeships is horrendous. It's something like 10%. […] So, it is about skilling the whole of the midlands and the whole of the UK by aligning everybody's apprenticeships.	Md. Manager 16
Scope	Broad	[If you think about our approach in terms of] cash out—the business would never get off the first page. That is how we are approaching it. Nobody told us to do the SME [apprenticeship]. The managing director did not say to me, 'Do the supplier development'. We thought—we are under capacity. Our suppliers are not very strong. How can we turn this into a win-win? Therefore, we got a training centre that is fully utilised, but at the same time, our stakeholders are getting better.	Sr. Manager 13
Realised opportunities	7		
Potential	Process opportunity	It is about making sure that there are opportunities for young people particularly to enter the workforce, that there are opportunities of high-quality apprenticeships available and that smaller companies and other companies that lack the provision or the know-how, have got access to high-quality facilities and training, [which AUTO provides].	Md. Manager 23
	Business-model opportunity	I am looking at what other apprenticeship schemes we can run, so business-admin apprenticeships, other production apprenticeships, anything else that we can bring into the apprenticeship framework […] my image would be that this training centre has got 20 classrooms full every week, […] so that's the image.	Md. Manager 16
	System-level opportunity	We could almost say that we are going to be a training academy for the sector.	Sr. Manager 13
Potential opportunities	3		

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D.6 Gingko partnership

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		[One of three] pillars was to create manufacturing operations which were in harmony with the natural environment and surroundings. [So], basically the whole concept was to create a manufacturing facility in an ecological park	Md. Manager 11
	Trigger	Slack	I spoke to [top managers] running the plant in Asia, […] and they decided to make their plant the model plant of this sustainable manufacturing thinking. Therefore, they started that, [and] they were doing it for two and three years, and they started to launch it in each region, and they chose our plant as the European region launch. So, that's how we became a sustainable manufacturing plant, and I picked up the role responsibility to do that.	Md. Manager 11
	Type	Non-local	It was primarily about transferring their [biodiversity-related] knowledge to manufacturing operations or vehicle problems […] or promotion and education. […] It is still to be developed, [but they work with AUTO in the areas of] education, knowledge, and technology transfer […] that type of thing.	Md. Manager 11
Institutional pluralism	*Institutional logics*	Community logic	[Our work is] showing that we are thinking about the environment here. We are not thinking about cars. I am not expecting to sell any additional cars.	Sr. Manager 1
		Corporate logic	Our company sets up five-year action plans, meaning that in 2016-2020, we say we want to do something on biodiversity. Therefore, the commitment is we do something on biodiversity. So, we know that that is going to be a commitment from our company, so it's up to us to fill that in.	Md. Manager 2
		Professional and community logics	Gingko is a science-based organisation, and they are not commercial. But that's one of the reasons that we like them, is because they are a science-based organisation. Anything we do in the space of biodiversity, and it's got Gingko's name associated with it—willingly by their side—has automatically some seal of approval.	Sr. Manager 1
		State logic	We know that the UN has created a convention on biodiversity, […] so as long as we can link [our activities to that], it would be great, […] so [we] focused on habitat conservation and enhancement.	Sr. Manager 1

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
	Relationship	Aligned	We effectively sat together—the three of us—and said, 'Can we develop a common project where we all three of us will be happy in setting common goals?'	Md. Manager 2
SOI opportunities	*Type*	Process opportunity (project #1)	Basically, [AUTO] decided to make [a Japanese production site] a model plant of sustainable manufacturing thinking, […] so they started that […] they were doing it for two and three years, and they started to launch it in each region, and they chose our plant as the European region launch. So, that's how we became a sustainable manufacturing plant.	Md. Manager 11
		Process opportunity (project #1)	We had to manage the landscape, [and it was] just a normal requirement within the planning commission. [Then] we realized that there was a value to nature of our land, so we had to plant trees as part of the business environmental plan at the beginning, and from that we realized that there was this opportunity that started to emerge, [as] there is no value for nature in particularly close-mown-off grass; it doesn't provide a home or provide food to other species, and naturally, it's quite expensive to maintain, because you're cutting it every two weeks. So, all of these things added up to saying [that] we will need to change the way in which we manage.	Sr. Manager 1
		Process opportunity (project #1)	[We] started to work with the Local Wildlife Trust, and they helped us then to start to consider how many species that we were attracting, how many of those were rare species. [Then] they started to give us ideas on how we might manage the environment in a slightly different way, that would improve the impact of birds and insects and anything else on the site, […] so they tried to do that, and we got to a good point.	Sr. Manager 1
		System-level opportunity (project #1)	We realized that there was a value to nature of our land. So, we have a land of something like 680 acres, which is a big stretch of land. [AUTO] tried to engage with a consultant […] that didn't really work […] they got involved with one university, […] that wasn't really taking them much further, […] and then one of my colleagues heard an interview with Kew Gardens on the radio and said, 'Why don't we try them?' And, AUTO started to work in partnership with Kew to make	Sr. Manager 1

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
			landscape management for biodiversity.	
		System-level opportunity (project #1)	The whole concept was to create a manufacturing facility in an ecological park. [...]. Therefore, we then could convert industrialized areas into natural resource to expand the natural resource, which is actually under threat from industrialization. So, as you are industrializing, you are trying to build [premises] that obviously meet with their principles of restoration and preservation.	Md. Manager 24
		Process opportunity (project #1)	When we started, we set a target to restore 680,000 square metres on-site, [...] so the first one was the face of the building, [...] which is about 16,000 square metres, […] and now we are doing the back faces of the buildings.	Md. Manager 24
		Process opportunity (project #1)	To do this type of restoration is expensive […] originally, when we started it, it was around £17 per square metre, [and] in order to restore a large area like 250,000 square metres, you can't do it at £17 per square metre. You've got to get it down to less than a pound a square metre. So, we've been working with them, and there we developed a method to restore, […] which is less than £1 a square metre. In addition, we are down at £2.30 now […] from £17 a square meter, and as we scale, we should get the economies of scale.	Md. Manager 11
		Process opportunity (project #1)	And obviously, the benefit is that you're increasing the ecological resilience you create in the network of rows, hedgerows, and trees that connect the outsides. So, that increases ecological resilience, usually pathways or species that migrate for genetic diversity to occur.	Md. Manager 11
		Process opportunity (project #2)	So, [the production site] had the relationship originally with Gingko, […][our headquarters] sort of were much smaller […] our site was a lot smaller than theirs, but we sort of replicated what they had done there, […] so instead of making an "eco-park", we decided to make "eco-HQ" and use the relationship with Gingko in the same [way]. So, Gingko helped us find the right landscape gardener to do the work in the first place, they came here and gave regular talks to staff to give them the real professional understanding about what we were doing, why we were doing it, and why it was important, so it was just not us.	Md. Manager 6
		Process	The other thing we forged more is the relationship with the Local Wildlife Trust,	Md.

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
		opportunity (project #2)	[…] but what the [relationship with Gingko] has done, […] and that's interesting, […] it started with eco-HQ but has now developed in supporting this.	Manager 6
		Process opportunity (project #1)	I saw that it was good, and I said I need to do something here and at [another location], which is here at our R&D site […] and the parts warehouse.	Sr. Manager 1
		Process opportunity (project #2)	I want to use these as models for the other parts of the organisation.	Sr. Manager 1
		System-level opportunity (project #3)	So, Gingko had a program that was called 'The Great Plant Hunt'. So, they have developed materials for all these [primary school] age ranges and effectively had already created a [biodiversity awareness program.]	Md. Manager 2
		Process opportunity (project #3)	Gingko had done some work on biodiversity education. So what we [as the EEN] did was, [we took Gingko's] course called 'The Great Plant Hunt" [and asked the EEN to] translate it into 10 other countries' languages.	Md. Manager 2
		System-level opportunity (project #3)	And then we're launching it in those countries through EEN's network. We've now got already around 300 schools that are signing up to participate in this program, [….] and, of course, we help people grow and grow.	Sr. Manager 1
		Business-model opportunity (project #3)	SOPK are going to go to countries where they've never been able to have a presence before, […] so their level of awareness as a scientific institution in plants and what have you will be enhanced, because they are going to be seen in 10 countries in which they weren't seen before.	Sr. Manager 1
	Scope	Broad	EEN, for example, have a network of schools, and they want to promote environmental thinking in those schools. So, […] there is the hook—they tell us [that they] want to o increase the awareness of people on the environment and environmental issues, and biodiversity is one of the issues that we [also] want to raise awareness of. So, that's the link [...]. So, why not try to work together for our benefit? Your benefit is that you will reach more people; our benefit is that we will have something to fill that requirement of biodiversity, so let us see what we can build.	Md. Manager 2

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
	Realised opportunities	16		
	Potential	System-level opportunity	We've got another 13 warehouses, we've got 30 office buildings owned by our sales and marketing operations […] there's vehicle hubs, […] and then if we're really ambitious, we can go to the dealers, and we've got about 3,000 dealers across the European marketplace, […] so we've got a long way to go.	Sr. Manager 1
		System-level opportunity	And, I suppose that our ideal goal of operating is that it actually becomes a resource for education. So, that we actually make it available and that we provide the tools for both schools for communities to be able to come and get inspiration to do something locally.	Md. Manager 19
		Process opportunity	So, the memorandum of understanding really covered areas around the manufacturing facility, around opportunities of the products, opportunities for promotion and proper relations, and opportunities for scientific research, [but] it's still to be developed, [as] they were going through all sorts of restructuring and reorganisation.	Md. Manager 11
		Process opportunity	So, we fund SOPK [to] start up a [research] unit, […] which will be purely, basically sponsored by AUTO's money and a little bit of match funding for the next five years to then do [species] assessments over the five-year period.	Sr. Manager 1
	Potential opportunities	4		

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D.7 Road Safety Education partnership

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		We want to be a part of the community, and people will thank us for that by buying cars from us, doing business with us, and there will be a mutual benefit to the relationship.	Md. Manager 6
	Trigger	Slack	SDSA applied for part of [AUTO's social contributions fund], which was the initial approach. So, I think they [had] three years' worth of funding, and then we decided that it was important to take it outside that process and do it more as a relationship rather than a fund application.	Md. Manager 6
	Type	Local	They were very interested in how we could help them with providing proof of concept that we actually have an actual effect on young adults' driving styles.	Md. Manager 6
Institutional pluralism	*Institutional logics*	Community and corporate logics	It's a perfect opportunity to be involved [in the local community], and they are very grateful of any support that we give.	Md. Manager 18
	Relationship	Dominant	Some of the local organisations that we deal with do things that might be very aligned to our way of thinking […] and that alignment drives us to want to get more involved with the organisation […] these guys rate 100% on our criteria, because it ticks all boxes and things that are important.	Md. Manager 6
SOI opportunities	*Type*	Process opportunity	We knew we could provide them with a vehicle as well [to support the road show]. […] The performance was made possible due to the generosity of AUTO.	Md. Manager 6
	Scope	Narrow	They applied, we went to see the shows, we were about to see […] we recognized that it's so important and very aligned to what they do, and we know we can provide them with a vehicle as well.	Md. Manager 6
	Realised opportunities	1		
	Potential	Process opportunity	Well, then we could use it potentially, how we do some young driver education online, whether it's online or through an app, we could use some of that information to support activities that we could do as well, […] so education is an interesting one for us.	Md. Manager 6
		Process	They were very interested in how we could help them with proving proof of	Md.

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
		opportunity	concept that we actually have an actual effect on young adults' driving styles.	Manager 6
	Potential opportunities	2		

D.8 Local Nature Partnership

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		The purpose was really to try and create a more strategic approach to delivering environmental benefits across wider areas, to try and encourage more local government.	Md. Manager 21
	Trigger	Slack	So, we're heavily supporting the LNP. We support that financially, we support that practically with our room, we support that with our reputation, if you know what I mean.	Sr. Manager 8
	Type	Non-local	You learn a lot about what is going on. You learn about what is happening in the region, the area; you get information on directions, city […] direction, […] and then you find opportunities for sharing new ideas and things, […] and then you come into contact with organisations like house-building companies, you know, big companies, which we wouldn't have before, […] and you find some common things and interests.	Md. Manager 11
Institutional pluralism	*Institutional logics*	Community logic	We participate in [the LNP], basically for the good of society activities, […] and it comes from our culture; we're encouraged, I am encouraged, to give my time to do these sorts of things, […] and it's a very impressive part of AUTO, because it all costs money, because while we are doing these things, we are not doing something else […] by definition.	Md. Manager 11
		Corporate, community, and state logics	Its an act of Parliament that created the partnership, […] and the board is quite high level […] the board's got a lot of senior people from organisations, […] the chief executives from companies, the local government, nature organisations.	Md. Manager 21
		Market logic	At AUTO, they already deal with a lot of things, so they have nature reserves on	Md.

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
			their site. [I guess] they want to ensure that the LNP is not just another environmental organisation like the wildlife trust, but that they have an economic focus as well and that they are always aware that there can be opportunities—economic opportunities—around improving biodiversity and natural capital.	Manager 21
	Relationship	Estranged	We also have a strategy group. So, although the LNP has been running for a few years, we still do not have a strategy. So, with such a broad range of board members, it means that there are not always agreements and consensuses about where the priority should be, […] some people are more focused on protecting nature in a conservational sense, whereas others are a bit more, kind of—using developments to finance environmental improvements. So, its kind of finding a consensus really […] and an agreed direction amongst board members […] and that takes a little time.	Md. Manager 21
SOI opportunities	*Type*	System-level opportunity	So, we're heavily supporting the LNP. We support that financially, we support that practically with our room, we support that with our reputation, if you know what I mean.	Sr. Manager 8
		System-level opportunity	You learn a lot about what's going on. You learn about what's happening in the region, the area, […] and then you find opportunities for sharing new ideas and things.	Md. Manager 11
		Process-level opportunity	[The group] tried to [create a database and] identify the natural capital assets within the region, pulling together data from various statutory bodies. [For example,] the environment agency might have data on water, local authorities might have data on air quality, and local authorities monitor minerals, so what untapped minerals exist in the region. [There are] various natural capital aspects, [such as] species [or] habitats, so that was a big project we did last year, to try to bring all that data together.	Md. Manager 21
		System-level opportunity	We brought together a green infrastructure strategy for the region, so we developed this about six years ago. However, the organisations that developed that, […] so the strategy is out of date really, and needs to be viewed and refreshed, so we got together again—a group of stakeholders across the area and	Md. Manager 21

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Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
			got them to bring forward green infrastructure projects.	
		Process-level opportunity	So, the county council commissioned the [planning commission] report, the local nature partnership is on their steering group of the vision, […] so we are kind of one of the key stakeholders to be able to influence other organisations.	Md. Manager 21
	Scope	Broad	As an individual organisation, you may not have that opportunity, or you may not be seen as being the kind of key stakeholder […] I guess we're seen to represent broad thinking across the geographical area, […] so they listen to it because of that.	Md. Manager 21
	Realised opportunities	5		
	Potential	Process-level opportunity	[A key benefit is] the opportunity to influence, […] so we kind of have influence in that way as well, […] so that's another way in which it is beneficial to the other organisations.	Md. Manager 21
	Potential opportunities	1		

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D.9 Diagnose Car partnership

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		Instead of donating a car to a local school—you donated it to DCP, and they rotated that amongst all schools, […] so as a brand, you get a much better exposure and a much wider scope is touched, and in addition, we were working with students that were working on that project.	Md. Manager 3
	Trigger	Slack	With that background, we received a request from many schools constantly asking for support. And, generally, you said, 'Which school and why? And, who is going to find the budget, and why that one and not that one, and is it because you're friends with that guy, or you know, […] what's the logic, and what's the structure?' So, we didn't really know, and then if there was something that we needed to get rid of, cause it was old, we may have given it.	Md. Manager 3
	Type	Local	DCP had an asset if you like, as they had every manufacturer's diagnostic tool—and if they get consent from the manufacturers to use the tool in the equipment in this comparison, we wanted to share the comparison between the other manufacturers to [explore] whose tool is better or worse.	Md. Manager 3
Institutional pluralism	*Institutional logics*	State, professional, and community logics	We have different objectives. The schools try to get equipment. And that's important for the Department for Education and for the federation. But another extra thing is to get more students in the department of auto technology. […] There are not enough engineers in the local economy. And, they don't know enough, […] so that are the two objectives we try to achieve, [...] and my primary objective was to get the new cars, the most recent cars, into schools, so that education would get higher.	Md. Manager 20
	Relationship	Dominant	So, as a company, we had a lot of publicity; it was even on regional television and so on, and its sort of the ideal case, cause we didn't just give something, we also learned something, and so it was […] it seemed like a logical way to work.	Md. Manager 3
SOI opportunities	*Type*	Process opportunity	Then one school came and actually, it was one guy working at a school, but he was actually working at a slightly higher level, because he took it upon himself to say, "From a company point of view, it's difficult for you to answer the question of, 'Why me, and why this one?'. So, what I am going to do is that I am going to	Md. Manager 20

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		network all the schools, and then if we get a donation or some equipment." And we set up a rotation scheme, from school to school with those vehicles.	
	Process opportunity	Then they weren't looking for just a car, they also wanted a diagnostic tool, and we said, 'That's interesting'. [We said to the DCP that] we are doing a review about that diagnostic tool. So, how about we give you a car and a diagnostic tool, and you develop a student project that works on comparing the tools with each other from the different manufacturers? Then we had a student project where they produced a comparison of all the tools regarding ease of use, speed, all the different aspects mentioned for that kind of thing.	Md. Manager 3
	System-level opportunity	Our exercises are all on the website. So, the teacher can log in, can go to the car he has at the school, and then download the material. And, we also have around 10GB information around other subjects, not on the car, but on subjects like light systems, safety systems, so they can download the material that we get from the brands, and we can use them in the class.	Md. Manager 20
Scope	Broad	So, they support our work, so every year it gets more difficult to get extra cars, because of the economic crisis, of course, so every year they get in touch with the CEOs of the different companies, […] and that's important for us, because I am just a guy, […] and I don't know everything and everyone, but through this federation its possible	Md. Manager 20
Realised opportunities	3		
Potential	Process opportunity	And, when the school has to buy something, we all put it together, so we get a lower price. That is also what we start in the next school year. There are materials, now we all can get together.	Md. Manager 20
	Process opportunity	Yes, at the moment, we are discussing about handbooks for the students—what [teachers] need to teach to the students. [...] At the moment, there is no handbook in those [technical] subjects. And, now we are making a book in collaboration with the federation with all the different subjects, and this next school year, we will go to the different schools. Some of the teachers told us that they would like to give courses to other teachers, so we [will soon] start that.	Md. Manager 20
	Process	Some of the teachers told us that they would like to give courses to other teachers,	

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	opportunity	so we [will soon] start that.
Potential opportunitie s	3	

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D.10 Fire and rescue partnership

Data category	Identified theme	Sub-constructs	Illustrative quotes	Source
Search	*Aspiration*		We have to build a lot of trial vehicles, […] but, actually, we can't register them for the road, […] so rather than scrapping those cars and actually paying to have them scrapped, we actually have a partnership. It's quite an unofficial partnership, so we've never signed any contracts or anything like that, whereby we donate the majority of those vehicles to FRO.	Md. Manager 10
	Trigger	Slack	When we build the vehicles, we have to build a lot of trial vehicles, so as you can imagine, we're trying to put them together and take them apart, and various things, […] actually, once we are done with those vehicles, then we use them on-site as car run-arounds, […] but actually, we can't register them for the road.	Md. Manager 10
	Type	Local	So, we've been able to support them in actually going to the AUTO training for safety, so that they're able to train other people as well. So, actually, if you were to have a crash in [an AUTO] vehicle, it's probably the safest vehicle to have a crash in Derbyshire, really, because the fire-fighters know exactly how to get you out of there.[...] They have actually taken and used these skills from [Motorsport engineering students] at the local university to build the cars.	Md. Manager 10
Institutional pluralism	*Institutional logics*	Community and state logics	I mean, you can see here that they don't just use it for their own fire and rescue service. They actually use it for other emergency services, and they actually train neighbouring fire services.	Md. Manager 10
	Relationship	Dominant	The reason why we are donating these vehicles isn't to save us money […] we're donating these because we believe it's the right thing to do, and actually, because we want to make our roads safer. So, that's why we're working in partnership with FRO.	Md. Manager 10
SOI opportunities	*Type*	Process opportunity	When we build the vehicles, we have to build many trial vehicles, so as you can imagine, we are trying to put them together and take them apart and various things. Actually, once we are done with those vehicles, then we use them on-site as car run-arounds, but actually, we can't register them for the road.	Md. Manager 10
		Process opportunity	So, of course, [our donation] saves the fire service money, 'cause they'd have to go to a scrapyard, and they'd have to buy vehicles, but the beauty of this is that	Md. Manager

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		they are cutting up vehicles that are the highest technology. So actually, what we have also done is we've actually used [AUTO's] skills to train FRO how to use [AUTO's] technology.	10
	Product opportunity	So actually, what they've done with two of the vehicles is that they've actually made them into vehicles that they can—rather than just cutting them up, ones that they can reuse. So, the 'transformer mark' 1 vehicle can be taken apart and put back together [to] show the fire-fighters where [the car] actually should be cut and how to extricate the causalities.	Md. Manager 10
	System-level opportunity	They believe that thousands have benefited due to the demonstrations, […] so they actually take these vehicles to the emergency services show down in the country every year.	Md. Manager 25
	Product opportunity	[Therefore, another] transformer vehicle was built and donated to an NGO [that] take[s] it to resource-constrained counties to train up fire-fighters. This has actually been all over the UK, and I think they have shipped [the car] over to Europe [and South Africa] as well.	Md. Manager 25
	System-level opportunity; state and community logics; local search	The safety engineering simulator vehicle has also been built and [shows], [...] actually, when you're in a collision, what will your vehicle do? The transformer cars provide a lot to the training to this, in relation to excavation techniques, hybrid familiarization, and safety road assistance.	Md. Manager 25
	System-level opportunity; state and community logics, local search	[AUTO's cars] are a fundamental part of the road traffic collision refresher program; its been delivered in the past three years, a number of refreshers that they carried out in three years, which is approximately 100 courses. […] They also have a regular course they deliver to new ambulance and police trainees in which they receive approximately two to three hours of road traffic collision training. […] Ambulance staff also uses this as part of their continuous professional development.	Md. Manager 25
Scope	Broad	What began as a small, local understanding has now attracted global interest.	Md. Manager 25
Realised	7		

opportunities				
Potential	System-level opportunity		We're in discussion with FRO, the police, and the road safety partnership about how we could work together with them to deliver something in AUTO's name in looking at road safety and improving the safety of the roads, or even if its just educating people.	Md. Manager 25
	System-level opportunity		[We were approached by DFS], and now we're working with Derbyshire Fire and Rescue to try and understand the impact [our donations] have [on road safety] […] what we are looking to do is to understand, actually […] how many people have benefited.	Md. Manager 25
Potential opportunities	2			