

BEWARE OF CHAMELEONS— CHAMELEONS BEWARE.

THE PROPRIETY OF INNOVATION AS A
CONCEPT FOR THE COORDINATION
OF NOVELTY AND CHANGE.
INSIGHTS FROM THE DUTCH
OUTBOUND TRAVEL INDUSTRY.



HARALD BUIJTENDIJK

Propositions

1. Innovation is not about creating a novel future, but about maintaining the status quo.
(this thesis)
2. Real innovators should avoid the word innovation.
(this thesis)
3. There is no truth beyond stories, yet stories are often false.
4. Keeping scientists out of politics and politicians out of science ultimately benefits both.
5. Change without pain is an idea that politicians can sell quite easily, but that is difficult to accomplish.
6. Dissonant chords make good music.

Propositions belonging to the thesis, entitled

Beware of chameleons – chameleons beware. The propriety of innovation as a concept for the coordination of novelty and change. Insights from the Dutch outbound travel industry

Harald Buijtendijk

Wageningen, 10 June 2021

Beware of chameleons - chameleons beware

The propriety of innovation as a concept for the coordination of novelty and change

Insights from the Dutch outbound travel industry

Harald Buijtendijk

Thesis committee**Promotor**

Prof. Dr V.R. van der Duim

Personal Professor at the Cultural Geography Group

Wageningen University & Research

Co-promotor

Dr M. Duineveld

Associate Professor at the Cultural Geography Group

Wageningen University & Research

Other members

Prof. Dr C. Leeuwis, Wageningen University & Research

Prof. Dr B. Hillebrand, Radboud University Nijmegen/Nyenrode Business Universiteit
Breukelen

Dr F.R. Avelino, Erasmus University Rotterdam

Dr R. Wesselink, Wageningen University & Research

This research was conducted under the auspices of the Wageningen Graduate School of Social Sciences

Beware of chameleons - chameleons beware

The propriety of innovation as a concept for the coordination of novelty and change

Insights from the Dutch outbound travel industry

Harald Buijtendijk

Thesis

submitted in fulfilment of the requirements of the degree of doctor

at Wageningen University

by the authority of the Rector Magnificus

Prof. Dr A.P.J. Mol

in the presence of the

Thesis Committee appointed by the Academic Board

to be defended in public

on Thursday 10 June 2021

at 11 a.m. in the Aula.

Harald Buijtendijk

Beware of chameleons – chameleons beware. The propriety of innovation as a concept for the coordination of novelty and change. Insights from the Dutch outbound travel industry, 167 pages

PhD thesis, Wageningen University, Wageningen, the Netherlands (2021)

With references, with summary in English

ISBN: 978-94-6395-783-0

DOI: <https://doi.org/10.18174/545568>

To Renske and Doris, your love made this possible.

Chameleon

“A small slow-moving Old World lizard with a prehensile tail, long extensible tongue, protruding eyes that rotate independently, and a highly developed ability to change colour.” (Oxford Dictionary, n.d.)

“The bullshitter may not deceive us, or even intend to do so, either about the facts or what he takes the facts to be. What he does necessarily attempt to deceive us about is his enterprise. His only indispensable characteristic is that in a certain way he misrepresents what he is up to.” (Frankfurt, 1929, p. 54)

“Writers are always selling somebody out.” (Didion, 1969, p. xiv)

Table of contents

1. Introduction	11
1.1. Changes and innovation in the Dutch outbound travel industry	14
1.2. Literature review	17
1.3. Problem statement	22
1.4. Analytical framework	24
1.5. Methods	27
2. The Machine	31
2.1. Introduction	33
2.2. Actor-network theory and eco-innovation	34
2.3. Methods	40
2.4. Case study – CARMACAL and the Dutch outbound travel industry	44
2.5. Conclusion and discussion	54
3. The Expert	59
3.1. Introduction	61
3.2. Discourse theory and a science-policy gap in sustainable tourism research	62
3.3. Case study: sustainable tourism research in Dutch aviation policymaking	66
3.4. Discussion	79
3.5. Conclusion	82
4. The Firm	85
4.1. Introduction	87
4.2. Theoretical framework	90
4.3. Methods	91
4.4. Case: innovation in TUI Benelux	95
4.5. Analysis: Innovation as a concept in TUI Benelux	102
4.6. Conclusion and discussion	107
5. Conclusion, discussion, and implications	113
5.1. Introduction	115
5.2. Conclusion	116
5.3. Discussion	119
5.4. Implications: beware of chameleons – chameleons beware	126
References	135

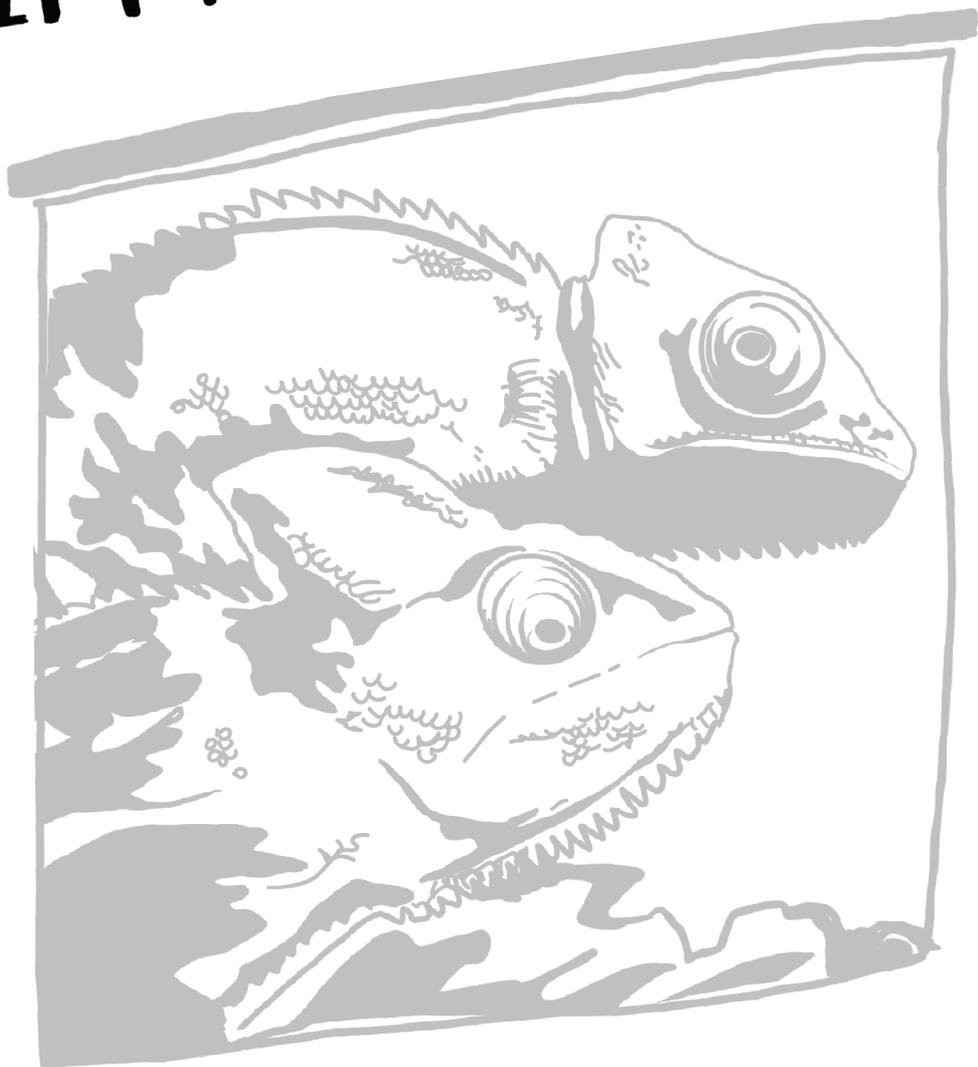
Summary	155
Samenvatting	159
Acknowledgements	163
Acknowledgements of financial support	167

List of tables and figures

Table 1-1 Case study overview	29
Table 2-1 Interviews and respondents	43
Table 3-1 Commissioned results (selection 2018-2019).	76
Table 4-1 Observed innovation unit events	93
Table 4-2 Interviews and respondents	94
Figure 2-1 Framework for analysing eco-innovations	38
Figure 2-2 Case study design	41
Figure 2-3 Example carbon label	48
Figure 2-4 Eco-efficiency scatterplot of destination.	50
Figure 2-5 Carbon management approaches in CARMACAL	56
Figure 3-1 Object formation dynamics	71
Figure 3-2 Minister van Nieuwenhuizen-Wijbenga supporting promising new technology	82
Figure 4-1 The 'innovation engine'	99

CHAPTER 1

INTRODUCTION



Change. It is organic and constant. Often, change operates in subtle and mysterious ways: it simply escapes human awareness. When change does get noticed, it becomes part of discourses: autonomous and necessarily incomplete processes of meaning production that are produced and reproduced through identifiable practices (Hajer, 2005; Howarth, 2000). Once change is part of discourses, it begins its social existence as part of a reality. In good times, change seems to limit itself to discourses of historians, who trace change in retrospect. But during spells of disorder (such as crises, natural disasters, pandemics), change and related discourses become more pronounced (Duineveld, Van Assche, & Beunen, 2017). Shock events, after all, tend to expose the weaknesses or limits of established structures, and as communications relating to these increase, people can become more aware of certain changes. New discourses can emerge that make established discourses less prominent. In their wake, drama usually unfolds as interpretations of change differ between discourses. Conditioned attempts to maintain the status quo come head-to-head with eager claims of new dawns. Regardless of the outcome of these discursive clashes, change always finds a way. It is the inevitable evolution of all that seems permanent: an intermingling of nature and fate that lacks a rulebook.

This PhD thesis is about a particular human preoccupation with change that is currently in fashion and has been for the last sixty years or so: innovation. Unlike change, innovation is a deliberate, human-made attempt to create novelty (and manipulate change). Innovation, Godin (2015) argues, is presented as the solution to every problem and it has become a symbol of modern society. The term functions as a “criterion of judgement” (Godin 2015. p. 3): innovation is inherently good and actors in business, policy, and science act in the name of innovation without much reflection. Some portray innovation as a universal cure to heal the world; others argue that innovation has become an end in itself (Bontems, 2014). In this thesis I intend to examine the currently unquestioned belief in innovation. Moving beyond mainstream discussions about the means and ends, measurement, and management of innovation and its implementation in organisations, I seek to explore what happens when organisations use discourses on innovation. To accommodate this alternative perspective, I define innovation in broad terms: it is a concept that people use to describe and coordinate (their) attempts to create human-made novelty, usually in response to a perceived change of some kind (Godin, 2015).

To investigate discourses on innovation from up-close, I take a closer look at how innovation is used in a particular setting: the Dutch outbound travel industry. This industry, as we have seen in the past years and particularly at present, is very receptive to external shocks (NRIT Media, CBS, NBTC Holland Marketing, & CELTH, 2020; 2019; 2018; 2017). At the same time, its recent history shows an increasing interest, engagement, and even fascination with its own (lack of) innovation (see e.g. Beulink, Dijkmans, Erdkamp, Lier, & Mensink, 2012; Capgemini, 2015; Reiswerk, 2015a; Schreurs, 2020). This raises questions about the use of innovation in the Dutch outbound travel industry.

1.1. Changes and innovation in the Dutch outbound travel industry

Also prior to the Covid-19 pandemic¹, change has been a central element of Dutch outbound travel industry discourse. Two manifestations of change have been particularly prominent.

The first one deals with the business of (re)selling holiday products. In Europe, tour operators and their network of travel agents have historically controlled product supply, directing tourist flows to destinations (see e.g. Aguiló, Alegre, & Sard, 2003; Medina-Muñoz, Medina-Muñoz, & García-Falcón, 2003). Recent advancements in information and communication technologies (ICTs) have increased market transparency and progressively empowered holidaymakers (see Law, Buhalis, & Cobanoglu, 2014). ICT companies like Airbnb and booking.com offer new products and online distribution channels (Buhalis et al., 2019). The dominant middleman position of travel industry incumbents is no longer self-evident.

The second concerns the increased awareness of the global contribution of this industry to climate change given tourism's growing dependence on air transport (Gössling, Broderick, Upham et al., 2007; UNWTO, UNEP, & WMO, 2008). Within the general debate on tourism and sustainability (see Buckley, 2012; Sharpley, 2020), discussions about tourism's contribution to global warming have gained prominence (see Gössling, Hall, & Peeters et al., 2010; Gössling, 2002; Peeters, 2017). The sustainability efforts of (European) outbound tour operators have historically focused on the creation of positive impacts in (long-haul) destinations in developing countries (see e.g. Van Wijk, 2009), a strategy that is at odds with climate change mitigation (Peeters & Eijgelaar, 2014).

¹ See Gössling, Scott, and Hall, 2020 for a critical assessment of COVID-19 and related global travel bans.

Despite all this, the outbound travel of the Dutch (population 17 million) has been good business for decades and optimism about the future prevailed in the industry. In 2018, for instance, the Dutch consumed 22.1 million holidays that amounted to 15 billion Euros; the industry directly employed 27,000 people; and its growth had been steady for three years (NRIT Media, CBS, NBTC Holland Marketing, & CELTH, 2019). When times are good, people can afford to look back at their earlier work. In early 2020, the Dutch Association of Travel Agents and Tour Operators (ANVR), the trade association of approximately 400 tour operators and 1000 travel agents (ANVR, 2020), co-published a booklet about the sector's history. Among the listed milestones: ANVR's own establishment (1966) as well as the establishment of Reiswerk (1998), an expertise centre closely affiliated with ANVR (Schreurs, 2020). Good times, however frail they are in the face of ever-uncertain futures, seem to invite celebrations of past accomplishments. A few years earlier, the mood was different.

1.1.1. The outbound travel industry reflecting on its own future

In 2015, when I began my explorations in the Dutch outbound travel industry, business had just begun to recover from the 2007-2008 global financial crisis. This had impacted the industry like a shock event (see Duineveld et al., 2017): booking volumes declined (customers booked their holidays later or not at all), cash flow problems emerged, and the procurement of product stock hampered (cf. ANVR, 2012; 2011; 2010; 2009a; 2009b). Several tour operators and travel agencies, such as the tour operator OAD, went bankrupt (ANVR, 2013; ANVR, 2009b). At the height of the crisis (2013-2014) the industry directly employed 21,000 people compared to 27,000 people in 2018 (NRIT Media et al., 2019). In 2015, growth returned (ANVR & Capgemini, 2015) but the ANVR also realised that some of the change initially attributed to the crisis was permanent and required action.

During those crisis years, ANVR and Reiswerk took an active interest in the industry's future. Different experts entered the scene. A vision document was commissioned – Beulink et al., 2012 – followed by a research agenda for the Dutch outbound travel industry: Reiswerk, 2015a. This report presented five prioritised themes of change, including sustainability and competition & technology. In 2014, ANVR joined research programme and platform Shopping 2020 (INretail & NRW, 2014) and launched a similar research programme and platform in partnership with Capgemini, named Travel Tomorrow (ANVR, 2015; 2014). More commissioned reports followed (see e.g. Capgemini, 2015; Cherrylab, 2016). ANVR and Reiswerk

hosted events where business consultants, management gurus, and futurologists presented future outlooks (see e.g. ANVR & Capgemini, 2015; Reiswerk, 2015b). In 2017, ANVR appointed a special professor of ‘innovation in tourism’ (ANVR, 2017) who delivered his inaugural speech – Hillebrand (2018) – one year later. Changing the future of the industry had become an aspiration; the future something that can be known, and that – according to these experts – can be created.

1.1.2. *A jump into the rabbit hole*

To familiarise myself with interpretations of change in the industry, I read these reports and attended some of the events. Here I came across dominant discourses that promoted innovation. Its language was laced with jargon and English language business administration idiom (even though the readership was decidedly Dutch). Capgemini’s consultants, for instance, talked of “digital transformation”; “flexible responsive culture”, and “massive transformative purpose”. Truisms and buzzwords were common too, like “never fail to fail” (ANVR & Capgemini, 2015; Reiswerk, 2015b). And there were statements that I interpreted as masculine and tough: “digital production disruption is bigger, stronger, faster”, “weaknesses must be exposed and taken advantage of”, “old ways of doing things are torn apart” (ANVR & Capgemini, 2015). “Strike force guiding principles” were required to cope with the “tsunami of new developments” (Reiswerk, 2015b). Innovation seemed a quasi-military, destructive affair of Anglo-Saxon origin to me.

The discourses on innovation perplexed me. They promoted innovation in absolute terms but justifications for the proposed course of action were rarely offered. The word ‘innovation’ dominated in all aforementioned documents (Beulink et al. 2012 - 7 times; Capgemini, 2015 - 31 times; Hillebrand, 2018 - 65 times). It was depicted as a self-explanatory noun, verb, and/or adjective. None of these texts offered an explicit definition of innovation but instead they explained the term indirectly (see e.g. Beulink et al., 2012; Capgemini, 2015; Cherrylab, 2016; Hillebrand, 2018). Innovation was said to be about the introduction of new products, services, distribution channels and technologies to create functioning value-propositions (Hillebrand, 2018), and about fundamentally changing the ways of doing business (Capgemini, 2015). It required, according to Capgemini (2015, p. 161), the creation of innovation labs that investigate promising business models and market opportunities; the purchasing of smaller market players for their expertise; the building of a company culture

with an “entrepreneurial mindset”; the stimulation of “creative ideas with commercial potential”; and the installation of “dedicated project teams”. Rarely had I come across texts that promoted innovation in such absolute terms: the more innovation, the merrier, radical innovation being the ultimate form (Cappgemini, 2015; Hillebrand, 2018).

The industry and industry-affiliated academic attention fully focused on the practical aspects of innovation in organisations. In its research agenda, Reiswerk (2015a) asked for studies examining the implementation of innovation in tourism supply chains. Hillebrand (2018) highlighted the importance of researching the interrelations between innovating firms and their environment. He called for guidelines that help firms in addressing the obstacles they encounter when innovating in collaboration with (the firm’s) stakeholders. But how can the proponents of innovation be so sure about its inherent benefits? What about the risks of innovation? The picture Cappgemini (2015) painted suggests that innovation requires considerable investments. Hillebrand (2018) pointed out that innovation changes the environment of the firm. Is it a sensible choice for firms – presumably established organisations – to make investments that change their environment and financially commit themselves to more uncertainty in the face of change? Is that in the interest of their shareholders or owners?

These discourses took the idea of innovation for granted. Innovation seemed to be the buzzword of the day, revolving around technology and ecommerce enterprise. The aforementioned industry reports and presentations are laced with examples and claims about innovation, but rarely offer substantiating evidence or a rationale of some kind. At industry events, during presentations, I remember scanning the faces of the people in the audience, looking for a reaction. Did they all know what innovation is, why it is important, and how it is used? Was I the only one who felt lost, the only one who looked for explanations in a place that offered none?

1.2. Literature review

To better understand this interpretation of innovation and to find out how it relates to academic literature on innovation, I turn to technological innovation literature and research on innovation in tourism studies literature (hereafter referred to as tourism innovation research). The literature on technological innovation is relevant here because the innovation discourses I encountered earlier frequently refer to this literature (see e.g. Cappgemini, 2015; Hillebrand, 2018). Tourism innovation research is relevant because it shapes the understand-

ing of innovation in the domain of tourism – the subject of this thesis. Next, I will review two main economic traditions that have studied technological innovation, before turning to tourism innovation research. I conclude the paragraph with a clarification of my theoretical position.

1.2.1. *The first tradition in the technological innovation literature*

The first tradition within technological innovation literature (>1930s), Godin (2012) explains, understands technological innovation as technological change. Interest focuses on the introduction of new technologies in (large) firms and industries (manufacturing). Prime concerns are unemployment and productivity. The conceptual framework comprises neo-classical economics (price, equilibrium) and econometrics. There is limited attention for policy.

Joseph Schumpeter's work is part of this first tradition. Schumpeter saw innovation as new combinations of existing knowledge and resources that drive continuous social, economic, and institutional transformations (Fagerberg, Fosaas, & Sappraser, 2012). Innovation, to Schumpeter, was a source of energy in the economic system that would disrupt any equilibrium (Fagerberg & Verspagen, 2009). His initial focus was on the interaction between individuals ('entrepreneurs') and their surroundings. The role of the entrepreneur was to introduce novelty in firms and industries, for instance by overcoming resistance to change (Fagerberg et al., 2012): entrepreneurs combine, adopt, and imitate, i.e. by copying novelties from elsewhere. The Schumpeterian entrepreneur did not only focus on (new) technologies: methods, forms of organisation, sources of supply, and markets that are new to a particular firm or industry were of interest too (Godin, 2015).

During his days, Schumpeter was a bit of an outsider and in the 1950s – the decade after his death – Schumpeter's ideas about innovation were considered a lost cause (Godin, 2012). Econometrics and equilibrium studies dominated the literature; quantifications that Schumpeter had always considered of limited use in advancing knowledge about economic and social change (Fagerberg & Verspagen, 2009). Schumpeter would only gain fame posthumously (Godin, 2010; 2008). Much later, in the second half of the 20th century, he was selectively rebranded as the frontrunner of what Godin (2012) depicts as the second tradition (see e.g. Fagerberg, 2003).

1.2.2. *The second tradition in the technological innovation literature*

The second tradition (>1960s) developed largely separated from the first tradition. It shifted focus from productivity to the market and mainly studies technological innovation as commercialised invention. Key interests are product and process innovation. Unlike the first tradition, it addresses policy aspects by contending that governments should play a role in improving firm performance (Godin, 2012). This literature is descriptive rather than econometrical as econometrics and equilibrium approaches had fallen out of fashion in the 1960s; their explanatory power was considered limited (Fagerberg & Verspagen, 2009). The second tradition developed into what review articles generally present as the field of (technological) innovation studies: TIS (Godin, 2012). As Fagerberg and Verspagen (2009) explain, TIS emerged from the Cold War doctrine in the United States: US global (economic) dominance required technological supremacy. Initial research therefore focused on technology, the factors affecting success and failure in Research & Development (with a prime interest in the role of science), and the dissemination of innovations (central was Roger's 1962 book, entitled *Diffusion of Innovations*). From the 1970s onwards, the second tradition has developed mainly in Europe (Fagerberg & Verspagen, 2009).

Important to this expansion was the work of Christopher Freeman, but there were others too (see Martin, 2012). As Godin (2012) explains, to Freeman, innovation was not about the use of technological inventions in (industrial) production, but about the commercialisation of technological inventions for consumers and firms (so products and processes). Freeman's book, entitled *The Economics of Industrial Innovation*, and the work of the Science Policy Research Unit (SPRU) – led by Freeman – have been influential in shaping the field of TIS (Fagerberg et al., 2012; Martin, 2012). Freeman's book offered an overview of knowledge on innovation aspects (Fagerberg et al., 2012). SPRU developed master's and PhD programmes and has functioned as role model: many similar organisations have since been established across Europe (Fagerberg & Verspagen, 2009). An extensive literature has since emerged that studies how innovation takes place, its prime explanatory factors, and implications (Fagerberg et al., 2012). Three characteristics, explained next, illustrate this field (Godin, 2012): the prominent position of Schumpeter and his work; firm-centeredness; and a (related) preoccupation with policy.

TIS claimed Schumpeter as a sort of ancestral scholarly father. The field did not need Schumpeter to discuss many of the issues that occupied the field: particularly the commercialisation of technological invention (Godin, 2012). Unlike the first tradition (neo-classical economics), the second tradition lacked a conceptual framework of its own. Schumpeter served to fill this void (Godin, 2012). TIS review articles generally present Schumpeter as a key figure in the academic field (see e.g. Fagerberg et al., 2012; Martin, 2012). In this literature, there are few references to publications on innovation prior to 1960, apart from Schumpeter's work (Fagerberg & Verspagen, 2009). Schumpeter's ideas, such as the definition of innovation as new combinations of existing knowledge and resources; the invention/innovation distinction; and classifications of innovation according to type and radicalness of impact, were selectively rehabilitated (see e.g. Fagerberg et al., 2012; Fagerberg, 2003). They were placed within a market frame. As Godin (2012) argues, Schumpeter did not analyse innovation in terms of commercialisation. TIS, thus, has iconised Schumpeter. Viewed in this way, Schumpeter's prolonged existence in innovation research is arguably self-perpetuating.

Firm-centeredness – the second characteristic – is evident, for instance, in the evolutionary (or neo-Schumpeterian) economics framework that has emerged since the 1980s (see e.g. Fagerberg, 2003). Evolutionary economics argues that innovation is central to economic growth because it generates new products and therefore provides the foundation for firms to compete. Markets offer a selection mechanism; routines within firms influence their ability to develop new products (Martin, 2012). A firm's knowledge and absorptive capacity are deemed critical to the exploitation of external resources of knowledge and innovation (Fagerberg et al., 2012). In evolutionary economics, the firm has replaced Schumpeter's entrepreneur as the source of innovation. The scope of innovation has narrowed to commercialisation (Godin, 2012), i.e. to the interplay between technology and market demand (see e.g. Di Stefano, Gambardella, & Verona, 2012). Evolutionary economics has led to a further revival of Schumpeter's ideas in the 1990s (Fagerberg & Verspagen, 2009; Fagerberg, 2003; Martin 2012), particularly in relation to the third characteristic: the policy domain.

TIS always had an attractive proposition for policymakers that supported governments in maximising the benefits of technological innovation (Godin, 2012). New products were emphasised as source of employment (rather than new technologies improving industrial

productivity: a source of unemployment). Technology was presented as a source of economic growth: policymakers should therefore support the innovators (firms); science was there to support governments in maximising the benefits of technological innovation. This is evident, for instance, in the literature about Freeman's framework of National Innovation Systems that examines the factors influencing a country's innovation and growth performance (Fagerberg et al., 2012). TIS has become hegemonic within the sciences because of this policy focus (Godin, 2012). Affiliations between the field and policy organisations such as OECD have always been close: governments have come to understand innovation as new, commercialised technology.

1.2.3. Tourism innovation research

Tourism innovation research has started in earnest at the turn of the century, when Hjalager (2002) outlined common innovation concepts and their potential for tourism studies. A sizeable literature on innovation in tourism has since developed. As I will show next, tourism innovation research initially drew heavily – but somewhat implicitly (Hjalager, 2010) – on TIS.

In terms of focus, competitiveness and growth are also central to tourism innovation research (see e.g. Hall & Williams, 2019; Hjalager, 2010; Marasco et al., 2018; Ormerzel, 2016; Pikkemaat et al., 2019; Teixeira & Ferreira, 2018). Tourism innovation research – again like TIS – is predominantly firm-centred, focusing on tourism/hospitality firms and their environment (see e.g. Marasco et al., 2018; Ormerzel, 2016). To include tourist destinations, tourism innovation research also relates innovation to economic activity in specific territories (see e.g. Hall & Williams, 2019; Teixeira & Ferreira, 2018), reminiscent of Freeman's National Innovation Systems framework (Fagerberg et al., 2012).

Tourism innovation research also draws on theories and analytical frameworks developed in TIS, including the work of Freeman and Rogers, but there are other examples too (see e.g. Hjalager, 2010; 2002; Pikkemaat et al., 2019). Similar to TIS, Schumpeter's work is central to tourism innovation research. It traces the concept to the early theoretical contributions of Schumpeter (see e.g. Hjalager, 2010; 2002; Ormerzel, 2016; Pikkemaat et al., 2019). It also reproduces different, usually neo-Schumpeterian interpretations of Schumpeter's ideas, including (neo-) Schumpeterian innovation definitions such as the one provided by OECD and Eurostat (2018) (see e.g. Pikkemaat et al., 2019); the innovation/invention distinction (Hjalager 2010, 2002); (loose) interpretations of Schumpeter's innovation classifications

(Hjalager, 2002; Ormerzel, 2016; Pikkemaat et al., 2019); and the role of Schumpeter's entrepreneur as an innovator and creator of new markets and products (Pikkemaat et al., 2019; Hjalager, 2010). Thus, tourism innovation research has largely ignored the first economic tradition of studying technological innovation and has mirrored TIS in its adoption of innovation as commercialised invention. But it has also struggled with this imported interpretation.

The argument, as observed by Montresor (2018), is as follows. The tourism industry – in comparison to manufacturing and other services – has specific characteristics that complicate innovation. These include the prevalence of small enterprises; high staff turnover; a poorly trained workforce; low wages and productivity; lack of collaboration because of the associated risks of freeriding, and so on (see e.g. Hjalager 2010; Ormerzel, 2016). The central theories and analytical frameworks adopted from innovation studies – a field viewed as being primarily concerned with manufacturing and high-tech industries – are therefore only partially suitable to account for the peculiarities of tourism vis-à-vis manufacturing and other services (Hall & Williams, 2019; Hjalager, 2010; Ormerzel, 2016; Pikkemaat et al., 2019). Equipped with this argument, tourism innovation research has embarked on a quest for a tailored approach to innovation in tourism (Hjalager, 2002; Hjalager, 2010). In doing so, Montresor (2018) argues, it has departed significantly from key aspects of the imported innovation theories, but without considering the deeper implications of these theories. In other words, rather than investigating these theories and their origins, tourism innovation research has focused on finding customised ways of understanding and measuring innovation as commercialised invention in tourism.

1.3. Problem statement

The rise of the second tradition in the technological innovation literature – commonly known as technological innovation studies (TIS) – has altered and narrowed the interpretation of technological innovation: innovation as technological change has been confined to innovation as commercialised invention (Godin, 2012). As it draws heavily on TIS, tourism innovation research has largely mirrored this narrowed interpretation of innovation, and has arguably struggled with it since.

TIS and tourism innovation research also share an unquestioned belief in the merits of innovation. The former has always gone easy on platitudes about the benefits of innovation for

growth, employment, and competitiveness (see e.g. Godin, 2012). The latter too has widely accepted innovation as pivotal, among others, in achieving growth, in helping managers to identify opportunities and avoid competitive threats, and in the pursuit of long-term success and improved business performance (see e.g. Ormerzel, 2016; Pikkemaat et al., 2019). Both literatures focus on the means and ends, measurement, and management of innovation and its implementation in organisations: the current dominant interpretation of innovation as commercialised technology has traditionally been seen as a given.

Recently, concerns have been raised but these pertain to the purpose of innovation. In TIS, Martin (2016) critiques the field's bias towards certain types of innovation (high-tech) and its dominant economic rationale (dated). Spin-off literatures have emerged that scrutinise the current economic and/or technological fixation of innovation. These spin-offs promote various alternative acronyms and labels of innovation – i.e. eco-innovation; responsible innovation; and social innovation – as means to address contemporary sustainability challenges (see e.g. Hellstrom, 2003; Soete, 2013; Lechevalier, 2019). Tourism innovation research has picked up some of these labels. Pikkemaat et al. (2019), for instance, see eco-innovation as an emerging field that should identify the drivers enabling sustainable innovations. These spin-off literatures differ from mainstream innovation research on the purpose of innovation, i.e. the subject of the problems that innovation should address. They do however share the unquestioned faith in innovation as a problem solver that is central to the mainstream innovation literature: innovation – the concept itself – is rarely disputed.

None of the reviewed literatures have addressed, full on, the use and usefulness of the concept of innovation itself, i.e. the propriety of innovation as a strategy for (tourism) organisations to coordinate attempts to create novelty in response to perceived changes. Empirical inquiries that examine the use and effects of innovation and that refrain from the upfront positioning of its aspired purpose are scarce (see e.g. Kooij, Van Assche, & Lagendijk, 2012 for a notable exception). Inquiries that de-frame innovation, i.e. move beyond the unquestioned faith in its rightness, and that look at what happens when organisations use discourses on innovation, are in my view relevant. In tourism and beyond, they can help in identifying and considering *alternatives* (Barba Lata, 2017), other conditions of possibility (ideas about novelty, the value of its uses, and related interpretations of change), to the paths advocated by those gathering under the innovation banner.

In answer to calls from philosophers of science and technology for an opening up of the concept of innovation and reflect on a concept that is better equipped to address contemporary sustainability challenges (see e.g. Blok, 2018b; Long & Blok, 2017), this thesis therefore aims to study the use and effects of the discourse on innovation in tourism. To this end, I propose an analytical framework that accommodates the de-framing of innovation and that sets up the research question of this thesis. I introduce this framework next.

1.4. Analytical framework

The analytical framework outlined next makes it possible to detach innovation – the term – from current (dominant) interpretations. It does so by refraining from a priori assumptions about innovation’s alleged purpose and characteristics (Law, 1992). Instead, the proposed framework considers innovation in broad terms, as a collective, coordinated response to particular, perceived manifestations of change. It views innovation – and its central tenet ‘inventiveness’ – as an inherent feature of all organisational practices (Barba Lata, 2017), regardless of their scale, that acquires meaning and shape over time as actors attempt to understand, act, and react in the face of perceived change.

The proposed analytical framework is premised on insights gained from Actor-Network Theory (Latour, 2005), Discourse Theory (Howarth, 2000), and Evolutionary Governance Theory (Van Assche, Beunen, & Duineveld, 2014), as also elaborated in chapters 2, 3, and 4. A central characteristic of these theories adopted in the framework is the tendency to explain *interactions between material and social worlds* with the help of an *integrated ontology and epistemology*, as discussed next.

An *integrated ontology and epistemology* assumes that what is real cannot be separated from what is known (Law, 2007). Materiality – physical elements, matter, and substance extending beyond the social and constituting its environment – exists (is real), but cannot be objectively verified (known). The production of meaning is always selective and necessarily incomplete (Howarth, 2000). With a single, absolute reality permanently out of reach, distinctions between social and material worlds are difficult to dissect, and – in the perspectives of aforementioned theories – analytically irrelevant. What remains, instead, are performed realities, distinct and continuously (re)produced interpretations and representations of materiality and (other) social elements.

Interactions between materiality and social worlds are manifold and result from the ways in which different people and organisations observe and evaluate their environments (Duineveld et al., 2017). Some materialities remain undetected or do not make a difference. Others, Duineveld et al. (2017) explain, change the perceived environment of people and organisations and evoke responses. In these situations, innovation comes into play. Discourses emerge about moves forward, desirable futures, and coordination (Van Assche, Beunen, Duineveld, & Gruezmacher, 2020). They include ideas about the identities of actors and their goals and actions. These discourses, according to Van Assche et al. (2020), offer novel understandings that are inherently persuasive, enticing people to act in relation to particular social or material elements embedded in the discourse. These actions can in turn affect materialities and other, rivalling discourses, creating ongoing evolution (Van Assche et al., 2014). Viewed in this way, innovation is a collective and continuous response to change that comprises and entwines material and discursive dimensions.

To examine the functioning of innovation as response to change in the Dutch outbound travel industry, I adopt two notions from Evolutionary Governance Theory: *material events* (Duineveld et al., 2017) and *reality effects* (Van Assche et al., 2020; 2014).

Material events (hereafter referred to as events) are the relations between (a particular) changing materiality and the construction of interpretations and responses through distinct organisational practices embedded in different discourses (Duineveld et al., 2017). Only unobserved or unrecognised material change lacks a social existence: it is, Duineveld et al. (2017) explain, imagined at best. Once noticed, material change enters reality as the subject of different interpretations. Identified temperature changes, for instance, can become part of climate change discourses that expose the aviation-dependency of tourism, triggering resistance and inspiring people to look for alternatives. Likewise, business discourses presenting novel technologies as disruptions can provoke incumbents to adjust or reinforce their operational routines. Some events, Duineveld et al. (2017) explain, linger in the back and do not lead to action, while others become more vigorous over time and have widespread implications. The notion of events is useful here because it highlights that 'change' evolves through interplay between material and social worlds. This makes it possible to free innovation from its acquired commercial and technological connotations. Innovation can

now be investigated as a construct that can emerge and gather meaning in situations when different actors coordinate responses to a perceived change of some kind.

Reality effects are redefinitions of realities that can be linked to the coordinated responses of actors (Van Assche et al., 2020). Reality effects accentuate the performativity of these responses. Narratives about change and innovation – in other words, communications – can have self-fulfilling effects (see Mackenzie, Muniesa, & Siu, 2007). Performativity highlights that ideas – regardless of their quality – have a social presence (Godin, 2015). Once uttered, they can spark reality effects for a prolonged period of time. Reality effects can be intended and unintended, can result from prior intention and hindsight ascription, and are strengthened through observation (Van Assche et al., 2020). The notion of reality effects is helpful here because it foregrounds that innovation is contingent. It is never an isolated affair, but results from continuously evolving, collective interpretations and representations of (changing) material and social environments.

In this process, two types of reality effects are manifested (Van Assche et al., 2020): *material reality effects* and *discursive reality effects*. Material reality effects, Van Assche et al. explain, are observed changes in the physical environment that have entered different social systems, like the various interpretations of climate change (see e.g. Hall, Amelung, & Cohen et al., 2014; 2015; Shani & Arad, 2014; 2015 for a discussion in tourism studies). Discursive reality effects are changing ways of understanding (Van Assche et al., 2020). The formulation and circulation of new ideas can evoke debates that change the perceived value of material elements and can create new representations of materiality that (struggle to) replace existing ones (Blok, 2018a). Media attention for ‘binge flying’ and ‘flight shame’, for instance, has influenced public perceptions and representations of the relations between aviation and climate change (see e.g. Cohen, Higham, & Cavaliere, 2011; Gössling, Humpe, & Bausch, 2020; Cohen). In such heated debates, when actors attempt to come to terms with various controversies, distinctions between material and discursive reality effects are difficult to determine: material and discursive reality effects reinforce each other within their own category or between categories (Van Assche et al., 2020).

1.4.1. Objective and research question

In this thesis I aim to study the use and effects of the discourse on innovation in tourism. With the help of aforementioned analytical framework, I will address the following research question:

What are reality effects of innovation in the Dutch outbound travel industry?

To address this aim and research question, I conducted three studies in the Dutch outbound travel industry. These studies illustrate the two manifestations of change I introduced in 1.1 at different organisational levels: the contribution of the travel industry to climate change and the erosion of the dominant middleman position of travel industry incumbents. I will present a number of methodological considerations that led to these studies and that informed how I addressed the research question in the next section.

1.5. Methods

Before I present my methodological considerations, it is useful to briefly clarify the interpretation of method in this thesis. I do not view method as a tool uncoupled from reality that can be applied to a predefined problem of some kind (for more on this see Czarniawska, 1998). Rather, as Beard, Scarles, and Tribe (2016) explain, I consider method as the sequence of practices that a researcher undertakes to assemble the field, follow the actors, and construct the narrative of the study; a process that starts with the questions of a situated researcher.

1.5.1. Unfolding the field: 2015-2016

In my situation, these questions dawned as I familiarised myself with the Dutch outbound travel industry in 2015 and 2016. I offered an impression of the observations I made during those years in 1.1. As I illustrated, the 'Dutch travel industry' constituted the empirical starting point of this thesis. More precisely, rather than a predefined spatial or temporal setting, it resembled my perceptions of an *initial context*, connecting a collection of events that I attended and commissioned reports that I read. As my examinations progressed, the field correspondingly opened up and it has evolved ever since (Ren, 2011). Each time I learned something new the field subtly changed. The 'field', in other words, is a construct of the researcher, a collection of relations traced through time and space. Whereas the researcher's initial assumptions and knowledge are central to the field's emergence, fostering its evolu-

tion requires flexibility: the possibility to change directions and include new events or informants as the researcher learns more about a subject (Beard et al., 2016).

In this thesis, I therefore adopted a process-oriented case-study approach. As Law (2007, p. 630) argues, “theory is done in the form of case studies” as “abstraction is only possible through the concrete”. Case studies are also deemed suitable for exploring less accessible, unique organisational practices as they can capture their dynamic and context-specific nature (Tasci, Wei, & Milman, 2020; Yin, 2018). I opted for a process-oriented case-study approach because its integrated process of data generation and analysis provides the required flexibility in the field (see e.g. Czarniawska, 2004; 1998). Central to this approach is that it refrains from static, predefined case study definitions (cf. Yin, 2018). No analytical or empirical importance is attributed to phenomena prior to their examination (Ren, Jóhannesson, & Van der Duim, 2012). The case is not a predefined context, place, or collection of “assumptions about the ‘group’ to be studied, about where it begins and ends, and about who the participants will be” (Beard et al., 2016, p. 102): the case is a mobile and fluid construct that emerges from interactions between the researcher, participants, and the (resulting) generated data. Through this process orientation, the case gradually transforms into a representation of the field.

1.5.2. Following actors: 2016-2019

In this period, I had the opportunity to trace three distinct innovation-related organisational practices from up close and with useful access to key informants. As presented in table 1-1, this resulted in three different case studies: *the machine* (chapter 2); *the expert* (chapter 3); and *the firm* (chapter 4). Details on the specific methods I used for these individual case studies can be found in these chapters.

The machine is about a collaborative industry-level innovation project of tour operators and universities. It made a suitable case study because this project was considered a unique project at the time (see chapter 2). *The expert* initially started as a follow-up study; after *the machine* was published, I was invited to examine the impact of this innovation project. I discovered that it was not this project, but a PhD thesis from Peeters (2017) that played a prominent role in a changing national policy debate and a related emerging discourse on technological innovation. Hence *the expert* traces the impact of the PhD thesis on this policy domain.

	The machine	The expert	The firm
Purpose	Understand the role of an eco-innovation in sustainability transitions.	Understand research impact manifestations in the environmental policy domain.	Understand the productive role of innovation in a large tourism organisation.
Theoretical framework	ANT	Discourse theory	Post-structuralist organisation and governance theory
Case	The development of a carbon management calculator (CARMACAL) for tour operators in the Dutch outbound travel industry.	The impact of a PhD thesis about aviation-induced climate change on Dutch aviation policy.	The development of an innovation unit in a large tour operator (TUI).
Level of organisation	Sector/industry	National policy domain	Single organisation
Relevance case	CARMACAL was considered a unique eco-innovation at the time.	The PhD thesis helped trigger an environmental policy struggle in which discourse on technological innovation plays a prominent role.	Little research until date has examined innovation in large, corporate tour operators.
Central entity (token)	CARMACAL	The discursive object of aviation-induced climate change	The concept of innovation (its use in the organisation)
Data generation period	2016-2018	2019	2016-2019
Data generation techniques	Different interview techniques, carbon footprint calculations, document analysis.	Different interview techniques, quantitative content analysis, document analysis.	Different interview techniques, observation, document analysis.
Study participants	General managers and product managers of (large) tour operators; scientists.	Senior newspaper editors/journalists; senior government officials; Members of Parliament; NGO & action group directors; senior aviation industry executives; senior advisors/aviation experts.	Innovation team members; TUI Benelux executive board members.
Chapter in thesis	2	3	4

Table 1-1 Case study overview

In parallel to these studies, *the firm* traces an innovation initiative in a large tour operator. Large tour operators have received limited attention in tourism literature despite their important role in shaping contemporary mass tourism (see chapter 4). In sum, at different levels of organisation, each of these case studies presents multiple and evolving coordinated

responses to a perceived change in the environment of actors. *The machine* and *the expert* address the travel industry's contribution to climate change; *the firm* illustrates the eroding middleman position of a travel industry incumbent.

The technique of 'following actors' guided the construction of the case studies. These progressive combinations of purposive and snowball sampling (Latour, 2005) enabled me to integrate data generation and analysis (Beard et al., 2016). The data generation techniques I deployed (table 1-1) not only served to accumulate materials for analysis at a later moment; I also used these interactions and the related emerging insights to identify further participants and adjust the focus of my inquiries when needed.

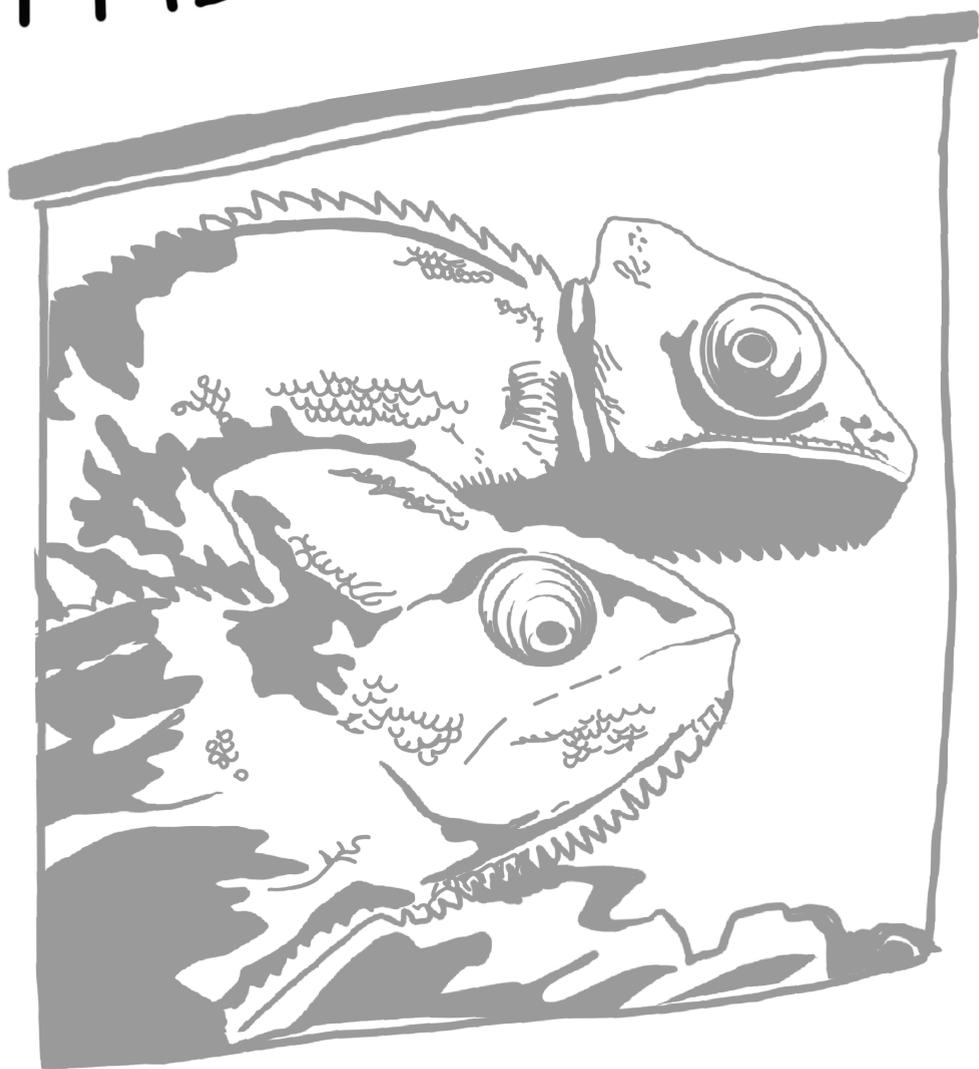
1.5.3. Constructing the narrative of this study: 2020

In the overlapping analysis of the different case studies, I traced CARMACAL (chapter 2), the discursive object of aviation-induced climate change (chapter 3), and the concept of innovation (chapter 4) as tokens (see table 1-1). Tokens are circulating quasi-objects that transform through the discussions they evoke and that pass through and shape different materialities (Latour, 1996a). By following the identified tokens through space and time, I identified different and at times seemingly unrelated sequences of events. This helped me to shift focus from the views and beliefs of different (groups of) actors to the reality effects that revolved around the technology, discursive object, or concept present in their midst and that shaped their interrelations. This analytical move took me beyond the idea of the solid and pre-given actor (Jóhannesson, 2012), and the related commercial and managerial connotations, towards more fluid actor identities that form and fluctuate through interpretations and representations of often imported innovation-related narratives and terminologies. In this way, I explored similarities and differences between the case studies and addressed my research question.

This thesis proceeds as follows. Chapters 2, 3, and 4 present the case studies. Chapter 5 aims to answer the research question and discusses key findings and related implications for researchers and practitioners.

CHAPTER 2

THE MACHINE



Abstract

Eco-innovations that reduce carbon emissions help advance sustainability transitions in tourism. This chapter examines the analytical potential of actor-network theory (ANT) to study eco-innovation. ANT assumes that reality consists of actor-networks made of human and non-human elements that perform actors as network effects. We argue that, in a time when climate change is the simultaneous product and producer of human actions, eco-innovation is better understood when research gives the human and non-human elements that perform eco-innovations equal analytical treatment. We therefore develop an ANT-inspired framework, which we apply in a case study to investigate the development of a specific eco-innovation: CARMACAL, a web-based carbon management application in the Dutch travel industry. We find that technological novelty alone is insufficient to instigate transition. CARMACAL affords multiple new practices with opposite implications for socio-economic and environmental sustainability. The practices triggering most industry support are least effective in addressing tourism's climate impacts and vice versa. Examining eco-innovation through ANT helps us put eco-innovation in a different light. Seemingly contradictory practices may be mutually supportive: their individual strengths and weaknesses may help prevent the failure of eco-innovations. This new possibility opens the way for concerted policies strengthening the contribution of eco-innovations to sustainability transitions.

Keywords: actor-network theory, carbon management, climate change, eco-innovation, corporate social responsibility, sustainability transitions

This chapter is published as:

Buijtendijk, H., Blom, J., Vermeer, J., & Van der Duim, V.R. Eco-innovation for sustainable tourism transitions as a process of collaborative co-production: the case of a carbon management calculator for the Dutch travel industry. *Journal of Sustainable Tourism*, 26(7), 1222-1240. <https://doi.org/10.1080/09669582.2018.1433184>

2.1. Introduction

Carbon emission reductions are crucial for sustainability transitions in tourism (Peeters, 2017). Political inertia complicates the formation of policies addressing this challenge (Cohen, Higham, Gössling, Peeters, & Eigelaar, 2016). Eco-innovation, which is the development of new products, services, and processes that mitigate environmental impacts (OECD, 2011) may offer an avenue towards sector-led emission reductions. Earlier work adopted multiple theoretical perspectives to study eco-innovation, such as innovation theories, institutional theory, stakeholder theory and the resource-based view (see Hojnik & Ruzzier, 2016). Yet, all of these theories are human-centred approaches. They present eco-innovation as an exclusive challenge for businesses and explain it with social variables only. Accordingly, they locate eco-innovation in society; a stable domain created by science, separated from nature and in times of constant climatic conditions (Latour, 2014). However, tourism research on the Anthropocene suggests that eco-innovation cannot be understood through human-centred theories alone (Gren & Huijbens, 2016). In this new epoch, society has lost this stability, and has become both product and producer of climatic changes (Latour, 2014). Therefore, research can no longer treat non-human elements like “CO₂” and “technology” as variables that either explain or are explained by human actions, and an alternative approach is needed.

Actor-network theory (ANT) offers such an alternative approach. In ANT, there is no stable society “out there”, waiting to be explained through different theories (Gad & Jensen, 2010). Instead, ANT assumes reality is a collection of actor-networks of human and non-human elements, where actors exist as network effects (Latour, 2005). Consequently, there is no separation between reality and its explanations. Rather than adding another theoretical perspective *on* “reality”, ANT thus shows how (different) realities are simultaneously performed. In this way, ANT allows us to see eco-innovations unfold as uncertain attempts to reorder human and non-human elements in a time when none of the individual categories are stable.

Tourism research has discussed ANT’s conceptual premises and contributions to different tourism contexts (see Van der Duim, Ren, & Jóhannesson, 2017). However, ANT has not been used to study eco-innovations aimed at emission reductions, although the uncertainties emerging when humans, technology and nature collide are particularly suitable for an

ANT approach. This chapter therefore aims to explore ANT's analytical potential to study eco-innovation by means of a particular case: the development of a Carbon Management Calculator (CARMACAL) for the Dutch travel industry. Developed in the subsidised "carbon management for tour operators" (CARMATOP) project, CARMACAL is a web-based application that enables tour operators to calculate and manage the carbon emissions of tour packages in their business (see CSTT, 2017a; 2017b). In this chapter we first explain how research can account for the complexities of eco-innovations. Then we present the case study design and results. This case illustrates our argument. We see how three distinct versions of CARMACAL are simultaneously performed, while CARMACAL's different (human) representatives are disputed. We conclude that, when examined through ANT, technology-sustainability interrelations in eco-innovations like CARMACAL are indeed ambiguous (Gössling, 2016), but not necessarily contradictory. Finally, we identify research and policy implications in the sustainability transitions field.

2.2. Actor-network theory and eco-innovation

According to Gad and Jensen (2010, p. 71), ANT is a research approach that assumes that "reality exists in multiple related versions" as dynamic, performed effects of constantly evolving actor-networks, and therefore cannot be separated from its theoretical explanations. Thus, neither climate change nor eco-innovations occur as "mute material", sitting "passively behind the perspectives" in a single world, waiting "to be gazed at from different angles" (p. 71). Instead, ANT proposes that both are found in different, overlapping versions, as products of their own (competing) clarifications. Rather than adding more theoretical explanations by abstracting issues from their context, ANT helps us to understand the world as multiple, by examining new realities as they emerge and, simultaneously, create the settings for their own analysis (Ren, 2011). In our situation, this means reframing eco-innovation as (the performed effect of) an unfolding actor-network, so that it can be looked at differently and new questions can be asked about it (Bramwell, 2015). In this exploration we make use of three overlapping ANT traits (Van der Duim, Ren, & Jóhannesson, 2013): ordering, multiplicity and materiality. These concepts are explained below.

Ordering is the formation of actor-networks, a constant process of reality construction that brings (new) actors and relations into existence (Van der Duim, 2007). It creates categories and differences, such as divisions between "internal" and "external", and "object" and "sub-

ject” (Muniesa, 2015). Ordering thus opens up the possibility of alternatives and delineation of different realities, generating its own resistance and controversy (Law, 1992). ANT examines ordering through the concept of “translation” (Callon, 1986). Translation comprises attempts to negotiate controversy and establish equivalence, i.e. the possibility that an actor becomes the (temporary) representative of a network (Law, 1992). As a result of translation processes, different entities in actor-networks no longer simply speak for themselves, but are reworked into actors that represent these networks and (claim to) speak on their behalf. Ordering thus elucidates how eco-innovations are constructed and emphasises the continuity of network formation (Callon, 1986).

Multiplicity entails that actor-networks simultaneously perform different versions of each phenomenon (Gad & Jensen, 2010). In ANT, reality is ontologically flat; there is no analytical distinction between networks and the actors these networks perform (Muniesa, 2015). Consequently, there is no stable (empirical) ground on which all networks rest (Van der Duim et al., 2013). In contrast to people interpreting “things” differently, multiplicity points to different versions of “things”, with some versions being more visible than others, and all versions influencing each other. ANT amplifies multiplicity through the concept of “modes of ordering”. Modes of ordering are implicit discursive arrangements that shape and constitute actor-networks (Law, 2001). Each performs “a more or less explicit framework with which to read the relevant empirical reality” (Van der Duim, 2007, p. 970). Multiplicity thus suggests that there is no single structure prescribing a correct process for eco-innovation. Each eco-innovation effort may appear in different, co-existing variants, performed in overlapping actor-networks.

Materiality is about the substance actor-networks are made of. In ANT, there is no such thing as a “pure” human society; there are only actor-networks of human and non-human elements (Law, 1992). Accordingly, ANT stretches agency far beyond human properties (Van der Duim, 2007). ANT articulates materiality through the concept of symmetry; analytically, all network elements are ontologically equal (Haug, 2012). Non-human elements should therefore be treated the same way as human elements. ANT’s notion of materiality thus makes eco-innovations appear as a more-than-human endeavour: an uncertain undertaking to rearrange elements of human enterprise (e.g. businesses, markets), material entities (e.g.

technologies, emission measurements), and elements of the Earth's climate (e.g. carbon dioxide, surface temperatures), while all these categories are in flux.

Reviewing literature that examines the responsibilities of businesses for addressing their climate impacts for each of the three traits discussed above, we frequently find human-centred representations that take human agency for granted, while overlooking the roles of non-humans in climatic changes.

Taking ordering first, we encounter one-sidedness when researchers have upfront assumptions of causality and reciprocity when studying attempts of businesses to take responsibility for climate impacts (Latour, 2014). We find this in studies testing hypotheses of causal relations in different industry domains (see for instance Razumova, Ibáñez, & Palmer, 2015; Smerecnik & Andersen, 2011) and in the presumption in climate change research that structural reduction of human greenhouse gas emissions will reciprocally stabilise global warming (Scott, Gössling, Hall, & Peeters, 2016a; Scott, Hall, & Gössling, 2016b). In both cases it is assumed that human determinants will bring about the desired result; nature has been left out of the equation. Yet, evidence in Earth system research suggests that it is uncertain whether or not effective global governance towards long-term sustainability would halt climatic movement; climate shifts may carry sufficient momentum for an irreversible drift away from climate stability (Barnosky et al., 2012; Steffen et al., 2011). It is therefore plausible that industries will increasingly and continuously change. Consequently, there is value in an approach that reaches beyond presupposed object-subject divisions to examine eco-innovations (Gren & Huijbens, 2012).

Moving to multiplicity, we notice that businesses, and their eco-innovation activities, are often put in a manageable world of fixed entities (Law & Urry, 2005). We find businesses represented as singular, self-explanatory actors; the various elements involved in performing the business organisation generally remain faceless (Law, 1992). Coles, Fenclova, and Dinan (2013) argue this hides certain (human) agencies from view. Similarly, elements that *make* businesses more sustainable are presented as business results rather than snapshots of ongoing translations. Sustainability reporting, for instance, tends to focus on the outputs of businesses rather than the different practices producing and performing those outputs (Font, Guix & Bonilla-Priego, 2016; Coles, Fenclova, & Dinan, 2014). While evidence of a global climate crisis takes the sustainability responsibilities of businesses to a planetary level

(Latour, 2014), the economic conceptualisation of the business organisation is too narrow to address global challenges (Scherer & Palazzo, 2011). Accordingly, with climatic changes increasingly delineating business performance, representations of businesses as social entities firmly rooted in their own taken-for-granted space ignore that actors like businesses and corporate social responsibility (CSR) reports are performed in various ways, and may co-exist in alternative configurations.

Related to materiality, we observe asymmetries in depictions of humans and non-humans, with the latter appearing as context or passive subjects in human projects. Bramwell (2015) notes that nature tends to serve as the background in research; natural entities appear as business resources and management subjects (see Coles, Warren, Borden, & Dinan, 2017 and Razumova et al., 2015 respectively), illustrating that “the environment” lacks clear conceptualisation (Coles et al., 2013). Likewise, material entities like information and communications technologies (ICTs) generally feature as “tools”, serving human needs (see for instance Whittlesea & Owen, 2012). However, the contradictory implications these technologies generate for economic and environmental sustainability (Gössling, 2016), suggest they may in fact be mediators that renegotiate humanity’s relations with nature rather than passive devices (Latour, 2005). Consequently, the social bias running across these representations generates asymmetries between humans and non-humans that obscure the workings of eco-innovation.

2.2.1. Putting humans and non-humans on an equal analytical footing

This chapter contributes to the literature on eco-innovation dealing with climate change by proposing an ANT-inspired framework that combines three overlapping lines of enquiry that operationalise the three ANT traits introduced above (Figure 2-1). Their overlap is inherent to ANT, being a collection of “tools for making and knowing new realities” (Law & Urry, 2005, p. 98). The first line of enquiry encourages researchers not to make a-priori assumptions about future actions or results; it does this by avoiding object-subject divisions and therefore relates to ordering. It suggests that following translation processes over time elucidates how (new) orders are established (Law, 1992). The second line of inquiry proposes that nothing should be taken for granted; it does so, by considering realities as “performed” rather than “things out there”. It connects to multiplicity as it helps in the identification of different, co-existing modes of ordering (Van der Duim et al., 2013). The third line of enquiry

entails that humans and non-humans should be put on an equal analytical footing. It links to materiality and helps in the examination of what reality consists of, by means of a single, symmetrical, analytical grid (Latour, 2005).

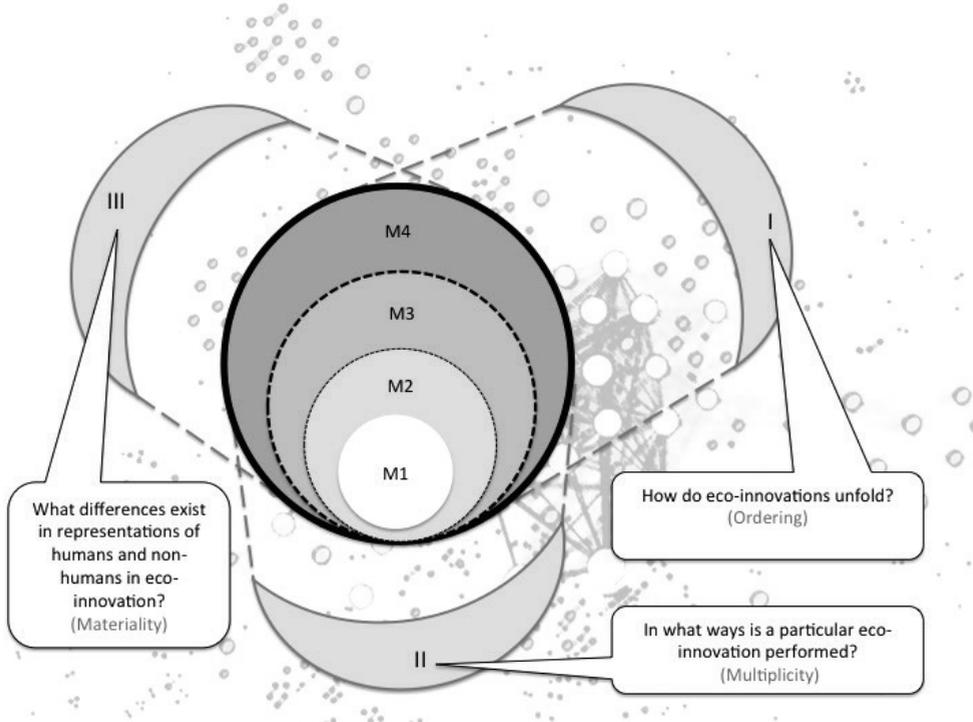


Figure 2-1 Framework for analysing eco-innovations

Elaborating on each of them, first, refraining from a-priori assumptions about who or what will act in the future, and under which circumstances, requires us to examine eco-innovation by following its translation over time (Law, 1992). The central question here is: *How do eco-innovations unfold?* Rather than explaining or predicting eco-innovations as the results of causal antecedents, the enquiry must acknowledge head-on the difficulties of addressing environmental challenges while all entities keep changing (Latour, 2014). Kasim, Gursoy, Okumus, & Wong (2014) for instance describe an eco-innovation in which hoteliers work with different plants in a wetland area to recycle the wastewater of their resort. As the behaviour of these plants is unpredictable, the hoteliers ask scientists to regularly monitor the process to ensure that the water quality is up to standard. By tracing the chronology of translation, we can learn how different actors (for example plants, scientists) over time (fail

to) emerge as representatives of a network in which all elements are the simultaneous objects and subjects of change.

Callon (1986) suggests translation happens in four overlapping moments (M1-M4). During M1 a common goal emerges, which makes an actor-network detectable. It is completed when the identities of actors are defined in relation to the achievement of that goal. During M2 these actors (are made to) temporally assume specific roles and tasks, which stabilises the network. Throughout M3 these roles and tasks become (more) permanent, which involves the negotiation of acceptance. Finally, during M4, (different) spokespersons become undisputed. As the example of Kasim et al. (2014) illustrates, translation is successful when representativeness has been established and actors may speak for a network (Law, 1992). However, when there is dissidence, a network faces disintegration (Callon, 1986).

The second proposal, that nothing should be taken for granted, encourages us to question the entities that seem to represent an eco-innovation; an analysis that helps us identify the co-existence of alternative, rival orderings. Rather than asking what eco-innovation is or why it is relevant, the central question here is: *in what ways is a particular eco-innovation performed?* Any entity is enacted through its network and therefore cannot simply be assumed to be an actor. Instead, the enquiry must identify “what is included and authorised, and what is rejected and made absent, as well as how this is done” (Ren, Jóhannesson, & Van der Duim, 2012, p. 19). Research on the environmental management of small businesses, for example, showed how a non-human entity (an environmental certification scheme) is simultaneously performed in different ways through variations in management approaches and rationales (Sampaio, Thomas, & Font, 2012). Uncovering how these multiple modes of ordering emerge and frame their own conditions for success and failure can help us to see an object, which may at first have appeared to be singular, as enacted in multiple versions in different, overlapping networks.

The third proposal, putting humans and non-humans on an equal analytical footing, requires symmetrical analytical treatment of all elements that enact eco-innovation. The central question to this is: *What differences exist between representations of humans and non-humans in eco-innovation?* Neither categorisations nor variations in analytical importance can be established prior to empirical examinations. Instead, all elements across the nature-society divide, which influence and are influenced by eco-innovation, should be included in

the enquiry, and approached in the same way. In Majorca, for instance, hotels face freshwater shortages during the peak summer season, when natural freshwater supply is low. Neither human actions, such as hotel water-saving measures during summer (Razumova et al., 2015), nor nature's seasonal rainfall patterns, which make abundant water available during winter (Tortella & Tirado, 2011), are more or less important than the other in addressing this challenge. By giving each category equal analytical status, we are able to question the politics of water-saving strategies and the continuation of unsustainable beach tourism patterns. In this way, we can expand our analytical capacities and imagine new orders or notice their emergence (Gad & Jensen, 2010).

2.3. Methods

To investigate the ANT-inspired framework, the case study method was selected because of its ability: i) to illustrate complexities by recognising multiple actions and meanings (Xiao & Smith, 2006); ii) to generate in-depth understanding by tracing a specific process over time and reconstructing it; and iii) to show indirectly (through description) why innovations work or fail (Beeton, 2005). Case studies are empirical enquiries that rely on diverse sources to examine a complex phenomenon in a situation in which "boundaries between phenomenon and context" are unclear and the number of variables of interest is unknown (Yin, 2009, p. 18). Since ANT emphasises "detailed examination and description of relationships between actors in practice" (Beard, Scarles, & Tribe, 2016, p. 98), case studies are used in most ANT studies in tourism. As comprehensive case studies cover research design, data collection and data analysis (Xiao & Smith, 2006), these components will be introduced below.

Starting with research design, the development of CARMACAL for the Dutch travel industry was selected as a case of a specific eco-innovation process because of two reasons. First, carbon dioxide (CO₂) emissions from human activities are the primary cause of global warming (IPCC, 2013) and, with 6.8 million holidays involving air travel in 2016 (NRIT Media, CBS, NBTC Holland Marketing, & CELTH, 2017), Dutch holidaymakers contribute considerably to this problem. Second, CARMACAL exemplifies a unique sector-led eco-innovation in tourism (Tjolle, 2016).

Figure 2-2 shows the case study design. A single longitudinal case study design with two units of analysis (A and B) was adopted because multiple units of analysis enhance insights in studies with a single case and studying eco-innovation as a process requires following it over

time (Yin, 2009). As ANT attributes no analytical or empirical importance to phenomena prior to their examination (Ren et al., 2012), both “units” were selected through convenience sampling and merely functioned as entry points into the network from where we traced the translations of actors in three separate studies. Study I investigated CARMACAL’s development in the CARMATOP project and its adoption by small to mid-sized tour operators (unit A). Study II investigated the possible implementation of CARMACAL by a large tour operator (unit B) and calculated eco-efficiency ratios for a selected product sample. Study III discussed these eco-efficiency ratios with respondents of Studies I-II and examined CARMACAL’s evolution and prospects. To follow CARMACAL as an innovation process over time, we studied this network during two periods. Studies I and II were conducted simultaneously from March to May 2016; Study III took place from October 2016 to January 2017.

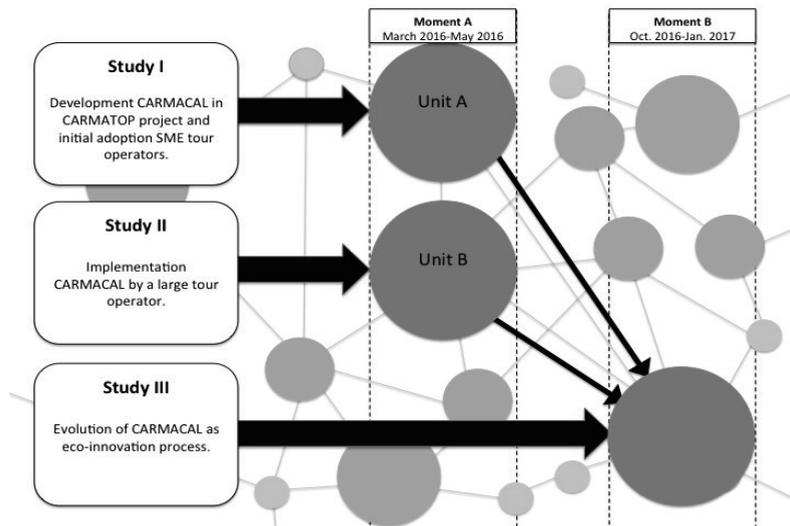


Figure 2-2 Case study design

Respondents in Studies I and II were selected through purposive sampling, as each enquiry dealt with a specific, small-sized population (the initiators of CARMACAL and the product-level managers of a large tour operator, respectively). Both studies had a diverse sample of respondents. For Study I, we approached respondents by email, resulting in 18 participants representing 16 organisations; for Study II, we contacted product-level managers via the tour operator’s internal communication channels, generating five participants representing different product types. Additionally, the nine most-booked destinations and one long-haul

destination were selected to secure a diverse product sample for the calculation of eco-efficiency ratios. Per destination, the most-booked products and durations were picked, generating 90 itineraries. Six participants (equally representative of Study I and II) were handpicked for Study III based on the diversity of their inputs in the first interview round; thus ensuring that our data “convey not one, but many versions of object realities” (Ren, 2011, p. 866). One additional respondent, the general director of a tour operator not involved in CARMACAL and business partner of one of the respondents, offered an outsider’s perspective. Table 2-1 presents the interviews and respondents.

Moving to data collection, to ensure complete coverage, semi-structured interviews were conducted in Studies I and II, because of the possibility to follow up on topics introduced by respondents. The unstructured interview technique was applied in Study III because it accommodates in-depth discussion on specific topics, giving respondents the liberty to illustrate relevance, importance, and interrelations (Yin, 2009). For the semi-structured interviews, we composed two lists covering topics related to CARMACAL’s development in CARMATOP and adoption by small to medium-sized enterprise (SME) tour operators (Study I) and CARMACAL’s implementation by a large tour operator (Study II). Both lists included open-ended and generic, guiding questions that served to probe respondents to elaborate. In the unstructured interviews (Study III), respondents were asked to chronologically describe their involvement in CARMACAL, with emphasis on its (operational) challenges and opportunities. To stimulate debate, we used CARMACAL to calculate the eco-efficiency ratios of all 90 itineraries (CO₂ footprint/profit margin before provision), which were aggregated in scatterplots and presented to respondents during the interviews. For the same reason, we used joint interviewing in three of the four interviews.

In all the interviews, questions were tailored to the respondent’s context. We gave them room to pick topics for more detailed discussion. By probing, using “how questions”, respondents were encouraged to describe rather than explain events, enabling the reconstruction of processes over time. Question order varied per interview. We added questions based on insights from previous interviews, updating the guidelines accordingly. Combined, this enabled respondents to construct the settings in which we could trace their translations (Ren et al., 2012).

Respondent	Position	Organisation	Date of interview
Study 1			
R1	General Director	Tour operator (SME)	02-03-2016
R2	General Director	Tour operator (SME)	09-03-2016
R3	Sustainability Coordinator	Tour operator	10-03-2016
R4	Travel Expert	Tour operator (SME)	15-03-2016
R5	General Director	Tour operator (SME)	17-03-2016
R6	Sales & Marketing Manager	Tour operator (SME)	16-03-2016
R7	Sustainability Coordinator	Tour operator (SME)	21-03-2016
R8	Product Manager	Tour operator (SME)	22-03-2016
R9	Tour Operations Manager	Tour operator (SME)	23-03-2016
R10	General Director	Tour operator (SME)	14-03-2016
R11	Sustainability coordinator	Tour operator	30-04-2016
R12	Junior Carbon Advisor	Consultancy agency	25-03-2016
R13	Manager	Certification programme	01-04-2016
R14	Researcher	Research institute	24-02-2016
R15	Researcher	Research institute	25-02-2016
R16	Manager	Industry association	18-03-2016
Study 2			
R17	Product Manager	Tour operator	09-05-2016
R18	Sustainability Manager	Tour operator	10-05-2016
R19	Product Manager	Tour operator	13-05-2016
R20	Product Manager	Tour operator	13-05-2016
R21	Product Manager	Tour operator	24-05-2016
Study 3			
R22 & R23	General Directors	Tour operator A+B (SMEs)	07-10-2016
R24	General Director	Tour operator (SME)	21-12-2016
R25 & R26	Product Manager & Sustainability Manager	Tour operator	21-12-2016
R27 & R28	Researchers	Research institute	12-01-2017

Table 2-1 Interviews and respondents

For data analysis, all interviews were audio-recorded with voice tracers and transcribed verbatim (in Dutch). We analysed the data manually to avoid missing emerging themes. In all the studies, we used open coding to group data without predefined structures; and we deployed focused coding to group identified codes into categories. We applied data triangulation by combining categorised data of Studies I-III with information from websites and published reports. Resulting text was then chronologically ordered using Callon's (1986) moments of translation and further validated through conversations with key informants, enabling the identification of different evolving modes of ordering. In this way, we were able to construct a detailed case study account, with data identifiable as paraphrases and direct quotes of respondents (translated into English and referred to as R1-29 in the text), as presented in the next section.

2.4. Case study – CARMACAL and the Dutch outbound travel industry

In this case study, we present CARMACAL as an unfolding actor-network. As an actor, we saw CARMACAL appear as a technology for tour operators. Part of the subsidised CARMATOP project, it developed into a web-based application combining data from different databases to calculate the carbon footprint of tour packages. As a network, CARMACAL unfolded as a sector-led eco-innovation process in which industry and scientific community representatives attempted to give the climate (reduction of CO₂ emissions) a place in tour operating practices. Below we trace the evolution of this actor-network in accordance with the framework presented in Figure 2-1. We follow how CARMACAL evolved as an actor-network; how different carbon management approaches emerged, and how nature, despite being granted agency in tour operating practices, remained subjected to human interests.

2.4.1. M1: Emerging collaboration on uniform carbon measurement (2010-2013)

Starting in 2010, a number of events led to the gradual assembly of a network. That year a tour operator requested the Centre for Sustainable Tourism and Transport (CSTT) to calculate the carbon footprints of its long-haul group tours so that it could start offsetting its travel-related emissions (R2). CSTT is a research organisation within NHTV Breda University of Applied Sciences that specialises in methods to measure and reduce tourism-related emissions (CSTT, 2017c). Over the following two years, CSTT researchers executed two projects with this tour operator. Apart from calculating carbon footprints, they examined how to reduce emissions without affecting customer satisfaction.

Then, in January 2012, the tour operator shared its experience with other tour operators and the Dutch Association of Travel Agents (ANVR) in their regular sustainability frontrunners meeting during the Vakantiebeurs (Dutch Travel Trade Show). At these meetings, ANVR (representing approximately 226 travel agents (ANVR, 2013)) and a small group of tour operators convened to promote sustainability. The topic picked up collective interest. Some present at this meeting had just attended a presentation about carbon labelling by professor Gössling, an international expert on tourism and climate change.

“His story about labelling was really inspiring; how important labelling is to get the sustainability movement going.” (R1)

Gössling’s presentation mobilised attendants to collaborate:

“If everybody starts his own label, we risk ending up with 36 different labels. Why not make it an industry-wide initiative? We started a project group and involved others.” (R1)

They agreed to develop a single application that could consistently calculate the carbon footprint of tour packages. Concurrently, by establishing a project group with a shared goal, a network emerged.

Up until that point, distinct carbon management ideas had left traces in this network. Carbon offsetting, the rationale of a tour operator’s initial research request to CSTT, concerns compensation payments to non-tourism parties to achieve carbon savings equivalent to tourism emissions (see Eijgelaar, 2011). Carbon reduction, instrumental in much CSTT work, constitutes the decarbonisation of global tourism (see Scott et al., 2016a). Carbon labelling, triggering tour operator participation, is about communication that stimulates climate-friendly consumption (see Gössling & Buckley, 2016). Viewed collectively, these ideas thus illustrate the network’s multiplicity.

In their search for funding, the project group decided to write a project proposal for the Regional Attention for Knowledge Circulation (RAAK) SME innovation programme of the Dutch Government, which they submitted in the fall of 2012. RAAK funding rules required two-year projects led by a university of applied sciences that include knowledge development and (ICT) applications relevant for SMEs (SIA, 2017). Accordingly, the CSTT researchers had to write the proposal and lead the project, which granted them authority. CO₂ had to be trans-

lated into a manageable metric, making it fit for use in tour operating. And SME tour operators had (to) become the legitimate end users of a new technology. Hence, by delineating project objectives, RAAK defined the identities of actors (Callon, 1986).

2.4.2. M2: CARMATOP stabilises the network (2013-2015)

The resultant CARMATOP project started the beginning of 2013. CSTT led the project and studied emission measurement and mitigation; software developers built the ICT application; Climate Neutral Group (CNG), the Benelux market leader in carbon reduction and emission offsetting (CNG, 2017), provided expertise on sustainable entrepreneurship and carbon mitigation; ANVR and 11 SME tour operators (mostly members of aforementioned sustainability frontrunners group) formed the required SME consortium; and a large tour operator joined as network partner (CSTT, 2017b). Subsequent work packages covered research into carbon calculators and carbon footprint communication (I), development and testing of the ICT application (II), and research into carbon management strategies and a possible label for tour packages (III) (CSTT, 2017b). In this way CARMATOP attributed specific roles and tasks to actors, which ordered the network.

The following two years the network expanded. More tour operators joined CARMATOP. They did so for various reasons, such as altruistic motives (R2, R11), securing their future business (R11), transparency (R2, R16), anticipating growing consumer awareness and stricter regulation (R11), and stimulating employee loyalty (R14). CARMATOP also generated (international) attention from various industry organisations, including the United Nations World Tourism Organisation and the World Travel & Tourism Council (CSTT, 2017a). CARMATOP concluded in June 2015, when the Carbon Management Calculator (CARMACAL) was presented to the industry. ANVR, NHTV and a representative of the SME consortium established the Carbon Management Travel and Tourism foundation (hereafter CARMACAL foundation) and a service desk operated by CNG where tour operators could purchase annual user licences (CSTT, 2017a). CARMATOP was considered a collaborative success:

“CARMATOP was a very successful project, it resulted in a great tool, which really works. And that is something we achieved together.” (R1)

Indeed, by defining the identities and roles of actors, enlisting new participants, and assembling a web-based application that provided the climate with a voice in tour operating practices, CARMATOP had temporarily stabilised the network (Callon, 1986). However, with

CARMATOP completed, it was no longer the project but this application that had to hold the network together.

2.4.3. M3: CARMACAL and negotiating acceptance (2015-2017)

To this end, CARMACAL had to be integrated in tour operating practices. But this is where it ran up against different operational routines. CARMACAL's calculations would enable tour operators to identify product modifications that would reduce the carbon emissions of their tour packages. Nevertheless, product modifications were only made occasionally, or required compromising on product appeal:

"Ninety per cent of the time it is a continuation of the previous year. We are not going to start all over every year and reinvent the wheel, we have an existing product supply and we build upon that in the years thereafter." (R17)

"When you have a beautiful hike from A to B to C to D in Majorca and you find a hotel at exactly 18 kilometres in a fantastic village, you will take that one, whether it is sustainable or not." (R1)

Tour operators defended operational routines with various arguments, illustrating their priorities:

"Guidelines, contracts always have priority. After that come sustainability and information related to that." (R5)

They also raised practical objections, insisting that CARMACAL's manual data entry was inefficient (R23, R24, 25, R26). Correspondingly, the tour operators found it hard to see the tool's usefulness.

However, CARMACAL also sparked new practices, each creating its own controversies (Callon, 1986). In the years after CARMATOP, the different ideas about carbon management reappeared in the network, in the shape of three (overlapping) carbon management approaches:

1. Attempts to present nature: carbon labelling

CARMACAL's calculations would enable tour operators to inform consumers about the carbon footprint of their holidays; ANVR and tour operators participated in CARMATOP mainly because of the prospect of a carbon label for consumers (R1, R15). To them, labelling was a way to increase consumer awareness and transparency (R23). Yet, CARMATOP only looked

into possibilities for developing a label, and did not create one. So in 2015, ANVR, CSTT and a delegation of sustainability frontrunners established a working group to develop the carbon label, starting a frustrating, prolonged process that nearly failed (R24).

The working group disagreed on whether the label should be normative, for instance with different colours for different emission levels (R24). Discussions reached an all-time low in 2016 when it was suggested to use the label as an indication that a company had calculated its carbon footprint, without displaying the actual CO₂ figure (R24), which, some reasoned, customers would find hard to understand anyway (R25). In the spring of 2016 they decided on a label without a normative design. This was a huge disappointment for the researchers, who questioned the agenda of some of the opponents:

“It was a decision based on a poorly substantiated opinion, and they used these opinions to block the whole thing, time after time, in an unpleasant way. I did not get the feeling all of them genuinely wanted this to succeed.” (R28)

Nonetheless, a breakthrough came in the fall of 2016 when a tour operator not involved in the label discussion used CARMACAL to calculate the carbon footprint of a few sample tours, and used a descriptive icon to present the results on its website (Figure 2-3).

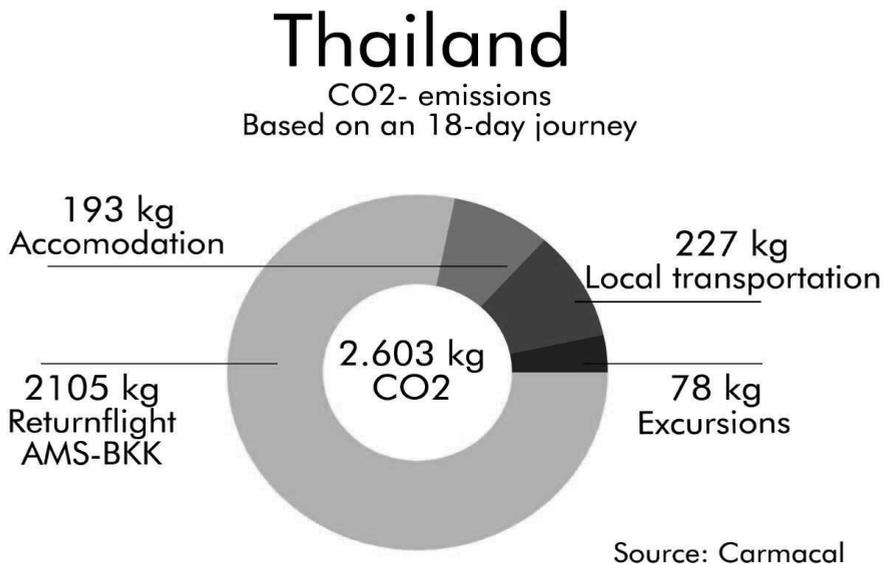


Figure 2-3 Example carbon label (Better Places, 2017)

“When we saw that for the first time we all went like: ‘Shit, why didn’t we come up with this?’” (R24)

The company agreed to share the design. ANVR then promised to develop a toolkit helping tour operators with consistent web communication and they planned to launch the label in the summer of 2017 (R24).

II. Attempts to relieve nature: carbon reduction & eco-efficiency

While carbon labelling mobilised most tour operators, the CSTT researchers had found that a carbon label had little effect on the booking behaviour of consumers (see Eijgelaar, Nawijn, Barten, Okuhn & Dijkstra, 2016). Therefore they had developed CARMACAL with carbon reduction strategies in mind, assuming tour operators would use CARMACAL to set emission reduction targets for themselves (R14). Carbon reduction was controversial, however, because it gave some tour operators the idea that they were to discourage consumers from travelling:

“I never had the impression that we as tour operators would start changing and managing our offer with carbon footprint reduction as an incentive, I have never believed in that” [...] “travelling less, that’s a decision customers can make individually, but we are not going to facilitate that; we are a tour operator.” (R24)

Many of them did not believe in carbon reduction goals, because sooner rather than later they would reach the limits of what they could improve (R24). In contrast, the CSTT researchers argued that variations in customer response and booking rates of different product compositions had not yet been studied, and claimed that carbon reduction targets are feasible when long-term goals are measured against annual progress (R28).

However, in 2016, one tour operator commissioned a study on how it could use eco-efficiency, which are ratios expressing the environmental costs of business (see Caiado, Dias, Mattos, Quelhas, & Filho, 2017), in portfolio management. Using the CO₂/profit margin ratio, the study presented the eco-efficiency of different product samples and visualised the results in scatterplots (see Figure 2-4 for an example). These visuals made managers wonder what product categories should be compared, to what extent products with high margins and below-average environmental performance score more favourable EE ratios than products with medium performance on both indicators, and whether margin alone is sufficient as

indicator of economic performance (R25, R26). They planned to address these questions through further research.

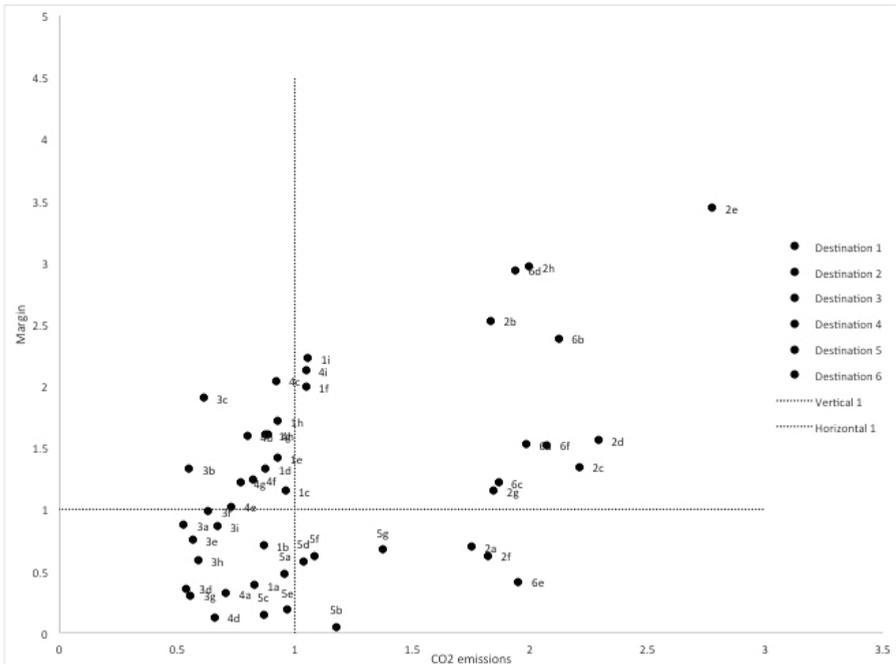


Figure 2-4 Eco-efficiency scatterplot of destination. Average profit margins before provision (Y) and CO₂ emissions in kilos (X). Lines at 1-point show eco-efficiency average.

III. Attempts to compensate nature: carbon offsetting

Carbon offsetting was also controversial. CARMACAL would enable accurate calculations of offset fees. While seen as the most practical strategy by some tour operators heavily depending on aviation (which lacks meaningful eco-innovation) (R22, R24), the CSTT researchers suggested tour operators should tell their customers offsetting does little to address climate change, as previous research had shown (see Eijgelaar, 2011). Tour operators on their part were reluctant to communicate negative messages (R23). In general, they did not believe in offsetting, as it lacked credibility:

“I find it difficult to believe that I can compensate my flight to Majorca by contributing two euros to a wind energy project in Northern India.” (R25)

CARMACAL opened up a new possibility: its uniform carbon calculation made tour operators consider taking full responsibility for the carbon footprint of their entire portfolio by offsetting all bookings on behalf of their customers as part of their service in a move towards sector-wide offsetting (R22, R23). Offset fees could then, for instance, be used to fund biofuel research in aviation (R24). As this strategy had not been officially tabled during CARMATOP, it surprised the researchers:

“If they had told us in advance the only thing they wanted is some offset system, we would have built an entirely different calculator.” (R28)

Thus, while CARMATOP had succeeded in stabilising the identities and roles of CARMACAL and its end users, these multiplied again in the years after the project. The simultaneous performance of multiple carbon management approaches, each connoting distinct ideas about the relation between nature and society, illustrates the network’s multiplicity (Gad & Jensen, 2010). Concurrently, as we will show next, the positions of CARMACAL’s various (human) representatives had come under increasing scrutiny.

2.4.4. M4: Disputing CARMACAL’s (human) representatives (2016-2018)

Despite international attention, only a few CARMACAL licences had been sold (R14), not enough to keep CARMACAL operational (R24). The CARMACAL foundation, which owned CARMACAL, had been making continuous efforts to secure industry investments and further subsidies (R24). Amidst this uncertainty, the positions of CARMACAL’s different (human) spokespersons, which had been established during CARMATOP, weakened because, in the years after CARMATOP, they had come to question each other’s work. Next, we analyse their disputes symmetrically, taking in all elements across the nature-society divide, asking three pertinent questions.

First, one may ask if the CARMATOP project provided CARMACAL with the right representatives, as the (in)action of its respective spokespersons is, retrospectively, being questioned. Did the researchers analyse the sustainability preferences of tour operators and consumers, and assess all available technologies before building CARMACAL (R22)? Is CNG genuinely interested in, and capable of, selling CARMACAL licenses (R23, R24)? And why, despite the enormous amount of (international) publicity, has ANVR so far failed to convince its members to adopt CARMACAL (R27)?

Reversely, the CSTT researchers wonder, in hindsight, whether the group of sustainability frontrunners had been suitable industry representatives all along. They question whether these “frontrunners” *“are really the right people to make CARMACAL work”* (R28). The CSTT researchers think these tour operators are preoccupied with communicating green messages from a defensive position, which makes them sensitive to possible risks and different opinions and, consequently, ill-suited to persuade mainstream tour operators to participate (R28). They also wonder how many licences CARMACAL would have sold if they had included business travel operators in CARMATOP and feel RAAK’s SME focus limited CARMACAL’s impact, theorising about what would have happened if they had developed CARMACAL with a large tour operator (R28).

The second question pertains to CARMACAL’s legitimacy as a translation device, in which “CO₂” represents nature and “the tour package” represents society. Starting with CO₂, some industry representatives who are familiar with the tool question whether this gas is nature’s rightful representative, arguing that climate change is about more than carbon emissions; if CARMACAL is to address climate change, it should for example measure water consumption levels as well (R26). Those advocating triple bottom line approaches accuse CARMACAL of single-mindedness, claiming that sustainability is about more than “climate” or “nature”. They call for integrated measurement that also accounts for the socio-economic impacts of tour packages on destinations (R16, R23, R25). Feeling powerless when it comes to global warming, some try to balance things out by generating social benefits in the (long-haul) destinations they offer:

“If we keep filling airplanes with people and let them travel around countries, that’s bad for the Earth, you know. We can’t change that. We feel we should compensate for that by offering trips with social impact. So that, in the end, the net result is a positive one.” (R22)

Others see CARMACAL as a distraction device, focusing attention on the sector’s contribution to global warming, while the impacts of climate change on tourism remain unaddressed:

“Climate change also affects our business. But this is never the subject of discussion.” (R23)

The position of the tour package as the travel industry's most suitable representative is equally challenged. Would CARMACAL be more effective (i.e. sell more licenses) if it represented (estimated) average carbon footprints of products, product categories or the total portfolio (R22, R23)? Should it focus on airlines and accommodations instead (R26)?

Finally, a third question probes whether or not researchers and tour operators should speak in the name of consumers? In CARMACAL consumers lack physical presence and a clear role. They only appeared as actors when they participated in research on labelling during the CARMATOP project. Beyond that, they have been (made) absent in the network (Ren et al., 2012). Respondents justify this absence with arguments illustrating their position on the distribution of responsibilities for carbon emissions between the buyers and sellers of package tours. In these arguments, consumers emerge as said to be egoists, to lack meaningful agency to drive change or are attributed tour operators' personal preferences:

"Most people do not care at all; they are not interested in the environment. Those people plan to go on a holiday and they will do so, no matter what." (R14)

"Customers should be left out of the picture. After all, what can they do to change it; stay at home?" (R14)

"To what extent should you burden people going on a holiday? I always find it aggravating when other people try to point out such things to me." (R10)

Others want to share costs or responsibilities with consumers:

"If you have to pay more for it, it should come from the customer as well. (R4)

"The customer wants to go on a holiday, and I understand that, but then they also have to take responsibility for it." (R4)

Accordingly, in these arguments, respondents attribute different possible roles to consumers.

As long as the different spokespersons of nature and society struggle to achieve representativeness, network elements such as money appear to be missing, and consumers lack network presence and clear roles, CARMACAL's future remains uncertain.

2.5. Conclusion and discussion

In this chapter, we explored ANT's analytical potential to study eco-innovation. While innovation theories, institutional theory, stakeholder theory and the resource-based view are commonly used for this purpose (see Hojnik & Ruzzier, 2016), the added value of studying eco-innovation with the help of ANT is that the focus is no longer solely on people and that it allows us to look beyond (predetermined) object-subject divides. By giving the human and non-human elements of eco-innovation equal analytical treatment, ANT invites us to explain eco-innovation indirectly, not through measurement but by description (Ren, 2011). For this study, we described a specific eco-innovation as performed, multiple and hybrid rather than stable, singular and social. This approach puts eco-innovation in a different light, which may help discover new orders (Gad & Jensen, 2010). We therefore argue that ANT's analytical tools are relevant to understanding eco-innovations in the broader sustainability transitions field. The three overlapping lines of enquiry this chapter proposes, demonstrate the challenges of technology-based eco-innovations such as CARMACAL, developed in the temporarily protected environment or *niche* of a subsidised project (see Lachman, 2013), to subsequently be enrolled in broader socio-technical networks such as the travel industry (Smith, Voß, & Grin, 2010).

The first line of enquiry explained eco-innovation as a state of flux, which is not easily explained with presupposed object-subject divisions (Gren & Huijbens, 2012). By tracing CARMACAL's translations over time (Law, 1992), we found that different carbon management ideas had become coincidentally entangled through an industry event and a shared interest in uniform carbon measurement (M1). During CARMATOP, the RAAK subsidy rules *made* the researchers stabilise this network by defining the identities and roles of the other actors (M2). Afterwards, the tool had to hold the network together by being implemented in tour operating practices. However, as shown, the identities and roles of CARMACAL and its end-users had since changed. The different carbon management ideas (re)appeared as distinct carbon management approaches (M3). Synchronising these in integrated carbon policy required leadership (Scott et al., 2016a), or, in ANT terms, strong spokespersons (Callon, 1986). Yet, with all representatives being disputed, customers being unrepresented all together, and a lack of financial resources to improve its efficiency, CARMACAL so far did not manage to mobilise concerted industry action (M4). The qualities of this new technology in

itself were not enough to instigate transitions. Such transitions require broader negotiations that address different and changing issues over time (Jørgensen, 2012).

The second line of enquiry provided evidence of how one specific eco-innovation is performed in a variety of ways. By regarding CARMACAL as a changing actor-network, we were able to overcome distinctions between actors and their outputs, enabling an integrated analysis of, for instance, global challenges and the business organisation (Scherer & Palazzo, 2011), or businesses and their sustainability reports (Font et al., 2016; Coles et al., 2014). In our study, we saw that CARMACAL makes three distinct carbon management approaches possible (Figure 2-5), with each prescribing its own conditions for success and failure. First, carbon labelling, implemented via a consumer label, *presents* nature (to consumers). Second, carbon reduction, staged through eco-efficiency ratios, *relieves* nature (and Earth). Third, carbon offsetting, depicted as scalable approach, *compensates* nature. Alongside these, we find that absent elements, such as business travel operators, consumers, money, water and energy measurements, and socio-economic sustainability aspects all leave traces in the network. These different versions of CARMACAL illustrate how a single piece of technology affords multiple realities expressed in different, seemingly contradictory practices, and demonstrate the ambiguous role of technology in sustainability transitions (Hansson, 2010).

This showed from the tour operating routines that protected existing product stock and appealing products. It also showed from “it threatens our business” statements, which were justified with arguments such as “we can’t change that”, “customers won’t understand” or “we are not going to ask our customers to travel less”. Likewise, this bias was evident in i) statements that sustainability is about more than climate or nature; ii) attempts to compensate for climate damage by offering (long-haul) trips with positive social impacts; and iii) statements portraying CARMACAL as an excuse for not addressing climate change impacts on the travel industry. Taken together, these asymmetries demonstrate that a technology-based eco-innovation such as CARMACAL is complicated by its own opposite implications for socio-economic and environmental sustainability (Gössling, 2016).

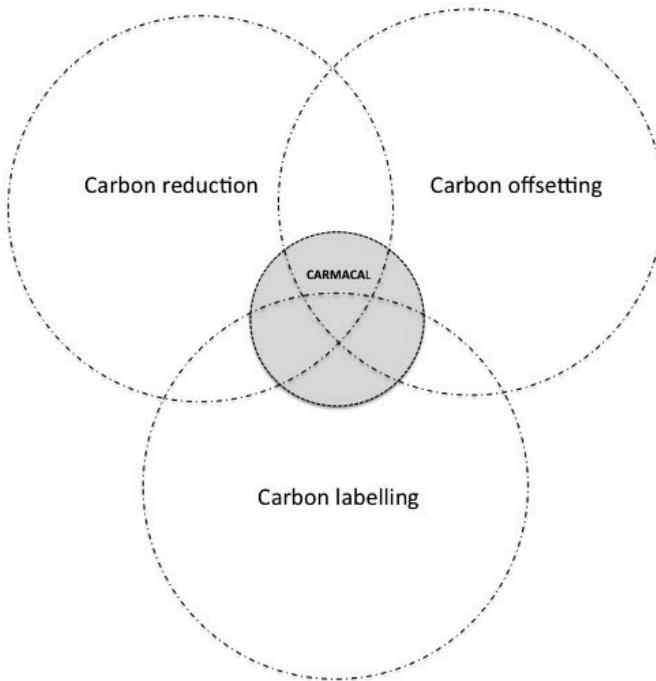


Figure 2-5 Carbon management approaches in CARMACAL

This chapter contributes to the sustainability transitions field by offering an alternative view on the ICT-sustainability interrelations of eco-innovations developed in niches. The different carbon management approaches we traced illustrate “strong” and “weak” forms of sustainability (Hansson, 2010). Strong sustainability takes “human-made and natural capital as different categories” that cannot be exchanged; weak sustainability allows compensation of current losses of natural resources with increased future human capital (Hansson, 2010, p. 275). Strong sustainability, exemplified in emission reduction strategies and low-carbon tourism (Becken, 2017), builds on Earth systems notions and imagines a socio-technical future in which substantive socio-ecological values are reasserted through socio-economic dematerialisation (Strand, Saltelli, Giampietro, Rommetveit, & Funtowicz, 2016). Weak sustainability, inherent in carbon offsetting and the triple bottom line paradigm (Isil & Hernke, 2017), builds on technological determinism and imagines a socio-technological future in which, despite ecological challenges, human conditions progressively improve through (infinite) technological innovation (Strand et al., 2016). While ambiguous (Hansson, 2010) and technically antipodal (Gössling (2016), our study shows how these seemingly contradictory

sustainability forms may be mutually supportive: the former most effectively address climate change, the latter trigger industry involvement. Both are therefore essential requirements for sustainability transitions.

The findings of this study help identify policy measures that strengthen the contribution of niche innovations to sustainability transitions and mobilise businesses to take responsibility for sustainability. As our study observed, businesses such as tour operators, which exploit mainly generic assets and operate under uncertain climate policies, tend to maintain and protect established practices rather than enhance (consumer) acceptance of new technologies (Pinkse & Kolk, 2010). In such settings, niche innovations may be more effective when included in a broader policy mix that favours (integrated) production and consumption of green technologies (Lachman, 2013; Pinkse & Kolk, 2010).

Therefore, first, seeing niche innovations as multiplication and mainstreaming processes rather than blueprints may help increase the number of experiments, normalising the practice of experimentation (Brown, Farrelly, & Loorbach, 2013). Performance could be assessed accordingly: alongside technological specifications, criteria may cover the value of lessons learned, articulation of supportive institutional requirements, and enrolment of new actors (Smith et al., 2010).

Second, niches may perform better when they combine technological and commercial expertise from the start. Alongside (scientific) invention, niches need to strengthen the ability of businesses to commercialise new technology by developing new products and increasing consumer acceptance of the technology (Pinkse & Kolk, 2010). Policy mechanisms such as RAAK may therefore prove more effective when their eligibility requirements are based on this rationale than business size per se (RAAK focuses on SMEs).

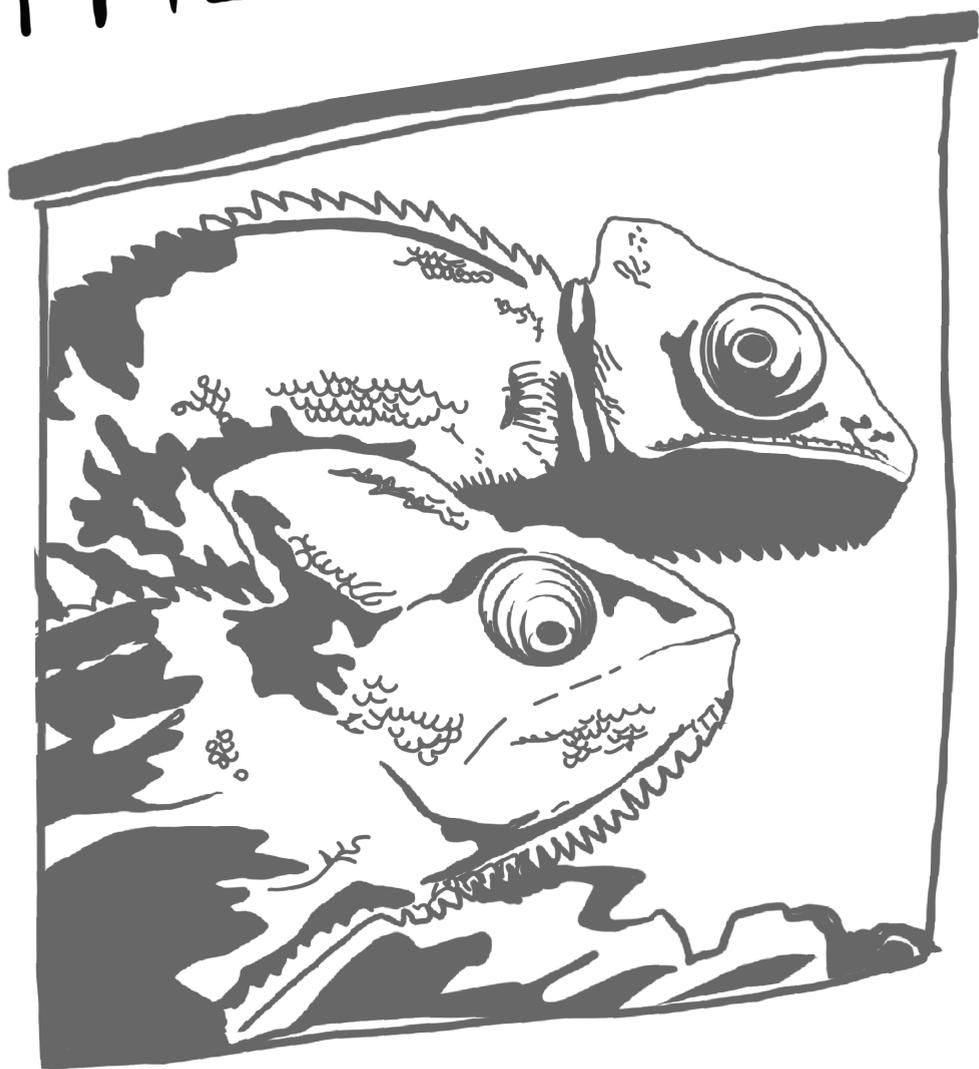
Last, given present consumer disinterest in climate impacts of tour packages (Eijgelaar et al., 2016), stimulating consumer participation as end-users in niches may work better than simply testing new innovations against existing consumer attitudes and needs (Verbong, Schot, & Kanger, 2016). The latter approach views consumers as rational actors choosing from predefined options in stable conditions; end-user participation challenges “the underlying assumptions of everyday practices” and simultaneously initiates new consumption routines (Verbong et al., 2016, p. 3).

In sum, eco-innovations such as CARMACAL should not be envisaged as inventions that, by themselves, will sooner or later mobilise sustainability transitions (Smith et al., 2010). Therefore, mechanisms such as RAAK require support through concerted policy efforts to be effective (Brown et al., 2013; Lachman, 2013).

Finally, this chapter introduces ANT to a field where it has left few traces but has much to offer to those looking for ways to mobilise sustainability transitions. Yet, like any theory, ANT is not without its weaknesses. ANT jargon occasionally comes across as inaccessible (Van der Duim et al., 2017) and its “radical reorientation of perspectives” complicates its application in more conventional research approaches (Cohen & Cohen, 2012, p. 2185). The framework in this chapter may address these shortcomings. While ANT itself suggests that (any) theory is the language (and the network) through which it is performed, one does not have to “speak” ANT or fully embrace its alternative ontology to make use of its analytical merits. By offering three overlapping lines of enquiry, phrased as generic, fit-for-purpose questions, our framework helps to make ANT more accessible for empirical research applications in a field, where, in our view, it has much to offer.

CHAPTER 3

THE EXPERT



Abstract

This chapter uses discourse theory to obtain a broader understanding of how research impact of sustainable tourism research develops in the environmental policy domain. Discourse theory shifts emphasis from the substance of science versus policy to the use of science in policy processes and explains the political dimensions of policymaking. We first review a well-documented science-policy gap in sustainable tourism research on climate change to develop an alternative conceptualisation of research impact. Then, using a case study approach, we investigate this framework by evaluating the impact of a PhD thesis about aviation's global CO₂ emissions on the Dutch aviation policy process. The case study shows research impact is entwined with various other elements, and embedded in a specific governance context. Research influenced contrasting science-policy interactions and contributed to conflicting policy actions and reactions. The impact of research in this case was manifested through the formation and interplay of multiple knowledge objects that were both embraced and marginalised. In settings like this, research is used to legitimise pre-existing policy positions rather than to develop new policies. We discuss the implications of narrow conceptions of research impact. The chapter highlights the need for advanced policy analysis in sustainable tourism research.

Keywords: research impact; science-policy gap; sustainable tourism research; discourse theory; policy analysis; aviation policy

This chapter is published as:

Buijtendijk, H., & Eijelaar, E. (2020). Understanding research impact manifestations in the environmental policy domain. Sustainable tourism research and the case of Dutch aviation. *Journal of Sustainable Tourism*. <https://doi.org/10.1080/09669582.2020.1760872>

3.1. Introduction

This chapter addresses the conception of research impact of sustainable tourism research (STR) in the environmental policy domain. Improved dissemination of research and collaboration with policy actors are presented as vital to close science-policy gaps and create impactful STR that contributes to pro-environmental policy change (Bramwell, Higham, Lane, & Miller, 2016; Font, Higham, Miller, & Pourfakhimi, 2019). Collaboratively produced and properly communicated scientific evidence would then end up in science-based policies (Dredge, 2019). Science-policy gaps become science communication gaps, i.e. barriers to converting academic knowledge into useful 'resources' for policy actors (Dredge, 2015). Yet, the notion that science determines environmental policy is misleading (Rayner, 2006), and suggests a linear idea of knowledge transfer that has been the subject of sustained critique in environmental policy studies (see e.g. Owens, Petts, & Bulkeley, 2006). It presupposes that science and policy share universally accepted definitions of environmental problems and that the content of policies is always the focus (Hajer, 2005). This analytical asymmetry disregards that the production of policy and that of science are entwined. Both domains are embedded in – established – social structures, such as institutions and conventions (Jasanoff, 2015). The products of science become tools for different policy actors (Buckley, 2012). 'Research impact', thus, is somewhat narrowly conceived. A focus on the substance of policy obscures the political dimensions of science-policy interactions, i.e. the use of science in policymaking (Jasanoff, 2015). An alternative conceptualisation of research impact is therefore relevant.

Post-structuralist discourse theory (hereafter referred to as discourse theory) helps us develop such a conceptualisation. In discourse theory – not to be confused with semiotics-oriented discourse analysis – reality is a discursive construct (Duineveld & Van Assche, 2011). Discourses are autonomous and necessarily incomplete processes of meaning production that construct different versions of reality, and that are produced and reproduced through identifiable practices (Hajer, 2005; Howarth, 2000). As discourses evolve through self-referral, they can never grasp reality in its entirety and always relate to other discourses (Van Assche, Beunen, & Duineveld, 2014). Power –never a stable condition – permeates this process (Duineveld & Van Assche, 2011). As discursive differences cannot be crossed, processes of dominance and subjugation arise when discourses collide (Van Assche et al., 2014).

Consequently, in discourse theory, the use of science in environmental policymaking constitutes a discursive clash in which no form of (scientific) knowledge has direct access to the truth (Jasanoff, 2015). Rather than believing that universally accepted scientific definitions of environmental problems will bridge science-policy gaps, discourse theory allows us to trace how policy actors assimilate (the same) scientific evidence in different discourses (Hajer, 2005).

Discourse theory thus exposes the power-knowledge interactions integral to environmental policy struggles (Duineveld & Van Assche, 2011). This enables us to illustrate the “political pressures upon the policy space” (Dredge, 2019), and the selective appropriation of (scientific) knowledge (Hall, 2019). Deploying its analytical potential, this chapter therefore aims to evaluate the way STR functions in a particular environmental policy struggle. By means of a case study, we trace the ‘research impact’ of a PhD thesis about aviation’s global CO₂ emissions (Peeters, 2017) on the Dutch aviation policy process. The chapter proceeds as follows. First we draw from STR on aviation-induced climate change and the ‘science-policy gap’ described in this literature (e.g. Cohen, Higham, Gössling, Peeters, & Eijgelaar, 2016) to reconceptualise research impact as a process of object formation (Duineveld & Van Assche, 2011). Then, based on this framework, we present our case and trace how a marginalised discourse about aviation-induced climate change gradually entered the Dutch aviation policy process. We conclude that research impact is a long-term, emergent effect that manifests itself subtly in the policy process.

3.2. Discourse theory and a science-policy gap in sustainable tourism research

Discourse theory assumes that reality is constructed through the interplay of power and knowledge (Howarth, 2000). Power, in Foucault’s view, is an amoral and relational “multiplicity of force relations” operative everywhere (Foucault, 1998, in Duineveld & Van Assche, 2011, p. 81). Knowledge, in contrast, is never neutral. Knowledge enhances power relations. No form of knowledge is fully disconnected from the organisations, communities, topics, methods, and questions structuring its production; nor has direct access to the truth (Van Assche et al., 2014). In this view power and knowledge are integral to both science and policy. Both domains are shaped by different, colliding discourses. In discourse theory, the ‘science-policy gap’, presented in aforementioned research on aviation-induced climate change, is not a gap between science and policy, but a discursive construct that signals differences

between prioritised and subjugated truth claims as power and knowledge interact (Duineveld & Van Assche, 2011). Thus, discourse theory helps us move beyond the science-policy dichotomy and conceptualise environmental policy struggles as on-going processes of power-knowledge interactions across different discourses.

Reviewing this ‘science-policy gap’ through the lens of discourse theory, we identified three analytical asymmetries. The first one relates to the particular scientific scope in which this literature presents the desirable (decarbonised) transport futures it advocates. These futures, it suggests, require technocratic policies firmly embedded in IPCC climate risk frames (Peeters, Higham, Cohen, Eijgelaar, & Gössling, 2019), in which policy requires global management (Oels, 2013). They involve “structural transitions” (Cohen et al., 2016, p. 327), “a tourism sector emission management and reporting system”, and “a strategic policy framework” (Scott, Gössling, Hall, & Peeters, 2016a, p. 68). And they are identified through science-based simulations and scenarios (Cohen et al., 2016; Peeters et al., 2019). Current policies are evaluated based on how effective they are in achieving these desirable futures (see for instance Scott, Hall, & Gössling, 2016c). This literature, thus, exhibits a strong belief in science-based policymaking (Font et al., 2019), based on a particular science-policy constellation, in which science determines acceptable (climate) risk levels for policymakers and society. This disregards alternative risk frames and science-policy constellations in the policy process (see Oels, 2013), and highlights the need to include their trajectories into our analysis.

The second analytical asymmetry concerns the tendency to juxtapose the policy status quo with the advocated policy reality. The present situation is framed as a ‘decarbonisation impasse’ (Gössling & Scott, 2018). Policymakers are criticised for their inaction. They are represented as inert, and lacking the political will to implement “meaningful change” (Cohen et al., 2016, p. 327). Leaders are encouraged to show leadership (Scott et al., 2016a). Explanations for the impasse are offered, too. Among them, we list close relations between policymakers and the industry (Cohen et al., 2016), self-interests driving policy preferences (Cohen & Kantenbacher, 2019), and prevailing neoliberal governance structures (Gössling & Scott, 2018). These statements reflect Buckley’s claim that policymakers mainly use information as “means to gain, power, fame, or money” (Buckley, 2012, p. 537). Yet, in the light of our argument, they seem one-sided. They suggest that certain scientific knowledge has intrinsic

value (ibid.). However, in the policy process, this knowledge faces competing (scientific) knowledge, and serves as a means to different ends (Jasanoff, 2015). An approach that examines the settings in which different forms of (scientific) knowledge simultaneously inform alternative, and possibly contradictory, policy directions is therefore useful.

The third asymmetry we identified entails the representation of the knowledge required to close the ‘science-policy gap’. Since Gössling (2002) introduced aviation-induced climate change in STR, a literature of calculated certainties has developed that depicts (climate) risks as “knowable, calculable, and therefore controllable” (Oels, 2013, p. 20). These studies present models, scenarios, and estimates concerning long-term emission challenges, costs, and impacts of assumed policy choices (e.g. Peeters et al., 2019; Scott et al., 2016a). Knowledge put forward by policymakers and alternative interpretations of risk are exclusively evaluated within this frame. Incompatible arguments are presented as fabricated uncertainties to justify business as usual (Gössling & Scott, 2018). Incompatible solutions, i.e. types of technological innovation, are exposed as hoaxes and myths (Peeters, Higham, Kutzner, Cohen, & Gössling, 2016). This asymmetry obscures how different forms of knowledge become ‘objects’ in strategies that policy actors wittingly and unwittingly deploy to exert influence and negotiate risk (Duineveld & Van Assche, 2011). A more fine-grained analysis of their use is thus relevant.

3.2.1. Research impact as a process of object formation

We therefore argue that research impact can be understood as a process of object formation. Objects – in our case, aviation-induced climate change – are pronounced discursive constructs that feature as central elements of discourses. Examples include issues, topics, physical objects, ideas, and ideologies (Van Assche et al., 2014). Objects are never a given and always constructed (Howarth, 2000). Object formation takes place in contexts of competing discourses, where power and knowledge interact more intensively (Duineveld & Van Assche, 2011). As illustrated above, STR on climate change has handed policymakers new objects as arguments, most notably ‘health’ (e.g. Cohen & Kantenbacher, 2019). Like the knowledge that created them, none of these objects is politically neutral. As objects form, they change the meaning of their environment: their embedding in language, science and institutions makes them more likely to function in policymaking (Van Assche et al., 2014). To examine the formation of the object of aviation-induced climate change in the Dutch avia-

tion policy process, we adopt the framework of Duineveld and Van Assche (2011), who discern pathways, sites, and techniques of object formation.

Pathways are “the series of decisions and events that typifies the emergence and solidification of a discursive object” (Duineveld & Van Assche, 2011, p. 81). According to Van Assche et al. (2014), pathways entail the temporal dimensions of policy processes and comprise dependencies on the past (path dependencies), present (interdependencies), and future (goal dependencies). The past, in the shape of various legacies (i.e. previous policies, ingrained governance habits and incumbent actors) informs a shared understanding of the present. In the present, there is interdependence between policy actors and institutions whose authority relies on commitments to current policies, such as electoral and business interests. For the future, shared visions, for instance, steer policy directions and define which actors take part in policy processes. In sum, under these conditions, policy actors cannot freely change directions. By highlighting the temporal dimensions of policy processes, pathways, thus, enable us to identify the dependencies that hold back change in environmental policy struggles.

Sites are the (in)formal settings in which object formation occurs. They include occasions and places where actors assess joint actions. Sites can be permanent or transient, but always constitute scenes of “higher communicative density” (Van Assche et al., 2014, p. 29). In these settings, new objects emerge, and actors enter – and leave – the policy arena, and their presence/absence may lead to new pathways and sites. As a result of actors associating themselves with objects, distinct discourse coalitions can emerge, which are groups of actors that share identifiable practices and “the usage of a particular set of storylines over a particular period of time” (Hajer, 2005, p. 302). Discourse coalitions transcend pathways and sites, and different discourse coalitions can manifest themselves in a single actor, e.g. coalition governments. Consequently, by identifying sites in environmental policy struggles, we can trace their emergence and/or demise over time. This enables us to move beyond binary presentations of (gaps between) science and policy, to better understand the dynamic and contested nature of science in policy processes.

Techniques are aspects of the process of object formation that shape the emerging object (Duineveld & Van Assche, 2011). Actors sometimes intentionally and strategically deploy techniques, but often techniques are unintended, emergent effects of interactions between

actors (Van Assche et al. (2014). Six techniques of object formation are distinguished (Duineveld & Van Assche, 2011): initially, the presence of the object is generally accepted but viewed as inconsequential (reification), before problems arise and it is perceived as more urgent (solidification). Next, elements previously taken for granted are linked to the object and become part of the discussion (codification). The public perception that the object is self-evident is concurrently strengthened (naturalisation). Through the use of scientific means, it becomes part of the objective truth (objectification), which obscures contingencies and alternatives, and it is included in policies and plans (institutionalisation). Techniques help us investigate how power manifests itself in science-policy interactions.

3.3. Case study: sustainable tourism research in Dutch aviation policymaking

When Delft University of Technology (TU Delft) awarded Peeters the PhD degree for his thesis on aviation-induced climate change in November 2017, there was a perfect storm. The argument of the thesis was not new. Some of the underlying evidence had circulated since the 2000s (notably Gössling, 2002). Yet, that autumn, the thesis attracted substantial national media coverage. In Dutch aviation policymaking, an environmental policy struggle emerged in which Peeters advised parliament twice (Peeters, 2019b; Peeters & Melkert, 2018), was the subject of several parliamentary questions, and intensively engaged with actors across the policy spectrum (see e.g. N&M, Greenpeace, & MNH, 2019; Peeters, 2019a). What happened?

3.3.1. Methodology

To trace the unfolding of these events and examine our framework, we adopted a process-oriented case study approach because of its ability to capture the dynamic, context-specific nature of research impact within the temporal dimensions of policy evolutions (Boaz, Fitzpatrick, & Shaw, 2009).

The case study design encompassed three components (I-III), premised on Hajer's (2005, p. 306) guidelines for argumentative discourse analysis. Document analysis (newspaper articles, reports, and academic studies on the Dutch aviation sector) and four unstructured "helicopter interviews" (two interviews with Peeters and two interviews with senior newspaper editors/journalists from opposing ends of the Dutch media spectrum) helped us establish a balanced overall chronology of the debate, and identify key informants across the policy spectrum (I). Using a semi-structured interview design based on a topic list operationalising

our framework, eighteen central actors were subsequently interviewed (eight senior industry executives; three Members of Parliament; two senior government officials; four NGO & action group directors and senior advisors; and one senior aviation expert) to discern important moments and the different settings of the debate, as well as ways in which actors influenced the debate (II). Informants were thus selected using a combination of purposive and snowball sampling. A quantitative content analysis of all Dutch national and regional newspapers, using Nexis Uni™ (a major online database featuring full Dutch newspaper archives) complemented our inquiries (III).

Interviews took place from April to October 2019. The stated purpose of the interviews was to understand the developing national debate on aviation-induced climate change, without explicitly addressing the PhD thesis. In this period, as we will show, the debate evolved rapidly, with new developments occurring on a weekly basis. Given the political sensitivity, and the fact that a considerable number of our informants are public figures, participation was on the condition of anonymity. All respondents were contacted by phone or email. Interviews were held at locations picked by the respondents and lasted 60-90 minutes, apart from the helicopter interviews (60-180 minutes). Interviews were tailored to the informant's context; interviewers used open-ended and generic guiding questions to probe elaboration.

Data analysis comprised: (i) the manual conversion of all transcripts into individual chronologies (comprising the key moments, policy settings, and means of exerting influence that each respondent perceived); (ii) data triangulation by comparing these chronologies with newspaper articles, reports, letters to parliament, parliamentary motions and websites; and (iii) a Nexis Uni™ analysis in which the aggregated timeframe (Q4-2015-present) and aviation and climate change-related topics that informants identified were used as input (results were manually cleaned and presented in quarterly years). In this way, we identified key incidents, tracking the gradual formation of the object of aviation-induced climate change in the Dutch aviation policy process (Hajer, 2005).

The result is a comprehensive case study, which we present in the next sections. It consists of three episodes, reflecting past, present, and future policy pathways and related dependencies. Within these temporal dimensions, using the metaphor of a perfect storm, we identify the different sites and techniques that formed the object of aviation-induced climate change in the policy process. All interpretations are based on data. Case study references are

limited to those specifically mentioned by respondents.

3.3.2. Legacies of the past

Historically, in the Netherlands, the object of aviation-induced climate change was recognised, but considered irrelevant to national aviation policy (*reification*). The government treated it as a global policy item, which they addressed through the International Civil Aviation Organisation (ICAO) and the European Union (Huijs, 2011; VVD, CDA, D66, & CU, 2017). Like France, Germany, and the United Kingdom, the Netherlands – densely populated, increasingly urbanised – is home to one of Europe’s global aviation hubs: Schiphol airport. But unlike Paris Charles de Gaulle, Frankfurt airport, and London Heathrow, Schiphol is disproportionately large compared to its national catchment area (de Jong & Boelens, 2014). We identified a series of past policies – spanning three decades and revolving around the question of how to develop and maintain a competitive global aviation hub when space is limited – that helped create this situation. This *pathway* nurtured certain governance habits and facilitated the business of two incumbent actors with close government ties: Royal Schiphol Group (RSG) and KLM Royal Dutch Airlines.

RSG is an independent commercial enterprise in which the government has a majority stake. It owns and operates the national airport Schiphol and several regional airports, including Lelystad Airport (hereafter Lelystad). Schiphol, situated in an increasingly urbanised area near Amsterdam, recorded 499,444 flights and ranked as second airport for hub connectivity worldwide in 2018 (RSG, 2019). That same year, KLM (35,000 employees; 166 destinations from Schiphol), which has always been (partially) government-owned, served 34 million passengers and generated 11 billion EUR of revenue (KLM, 2019). Alongside these two, an aerospace cluster has evolved, mainly around TU Delft.

Before the storm: forging growth in the face of environmental limits

Schiphol’s development into a global aviation hub is the result of an effective public-private partnership that can be traced back to 1985, when the government appointed Schiphol as a mainport of the Dutch economy (Huijs, 2011). Ever since, the term ‘mainport’ has become an object in Dutch aviation policymaking, where it has been used to propagate the function of very large air- or seaports as engines of economic growth. Growth strategies between Schiphol (global hub) and KLM (home carrier) were aligned. By exerting influence through

the Ministry of Infrastructure and Water Management (I&W), KLM and Schiphol succeeded in making their strategies part of government policy (ibid.).

Gradually, this public-private partnership institutionalised as an 'iron triangle': Schiphol, KLM, I&W developed a governance habit of jointly preparing and taking decisions, with the government relying heavily on aviation sector information (Huijs, 2011). The triangle has since functioned as a *site* and cultivated a common discourse that focused on Schiphol's national economic importance, which facilitated hub expansion.

As Schiphol's environmental impacts (particularly noise) became increasingly pressing (de Jong & Boelens, 2014), actors outside the triangle, such as Schiphol's neighbouring residents, environmental NGOs, and local and regional governments, came to depend on each other to influence aviation policy. The resulting stand-off resembled what Huijs (2011) described as a dialogue of the deaf: actors produced stories about the environmental costs and economic benefits of aviation that were true on their own terms and increasingly talked at rather than listened to each other.

To break this deadlock, the government supplemented the mainport policy with a so-called dual policy objective in the 1990s: expand Schiphol as hub while decreasing its environmental effects (Huijs, 2011). This worked in favour of Schiphol and KLM. Using the mainport as a frame, they stressed their national economic importance (see Boons, Van Buuren, & Teisman, 2010). The environmental objective mainly focused on safety and noise, not emissions. I&W considered environmental impact measures expensive. Parliament did not push for national emission reduction. Environmental NGOs steered clear of the topic as they saw little space to exert influence; residents were mainly concerned about noise.

To concretise the dual-policy objective, several collaborative platforms have since been installed, reminiscent of the so-called *Poldermodel*; the deep-rooted Dutch governance habit of consensus-based policymaking through extensive negotiations (Vogelij, 2015). One of these platforms, the Alders Table, became a central *site* for the implementation of the dual-policy objective. It included representatives of all relevant stakeholders (de Jong & Boelens, 2014), except for environmental NGOs. The Alders Table was presented as a permanent institution and was granted legitimacy: parliament would accept any agreement this platform reached as national policy.

In 2008, the first Alders Agreement (Alders, 2008) capped Schiphol's mainport expansion to 500,000 flights per annum in 2020. The policy comprised a proposed 'fifty-fifty principle' (Schiphol and residents would split the benefits from environmental gains), and a so-called 'selectivity rule': a traffic redistribution arrangement that envisioned a move of leisure and budget airlines to regional airports (Schiphol subsidiaries), for Schiphol to expand hub traffic.

The Alders Agreement was controversial from the start. The abstract fifty-fifty principle was never legislated. The selectivity rule possibly conflicted with European Union competition rules, which Alders (2008) acknowledged, and the proposed move of leisure and budget flights from Schiphol to regional airports would haunt aviation policymaking for the next decade. Residents around these regional airports had not been involved in the negotiations (Boons et al., 2010). Particularly Lelystad, a general aviation airfield at the time, was envisioned to become a so-called 'overspill airport', although its location was considered unsuitable for civil aviation (LVNL-To70, 2009). In March 2015, the government decided to develop Lelystad as civil aviation airport, to open in April 2018.

These decisions and events constitute a history of steering attempts (Van Assche et al., 2014): a *pathway* of (past) policy commitments to hub expansion in the face of environmental limits, in which the *object* of aviation-induced climate change lacked presence. These policy legacies continue to inform shared understandings of the present, making it difficult for policymakers to change direction in the face of a storm, as we show next.

Storm signals: more room for environmental politics

Like perfect storms, objects rarely emerge from nowhere. They form as unrelated circumstances converge. In our case, in 2016 and 2017, different and taken-for-granted elements became the subject of debate and correspondingly became more urgent (*solidification*). Figure 3-1 shows the dynamics in the formation of objects most relevant for this case. Before the storm, only some media attention during the 'Paris' negotiations was notable in Q4 2015. Yet, in 2016 and 2017, three developments, clearly visible in Figure 3-1, signalled the storm's arrival.

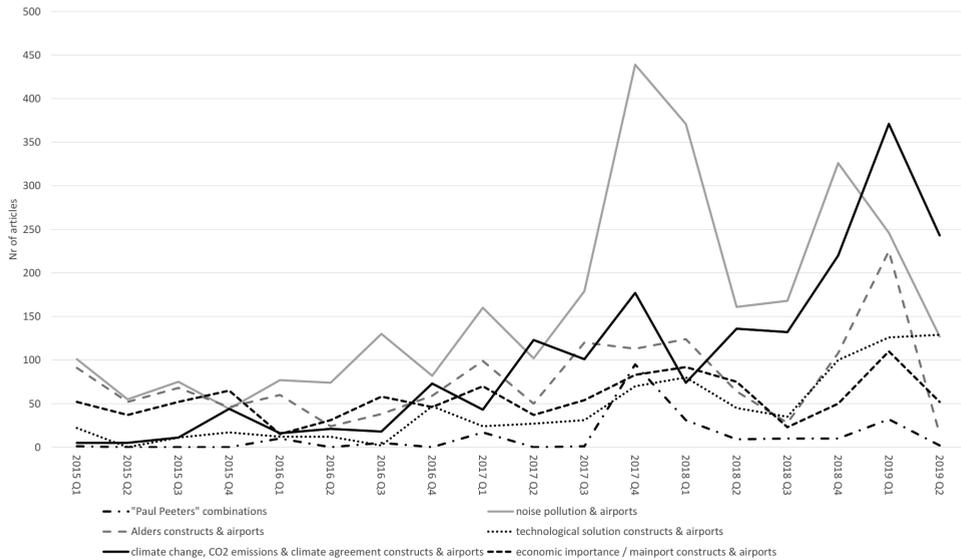


Figure 3-1 Object formation dynamics. The graph illustrates the dynamics of the formation of several 'knowledge objects' related to Schiphol and Lelystad, in terms of the number of national and regional newspaper articles from 2015 onwards (the period identified by our informants). Source: own analysis with Nexis Uni™.

First, the mainport policy was called into question. As Schiphol would reach the agreed cap of 500,000 flights sooner than expected, I&W asked the Alders Table for a renewed advice on Schiphol's development up to 2030 in March 2016. Up until that point in the debate, the 2008 Alders Agreement had effectively functioned as a policy that legitimised Schiphol's and KLM's push for expansion while containing public discontent: it left antagonists little room to make an impact. That changed over the summer of 2016. The Council for the Environment and Infrastructure (RLI), a strategic advisory board of the government, published *Beyond Mainports*, concluding that Schiphol was not a major economic driver (Rli, 2016). 'Noise' gained momentum. The 'mainport's' fall from grace had begun.

Second, aviation became a topic on the national political agenda. Parliamentary elections took place in March 2017. The Green Party scored well and initially participated in coalition talks, but eventually joined the opposition. After the elections, they selected aviation as one of their main topics, as the lack of realistic technological mitigation solutions legitimised a debate about fundamental sustainability questions. Newspapers followed suit in Q2, 2017. Unconventionally, the coalition agreement presented that October, contained a specific section on aviation (see VVD et al., 2017). The text coined the terms 'smart' and 'sustainable',

and announced the preparation of a new Civil Aviation Policy Memorandum 2020-2050. Political opportunities to attack the aviation sector in parliament appeared on the horizon.

Third, a new actor emerged and entered the policy arena. In 2017, the Lelystad situation escalated. The government had already postponed the airport's opening due to flight routing issues in November 2016. A structural rezoning of (crowded) Dutch airspace was required. Pressed by Schiphol's looming congestion, I&W opted for a temporary solution. Lelystad traffic would stay below Schiphol traffic and use low-level airspace for approach and departures (Dijkma, 2017a). This move triggered unanticipated resistance from communities under these (new) flight paths. Resident action groups formed. One of them (*HoogOverIJssel*) had members with in-depth technical expertise of aviation and knew how to engage with media and politicians. The group analysed Lelystad's Environmental Impact Assessment (EIA), and reached out to MPs and the media, claiming the anticipated noise levels were incorrect. Dijkma, the responsible State Secretary of Infrastructure at the time, was pressed by the Green Party to discuss the matter with *HoogOverIJssel* and had to admit EIA flaws a few months later (Dijkma, 2017b). 'Noise' and the EIA enjoyed a high share of headlines for six months. By the time the new government took office in October 2017, Lelystad had moved into the national media spotlight.

These developments illustrate *path dependency*: the 2008 Alders Agreement had restrained the course of the policy process for nearly a decade. The related mounting resistance had drawn the attention of a second actor that, until then, had been absent from the debate: the environmental movement. Environmental NGOs waited for an opportunity to step in. It arrived late in 2017, when long-awaited room to make aviation the subject of environmental politics opened up.

A perfect storm: aviation-induced climate change enters the policy process

The storm hit in November 2017, when TU Delft awarded Peeters the PhD degree, and previously unrelated elements were drawn into the debate. The PhD press release was designed for maximum impact (see TU Delft, 2017). Its catch line ("tourism and travel make Paris targets unachievable") addressed Dutch policymakers attending the climate talks in Bonn (COP23): maximum expansion of "the Dutch mainport Schiphol airport" is not a sustainable development option for the Netherlands. Its impact was considerable.

Several major newspapers published articles that linked Schiphol's expansion to the Paris Agreement (Bruinsma & Stil, 2017; Stil, 2017). Some argued for de-growth of Schiphol (Reijn, 2017). The message featured in some 90+ newspaper articles in that fourth quarter of 2017; the effect visible in Figure 3-1. Peeters already had a media track record as aviation and climate change expert. Current affairs TV programme *Buitenhof* invited Peeters to discuss Schiphol (Hagens, 2017). Parliamentary questions used the message of the PhD to scrutinise Dutch climate policy, Schiphol's growth, and Lelystad (van Raan, 2017). 'Paris' had entered the Dutch aviation policy process.

The environmental NGOs now had their pretext. They entered the unfolding debate from that autumn onwards. International NGO Transport & Environment (T&E) launched an international lobby campaign in countries dealing with aviation controversies. In the Netherlands, T&E fed information to environmental NGOs, resident action groups, and MPs. New *sites* subsequently emerged. Early 2018 three major Dutch environmental NGOs – *Natuur & Milieu* (Nature & Environment; hereafter N&M); Greenpeace; and the *Natuur en Milieu Federatie Noord-Holland* (regional environmental council; hereafter MNH) – started a coordinated aviation policy lobby and nation-wide campaign. In Parliament, three opposition parties formed a green alliance. On multiple occasions in late 2017 and 2018, they steered aviation debates towards emission reduction and compelled the government to admit that aviation emissions would continue to increase and that – with this knowledge – its plan was to open a new airport. Several motions, proposing emissions measures have been tabled since (taxation, reducing flight volumes on Schiphol).

Accordingly, through the forging of connections between Schiphol and the Paris Agreement, previously unrelated and taken for granted policy items – hub expansion and climate change – entwined in the Dutch aviation policy process. The object of aviation-induced climate change, considered international policy matter up until that point, correspondingly emerged as a national policy item (*codification*). Ever since, Dutch aviation policy had become the subject of environmental politics.

3.3.3. Present policy pathways

Competing policy actors tend to block or complement each other's strategies, thus acknowledging their adversaries (cf. Van Assche et al., 2014). We identified these *path interdependencies* in the environmental policy struggle that unfolded from 2018 onwards.

In the wake of the storm: discursive confrontations intensify

That year, the object of aviation-induced climate (was) turned into a matter of public concern. 2018 saw Greta Thunberg-inspired school strikes, discussions about ‘flight shame’ and increased train travel. During an unusually warm summer, media coverage on aviation and climate change grew steadily (see Figure 3-1). N&M, Greenpeace, and MNH exploited the public discontent, which, in part, they had helped create. They organised meet-ups, symposia and rallies. With the help of green alliance MPs, the NGOs helped action groups build nation-wide platforms. The Collaborating Action Groups Against Low-level flight paths (SATL) and a national citizens’ council against aviation growth (LBBL) were subsequently established. Both registered as legal entities. Thus, (the impression of) a nation-wide protest movement had been created. Aviation-induced climate change had become self-evident in the public perception (*naturalisation*).

The government and the aviation sector faced mounting public scrutiny. Schiphol, preferring the localised setting of the Alders Table to a nation-wide debate about growth, denied the actor-status of SATL, arguing that only residents living near operational airports (rather than under the flight paths of future airports) had a legitimate stake in the discussion. The credibility of the Alders Table, however, further diminished. ‘*Schiphollen*’ had earned a national dictionary entry (van Dale, 2019). This verb refers to the governance habit of making (deliberately complex) agreements that will not be kept, because one knows beforehand that future agreements will follow (that will also not be kept). Meanwhile, action groups worked to expose the intimate relations between the sector and I&W. National news media played into their hands, revealing that I&W officials and Schiphol had collaborated closely on preparing the airport’s new EIA and jointly decided what information would be made available for parliament, local governments and residents. Reservations about the trustworthiness of the government were mounting.

In these events, we traced the emergence of two discourse coalitions (cf. Hajer, 2005). They produced opposing representations of the world – and corresponding interpretations of the past, present, and future – in efforts to justify concurrent policy or propose alternative policy directions: a sector coalition and a green coalition. The former comprised the long-established iron triangle actors (I&W, KLM, Schiphol), aerospace associations and TU Delft, and other airlines. The latter included the aforementioned green alliance and environmental

NGOs, and an evolving network of local action groups.

The sector coalition, upholding the status quo, depicts aviation-induced climate change as a technological challenge entwined with pro-growth globalism and national pride. Together with KLM, Schiphol is portrayed as an icon of the Netherlands as a trading nation. Zero aviation growth is postulated as pointless because of current global growth projections. Growth is presented as a condition to develop new technologies that reduce emissions. There are aspiring visions of developing and exporting these technologies, premised on typical mercantilist interpretations of global trade. Policies should support these ambitions and not distort the ‘international level playing field’. The green coalition, opposing the status quo, depicts aviation-induced climate change as a problem of injustice, exposing the sector’s continuous push for growth despite reaching various limits (safety, environment, climate, etc.). The sector is presented as lacking meaningful climate action while being largely exempted from tax; policies should therefore apply the ‘polluter pays’ principle.

In the unfolding discursive conflict, we observed different strategies for exerting influence. We identified ‘commissioned results’, i.e. the commissioning of independent (commercial) research agencies to generate science-based counter-evidence to increase credibility (see Table 3-1), as a tried-and-tested method (see Boons et al., 2010). ‘Commissioned results’ served to create a realm of scientific factualness in the construction of opposing truth claims (*objectification*), which further polarised the debate.

‘Commissioned results’ evoked selective reasoning, reminiscent of the dialogue of the deaf (Huijs, 2011): focusing on one side of the argument (both coalitions); cherry picking ‘facts’ (research agencies); and political editing of reports (I&W). It also helped articulate doomsday stories, depicting the dystopias that await us if preferred routes are not taken (e.g. massive unemployment versus the world not meeting the Paris Agreement). Finally, it aided the devising of frames that put the other in a bad light, e.g. ‘one pays more tax when one refuels a Fiat Panda than when one refuels a 747’ (MP about KLM) and ‘bunglers’ (I&W about action groups). Amidst this intensifying debate, there was pressure on and in the government to take the initiative and forge a breakthrough.

Report (consultancy in bold; title own translation)	Commissioner	Message
Decisio/SEO. (April 2018). <i>Exploratory societal cost-benefit analysis policy alternatives aviation.</i>	I&W	'Schiphol and Lelystad growth is the most positive costs and benefits scenario'
RoyalHaskoningDHV. (May 2018). <i>Compare flying with rail travel on short distances and how we can choose the train more often.</i>	MNH (NGO)	Investigating solutions for replacing short distance flights
CE Delft. (June 2018). <i>Economic and sustainability effects aviation tax.</i>	Ministry of Finance	'A flight tax has positive, though limited economic and environmental effects'
CE Delft. (June 2018). <i>Developments Dutch aviation: short overview.</i>	N&M (NGO)	2050 scenarios show passenger and CO ₂ growth
Motivaction. (October 2018). <i>Aviation in the Netherlands: investigation into Dutch population support.</i>	I&W	Various (and opposing) outcomes
Aviation Economics. (October 2018). <i>The true price of a flight ticket.</i>	N&M (NGO)	'External costs add 63% to average ticket price'
SEO. (November 2018). <i>Effects of a national aviation tax.</i>	KLM	'National aviation tax ineffective for achieving climate goals'
CE Delft. (November 2018). <i>Evaluation of Smart and Sustainable action plan Dutch aviation: 35% less CO₂ in 2030.</i>	Dutch Aviation Group	'Smart and sustainable goals achievable with strong effort'
RoyalHaskoningDHV. (March 2019). <i>Emission reduction potential of Dutch aviation.</i>	N&M (NGO)	'Reduction potential depends on CO ₂ price development'
CE Delft. (April 2019). <i>Economic and sustainability effects aviation tax: calculation of new variants.</i>	Ministry of the Interior	'A flight tax has positive, though limited economic and environmental effects'
CE Delft. (June 2019). <i>CO₂-emissions of KLM and Schiphol.</i>	Greenpeace (NGO)	'Complete picture of KLM and Schiphol emissions'
Leobus/NEO Observatory. (June 2019). <i>Second opinion exploratory societal cost-benefit analysis policy alternatives aviation.</i>	SATL (action group)	'Stopping Schiphol growth and not opening Lelystad best for prosperity'
CE Delft. (July 2019). <i>Must aviation grow to keep our prosperity? Critical analysis of much heard arguments.</i>	N&M (NGO)	'Economy will do fine without aviation growth'

Table 3-1 Commissioned results (selection 2018-2019).

3.3.4. Future pathways? – Restoring trust through technological innovation

Shared visions and plans can stabilise a discourse by creating a joint dependency on the fu-

ture. In the final episode of our case, we observed this *goal dependence* in attempts of I&W and incumbent actors to develop a shared vision and plan addressing aviation-induced climate change, and resume control over the debate.

From the moment the new coalition government took office in October 2017, the intensifying debate jeopardised the position of the new Minister of Infrastructure, Van Nieuwenhuizen-Wijbenga. The conservative-liberal People's Party for Freedom and Democracy (VVD), which supported the sector's growth aspirations and had just formed a third consecutive coalition government, recognised the political risk. VVD priority was to restore calm to the debate, so that the government could implement the coalition agreement.

Early 2018, to ease public discontent, the minister informed parliament that 'restoring trust' had become priority and postponed Lelystad's opening for a second time. Media attention regarding noise dropped (see Figure 3-1). Responsibility for aviation was moved from the State Secretary to the Minister. Early 2018, a new Director General (Dronkers) was appointed to support the director of the aviation department. The sector had questioned the required sensitivity and leadership skills of the latter to handle the politically complex matter of Schiphol and Lelystad, provoking action groups. Schiphol made a similar strategic move in these months, by replacing its full-blown-growth oriented CEO by an experienced politician and marked conciliator, adjusting the airport's tone to moderate, conditional growth. To take the sting out of the opposition's arguments, the minister promised parliament regular updates on the efforts of the aviation sector to reduce emissions (van Nieuwenhuizen-Wijbenga, 2019). This promise led to the sustainable aviation Climate Agreement sub-platform.

February 2018, the government started five 'Climate Agreement sectorial platforms' that were to formulate proposals on how to achieve the 2030 CO₂ target and contribute to a National Climate Agreement. I&W was responsible for the platform on mobility. As aviation was not included in this platform (in accordance with the Paris Agreement), Dronkers persuaded the sector to establish a sustainable aviation sub-platform aimed at achieving emission reductions. He chaired the sub-platform himself but lacked formal (legal) means to move the sector forward in terms of climate action. To put pressure on the sector, he invited N&M – as a respected environmental NGO – to join (also on behalf of Greenpeace and MNH). In June 2018, the sub-platform met for the first time.

As part of this effort, main sector actors presented an action plan for emission reduction, named 'Smart and Sustainable' (keywords that also featured in the coalition agreement) in October 2018 (Dutch Aviation Group, 2018), followed by a draft sustainable aviation covenant in March 2019 (ACN et al., 2019). Both documents convey a message of technological optimism: they showcase new technologies like electric and futuristic aircraft designs, and link these to claims of significant future emission reductions (see the rise of both technology and climate in Figure 3-1). In line with her promise of early 2018, Van Nieuwenhuizen-Wijbenga presented the covenant to parliament that same month.

Meanwhile, it turned out that N&M was not just invited to pressure the sector. Their presence made this sector platform look like a fully-fledged climate platform with a societal support base. Yet, in meetings, their participation was curtailed: I&W and the sector often spoke with one voice; the alternative solutions N&M proposed were discarded as unfeasible (without substantiating evidence). I&W-officials pushed for integration in the official Climate Agreement sectorial platform on mobility, which would grant sector actors access to a special climate action fund designated for the climate platforms. N&M blocked this attempt on legitimacy grounds (the Paris Agreement). N&M's presence, in other words, facilitated an act of iron triangle strategising: focus emission reduction measures on (subsidies for) technological innovation in the sector. In March 2019, N&M therefore abandoned the talks. In their view, the action plan and the covenant safeguarded sector rather than climate interests and left alternative policy measures (carbon pricing, reducing the number of flights) untouched (van Nieuwenhuizen-Wijbenga, 2019).

Accordingly, the sustainable aviation sub-platform proved a new *site*. By confining (future) policy options, it delineated the inclusion and exclusion of actors and objects (Duineveld & Van Assche, 2011). The action plan and covenant codified aviation-induced climate change in organisations and plans (*institutionalisation*) and placed the object firmly in the realm of technological innovation.

Storm impact

It is too early to pinpoint the storm's definitive impact. However, the object of aviation-induced climate change had by now become a central policy item in Dutch aviation; more dominant than the established objects 'economy' and 'noise' (see Figure 3-1), leading to profound shifts in Dutch aviation policymaking.

The Alders Table gradually became irrelevant and disbanded in January 2019 (generating its final media peak, see Figure 3-1). In its final report, the Alders Table questioned its own purpose given the changed policy setting, and acknowledged that Lelystad had become integral to decisions about Schiphol's future (ORS, 2019). Power transferred from this *site* to national politicians (and the different lobbies influencing them), enticing the government to come up with legislation-based policies rather than *Poldermodel* compromises. At present, Schiphol's hub development is a full-blown political problem. March 2020, the status is that the government *intends* to open Lelystad in November 2020, at the earliest.

Arguably, I&W, too, lost political leverage. In November 2018, parliament passed a motion that opened the debate on aviation tax and encouraged the government to build international support for an international kerosene tax as a mechanism to encourage sustainable aviation fuels. In May 2019, the Ministry of Finance announced its pursuit of an international aviation tax and carbon pricing. A new policy pathway, beyond the direct control of I&W, had subsequently opened up.

3.4. Discussion

This chapter used discourse theory to evaluate how STR impacted a particular environmental policy struggle. We started this chapter with the observation that, in STR, research impact is somewhat narrowly conceived. Emphasis on the adoption of science in policy and the closing of science-policy gaps through improved research dissemination and partnerships (see for instance Font et al., 2019) presupposes that the domains of science and policy share universally accepted scientific definitions of environmental problems and that the content of policies is always the focus (Hajer, 2005). We illustrated this analytical asymmetry in presentations of the 'science-policy gap' in STR on aviation-induced climate change. The advantage of discourse theory is that it accommodates a broader conceptualisation of research impact. It enabled us to move beyond the substance of science and policy, trace how policy actors assimilate (the same) knowledge objects in different discourses, and identify research impact as an emergent discursive effect across contrasting science-policy constellations. We argue that such an exercise is relevant: it makes us aware that the creation of pro-environmental policy change involves negotiating different constructions of risk in the face of uncertainty (Oels, 2013).

In our case, a PhD thesis on aviation's global CO₂ emissions introduced the object of aviation-

induced climate change to the Dutch aviation policy process, where it evoked new perceptions of risks and uncertainties. Since 1985, a well-trodden policy pathway had characterised Dutch aviation policymaking (Huijs, 2011). An institutionalised discourse facilitated the expansion politics of the national airport Schiphol while subjugating rivalling discourses of localised resistance. In the resulting dialogue of the deaf, the aviation emission challenge was only recognised as an international problem. From November 2017 onwards, however, this topic became more urgent, as media coverage of this PhD linked previously unrelated objects (the global climate crisis, the Paris Agreement) to the policy of expanding Schiphol. This offered the environmental movement the opportunity to join the debate. A new national policy pathway subsequently opened, scrutinising Schiphol, its politics of growth, and aviation at large for its climate impact. The Dutch aviation policy status quo had become emblematic of the global climate crisis and the subject of environmental politics (cf. Hajer, 2005).

In the resulting policy struggle, the object of aviation-induced climate change stabilised in the opposing storylines of two discourse coalitions (Hajer, 2005): an environmental alliance presenting the object as a matter of climate justice and institutional change, and a government-mobilised industry alliance depicting the object as a technological challenge. Both discourse coalitions resorted to tested strategies of exerting influence. The environmental alliance constructed (impressions of) a nation-wide protest movement; the sector alliance, defending the status quo, again attempted to make their business strategies part of government policy, reflected in the draft covenant for sustainable aviation (ACN et al., 2019). Both coalitions used the method of ‘commissioned results’ to generate scientific evidence supporting their respective positions and to construct objective truth claims (see Table 3-1). This evidence was subsequently used to draw additional objects, such as ‘technological innovation’ and ‘taxation’, into the discussion and develop contrasting visions and plans (e.g. Dutch Aviation Group, 2018; N&M et al., 2019). Science, thus, was integral to this policy struggle, which continues to this day.

The framework developed in this chapter advances our understanding of research impact in environmental policy struggles. In our study, pathways of object formation illuminated that different (inter)dependencies shape policy paths and hold back change (Van Assche et al., 2014). The domains of science and policy both produce future claims, evident, for instance,

in Peeters et al. (2019) and the Dutch aviation sector's 'Smart and Sustainable' action plan (Dutch Aviation Group, 2018). In both domains, these claims are science-based (IPCC reports and commissioned results, respectively). Yet, while the future claims produced in science serve the future and expose the past and present (Scott et al., 2016c), the future claims produced in the policy domain generally serve economic and electoral interests. In our case, these dependencies showed from the "unique reproductive logic of the reigning actor/institution configuration" (Van Assche et al., 2014, p. 42): hegemonic iron triangle actors and successive policies upholding Schiphol's 'mainport' expansion (see Huijs, 2011; VVD et al., 2017). Accordingly, research impact is an aggregated effect that develops from multiple (contrasting) science-policy interactions.

Sites of object formation accentuated this dynamic and contested nature of science in environmental policy struggles. In our study, the thesis contributed to the emergence of new sites (i.e. the environmental alliance, collaborating action groups), which led to the creation of counter-sites (the sub-platform sustainable aviation) and the disbandment of established sites (the Alders Table). Both the Alders Table and the sustainable aviation sub-platform resembled decentralised forms of *Poldermodel* decision-making (Vogelij, 2015). Although seemingly open negotiations between actors with different interests, they resembled what Jasanoff (2002, p. 268) described as pre-scripted forms of group interactions that "perpetuate existing hierarchies". Their creation – or maintenance – tends to make discourses and discourse coalitions more pronounced. In this study, science played an important role in this process: the two discourse coalitions that emerged across these sites used science to exert influence. Thus, in environmental policy struggles, research impact comprises conflicting policy actions and reactions. This disparity seems to grow over time and is arguably exacerbated by the continuous deployment of (commissioned) research.

The different *techniques* of object formation we observed in our case study underline this disparity. All contenders used science to bolster truth claims and undermine competing ones. According to Weingart (1999), such science-politics erodes scientific authority because it forces policymakers to make decisions based on contradictory advice. In these situations, science produces knowledge objects that function as "repositories of power" (Jasanoff, 2002, p. 253). These objects present temporary certainties in the face of uncertainty. This is evident, for example, in the 'models' and 'scenarios' presented in STR on climate change

(e.g. Peeters et al., 2019; Scott et al., 2016a). ‘Technological innovation’ – the central object of the sustainable aviation sub-platform – is a particularly prominent instrument of power. This object “legitimises the practice of statecraft” (Jasanoff, 2002, p. 257), as established hierarchies associate themselves with (concepts of) novel technologies to reinforce their positions (see Figure 3-2). Accordingly, in environmental policy struggles, research impact is not a quasi-isolated effect on the world beyond academia, but manifests itself through a multiplicity of knowledge objects that are both embraced and marginalised.



Figure 3-2 Minister van Nieuwenhuizen-Wijbenga supporting promising new technology (Quote: “We want aviation to become more sustainable and cleaner. The platform sustainable aviation is a good initiative to boost the developments in electric aviation.”) Source: MinlenW (2018)

3.5. Conclusion

The alternative conceptualisation of research impact developed in this chapter offers a more nuanced understanding of the ‘science-policy gap’ presented in STR addressing climate change. We argue that this ‘science-policy gap’ is not a gap between science and policy, but a manifestation of science-politics, i.e. the simultaneous politicisation of science and scientification of policy (Weingart, 1999). This constitutes a clash between an unfolding discourse of ecological logic and the still dominant discourse of economic logic. Between them, these discourses construct contrasting socio-technical futures (see Buijtendijk, Blom, Vermeer, & van der Duim, 2018) achieved through fundamentally different science-policy constellations (Jasanoff, 2015). They stem from irreconcilable views on risks (in our case market failure vs. climate crisis) and risk assessment, turning decisions over them into power struggles (Halfmann, 1990, in Beck, 2009; Oels, 2013). Consequently, as discursive gaps can never be closed (Van Assche et al., 2014), what remains is a field of profound cultural politics; a de-

bate in which society reflects on its achievements and questions values and politics itself (Hajer, 1996).

As our study illustrated, cultural politics is a hostile setting for consensus-based policymaking, let alone the unquestioned acceptance of scientific evidence. In this realm, agreement or compromise ends debate and triggers new uncertainties that jeopardise acquired credibility and positions of power. This may explain, as our study showed, why governments prefer the seemingly value-free option of technological innovation over structural policy change (Jasanoff, 2002) and, conversely, why NGOs sometimes abandon climate negotiations. Thus, in these settings, the function of research is not to inform, but to legitimise pre-existing, institutionalised policy positions. This strengthens the status quo. The more policy actors use science to cancel out the science of opponents, “the more powerful political or economic interests prevail, just as they would have without science” (Rayner, 2006, p. 5).

This chapter raises questions about narrow conceptions of research impact. Our study shows research impact is a long-term, emergent effect, entwined with various other elements, that manifests itself subtly in policy processes. In particular, it described the intricate force field in which policymakers have to negotiate conflicting science-based truth claims, and select options that allow them to make decisions and reduce risks in the face of uncertainty (Weingart, Engels, & Pansegrau, 2000).

STR researchers should be aware of this force field when engaging with policy actors as part of the propagated ‘impactful’ research endeavours (Font et al., 2019). This study showed the importance of persuasive science communication and engagement with policy actors: the PhD press release was well-timed and Peeters qualified as a convincing communicator of science (see Peters, 2008). But, above all, it illustrated the importance of steadfastness. Since the start of his professorship in 2002, Peeters has been conducting various projects with policy actors. His message and arguments have always been the same. In contrast, ‘hit-and-run’ commissioned results can generate significant funding, media attention and public debate – great for case studies about research impact (Owens et al., 2006) – but also progressively limit the possibilities for genuine policy dialogues and new policy paths.

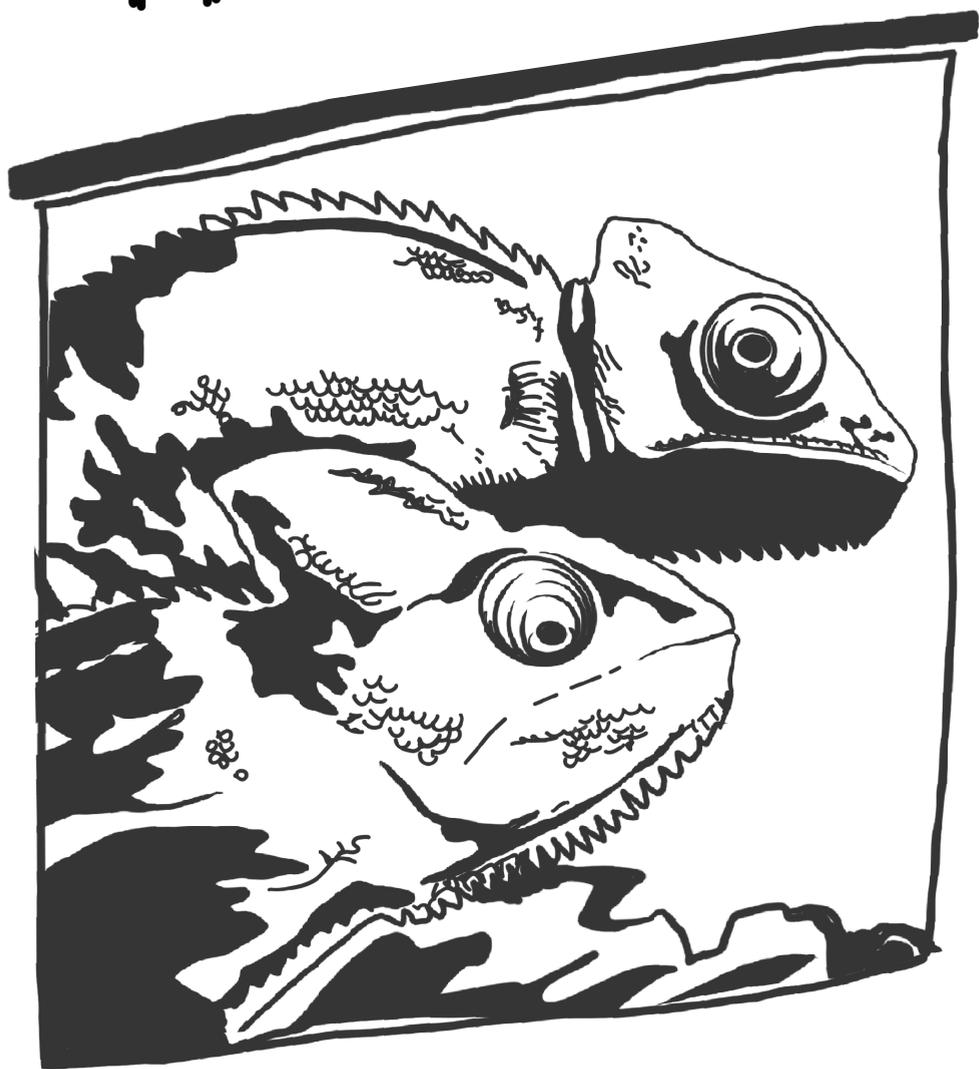
Policy actors, too, should be aware of this force field and critically reflect on their reasons for commissioning research. Such studies may help in buying time and credibility, but can also enforce deadlocks.

CHAPTER 3

Finally, this chapter highlights the need for advanced policy analyses in STR that address this intricate force field, examine environmental policy struggles from up-close and within (Jasanoff, 2015), and in different governance contexts. To avoid the analytical asymmetries that emerge when a single environmental reality is pitched against policy rhetoric, environmental policy studies acknowledging that impact takes time to manifest, i.e. through the reframing of problems and solutions, and a slow change of vocabulary and mindsets (Owens et al., 2006) – in other words, through discourse – are particularly valuable. We hope that our chapter helps invigorate this debate.

CHAPTER 4

THE FIRM



Abstract

This chapter studies the productive role of innovation in organisations. Using the post-structuralist insight that innovation is an open concept that can become performative, we shift the emphasis from analysing innovations themselves to analysing how the concept of innovation affects the organisational practices through which it acquires meaning. Deploying this framework, we studied the development of an innovation unit within TUI, a corporate tour operator. We found that actors interpreted innovation in different ways and that initially the innovation unit was considered a failure. The subsequent dramatisation of this failure resulted in a new version of this innovation unit that strengthened established actors and institutions within the organisation. Our study shows how the use of the concept of innovation in an organisation can both stimulate and hamper its innovativeness. Addressing this paradox requires sensitivity to the concept's productive role and evaluations of innovation that look beyond accomplished results.

Key words: innovation; innovativeness; performativity; open concepts; corporate tour operators

This chapter has been published as:

Buijtendijk, H., Van Heiningen, J., & Duineveld, M. (2021). The productive role of innovation in a large tourism organisation (TUI). *Tourism Management*, 85.

<https://doi.org/10.1016/j.tourman.2021.104312>

4.1. Introduction

“Actively shaping change and successfully tackling external factors and market challenges are two of TUI’s strengths. We delivered double-digit growth for four consecutive years.”

(TUI Group, 2019, p. 6)

In their 2019 annual report TUI addressed their shareholders with confidence. A few months later, facing a global pandemic and related market challenges, German government-provided financial stabilisation packages worth €2.0bn are keeping the “the world’s leading integrated tourism group” afloat (TUI Group, 2020). One year earlier, TUI’s long-term rival Thomas Cook failed to obtain a similar bailout after a planned restructuring was stopped at the last minute, and collapsed (Collinson, 2019).

Shock events like these tend to expose the weaknesses of established organisations (Klein, 2007). Many different explanations for these weaknesses have been offered. Some reiterate the known business flaws of package holiday conglomerates (see e.g. Collinson, 2019). Others critique the volume growth model for tourism and its negative impacts on public health and climate change (see e.g. Gössling, Scott, & Hall, 2020). This retrospective finger-pointing can be very relevant, but it shrouds the complexities inherent to innovation from within (Akrich, Callon, & Latour, 2002a).

Even when they want to, established organisations like Thomas Cook and TUI cannot easily change directions. Various dependencies, such as past accomplishments, current routines, and future commitments, shape their path (see Van Assche, Beunen, & Duineveld, 2014). They face, in other words, what management literature describes as the rigidity of their own business model (see Doz & Kosonen, 2010). To deliver on growth promises in saturated markets of their own making, tasks are often standardised, and an operation-focused, efficiency-driven culture is manifested. Those conditioned in such environments are usually well aware that long-term success necessitates the exploration of new avenues (see Gonthier & Chirita, 2019): they simply succumb to the inherent political pressures that come with talk of innovation (see e.g. Smith, Ree, & Murray, 2016). Innovation can introduce risks that compromises efficiency and is therefore often ruled out (Christensen & Raynor, 2003). This raises questions about innovativeness (Tajeddini, 2010), the creation and adoption of novelty from within.

Innovation is a vague but fashionable concept. It has many meanings and, regardless of their content, it mainly evokes positive connotations (Bontems, 2014). Within tourism innovation research (see Pikkemaat, Peters, & Bichler, 2019 for the latest review), a sizeable body of literature addresses the innovativeness of tourism organisations (see e.g. Fraj, Matute, & Melero, 2015; Kallmuenzer & Peters, 2018; Martínez-Román, Tamayo, Gamero, & Romero, 2015; Tajeddini, 2010). In this literature, organisations are unquestioningly understood as ‘firms’, distinct constructs separable from their performance (Guérard, Langley, & Seidl, 2013), and innovation is seen as a management tool. It is reduced to proxy variables that stand in hierarchical, causal, or inclusive relations with each other (cf. Kooij, Van Assche, & Lagendijk, 2012; Law & Urry, 2005). As a result the focus is on measuring its assumed steering power to explain or direct organisational performance.

In contrast to these instrumentalist approaches, interpretivist approaches consider innovation a dynamic process in different organisational settings (see e.g. Lowe, Williams, & Shaw et al., 2012; Nordin & Hjalager, 2017; Smith et al., 2016; Rodriguez-Sanchez, Williams, & Brotons, 2019; Zhang, Kimbu, & Lin et al., 2020). Innovation is seen as the progressive entrepreneurial or intrapreneurial achievement of creative and knowledgeable persons collaborating in teams, self-organising networks, or coalitions. The focus is on the perspective of these individuals to identify or understand different antecedents that can explain their actions and the resulting innovations.

Each approach has its own merits. Instrumentalist approaches advance innovation measurement, deemed important for comparison and benchmarking (Montresor, 2018; Camisón & Monfors-Mir, 2012). Interpretivist approaches uncover different forms of freedom, i.e. to set goals, to fail, and to build coalitions of likeminded souls, as important sources of innovation. Yet, central to both is an actor-focused interpretation of agency: innovation usually emanates from specific organisational attributes or from the (combined) character traits and cognition, i.e. the acquired knowledge and skills of specific (collaborating) entrepreneurial or intrapreneurial people (see Garud, Gehman, & Giuliani, 2014). The possibility that the idea or concept of innovation itself also accumulates an agency of some kind remains unaddressed in these two bodies of literature. Through its presence and use in organisations, ‘innovation’ as a concept and idea – aided by its inherent vagueness – can evoke multiple meanings and serve different purposes (Kooij et al., 2012).

By means of a case study, this chapter therefore investigates the use and effects of innovation as a concept in a specific tourism organisation, namely TUI Benelux. Apart from a study on Thomas Cook by Smith et al. (2016), there is little research examining ‘innovation’ in corporate tour operators, despite their substantial role in shaping the international tourism industry. As part of the TUI Group, TUI Benelux is a cluster organisation of TUI Netherlands and TUI Belgium, which each serve their respective source markets, but operate under a shared management board for reasons of efficiency as part of TUI’s corporate strategy (TUI Group, 2018). Over a period of 18 months, we traced the development of an innovation unit in this organisation.

For our analysis, we turned to an alternative approach to instrumentalist and interpretivist studies of innovation, sensitive to the more political uses of the concept of innovation in organisations (Kooij et al., 2012): post-structuralist organisation and governance theory (Van Assche, Beunen, Duineveld, & Gruzbacher, 2020; Van Assche et al., 2014; Czarniawska, 2009; 2004; 1998; Kooij et al., 2012). Two interrelated ideas shape the theoretical framework of this study: open concepts and performativity. Open concepts are seemingly vague concepts that lack inherent substance, i.e. specific technical or ideological definition, and can therefore create meaning or give direction without disclosing much detail (Kooij et al., 2012). Performativity is the self-fulfilling effect of written and spoken communication (Mackenzie, Muniesa, & Siu, 2007), and invites us to probe the functions of concepts in language (Czarniawska, 2009). Combined, these ideas can help us shift focus from the alleged substance of the concept of innovation to its productive functions in an organisation and trace how it sorts different reality effects. By reality effects we mean: changes in shared understandings of an organisation’s past, present, and future that can be observed in organisational practices and that inform coordinated action (Van Assche et al., 2020).

This chapter proceeds as follows. The next section presents our theoretical framework in further detail. Section 3 explains our methods. Section 4 presents the evolution of an innovation unit in TUI Benelux, and section 5 analyses the reality effects we observed in this process. Based on the results, we propose a new, more reflexive approach to understanding and implementing innovation in organisations in section 6.

4.2. Theoretical framework

In post-structuralist organisation and governance theory, organisations are not seen as fixed and clearly delineated entities, but as emergent and evolving effect of organisational practices (Czarniawska, 2004). In this view, an organisation is not a pre-given entity or ‘fact’ but the result of numerous communications that collectively produce multiple, overlapping representations of a single organisation (Czarniawska, 2009). This conceptualisation of organisations has major consequences for the analysis and understanding of innovation in organisations. Conceiving organisations such as ‘firms’ and ‘start-ups’ as dynamic and complex processes instead of fixed actors, fully able to steer and control their development (Kooij et al., 2012; Law, 2001), opens the door to probe the political, arbitrary, and contingent dimensions of innovation in organisational practices.

4.2.1. Innovation as open concept

To deepen our understanding of the role of the concept of innovation in organisational practices, we add the notion of open concepts to our framework. According to Kooij et al. (2012), the seeming vagueness of open concepts creates space for multiple interpretations of an organisation and its practices to co-exist. This multiplicity accommodates the construction of temporal certainties – evident for instance in vision and strategy documents – that veil the general impossibility of knowing or fully steering the future. Innovation is an open concept because of its inherent lack of substance (Bontems, 2014). It can mean and imply many things for different people and in different contexts. Thus, conceptualising innovation as an open concept enables us to trace how it evokes different meanings as organisations and the related actors mould it into various shapes in their efforts to mobilise support for their ‘innovative’ ideas, and implement change in organisations (Akrich et al., 2002b). To analyse the reality effects emerging from this process, we now turn to performativity.

4.2.2. Performativity: the reality effects of innovation

Performativity highlights that the discursive use of the concept of innovation in organisational practices can be productive in itself, regardless of the value attached to the outcomes. The ‘innovative’ ideas produced within an organisation can result in the emergence of new actors and institutions, resistance, and altered patterns of inclusion and exclusion of knowledge and ways of thinking (Van Assche et al., 2014). These reality effects cannot be assumed beforehand but have to be observed in actual practices (Kooij et al., 2012). Thus,

simply by being discursively present, the concept of innovation can become productive and induce change in anticipated and unanticipated ways.

To identify how innovation became productive in TUI Benelux, we distinguish between the generative and the transformative function of innovation as an open concept. The generative function entails the capacity of open concepts to simultaneously generate different representations of the organisation. As innovation can assume various shapes, the concept evokes different understandings of an organisation's past, present, and future, and corresponding tensions and conflicts (Van Assche et al., 2020). Innovation can confront actors with their own conflicting loyalties, i.e. to direct colleagues, the organisation, clients, and their personal networks, even within a single project or practice (Grabher, 2004). This multiplicity highlights that innovation can stimulate divergences in organisational practices. Rather than producing instant shifts in perspectives, the concept serves multiple representations of the organisation at once. Its conceptual vagueness accommodates flexible interpretation, which enables actors to reflect and look ahead (Van Assche et al., 2020).

The transformative function concerns the capacity of open concepts to facilitate change in organisational routines, for instance through gradual institutionalisation of new ideas (Van Assche et al., 2014). Flexible interpretation accommodates the co-existence of different meanings and interpretations of innovation and its organisation (Kooij et al., 2012). This can enable actors to buy more time, mask their intentions, and/or avoid conflict in the process of mobilising support for their ideas (Van Assche et al., 2014). Such competitions for influence can create convergences in organisational practices. Actors are necessarily required to find broader strategic acceptance of their positions. Mobilising support through coalition building is considered an important stage of the innovation process (see e.g. Nordin & Hjalager, 2017; Rodriguez-Sanchez et al., 2019), but it also narrows one's options over time. Coalitions can bring focus to discussions that first moved in many different directions. Coalitions can produce rules and norms that structure interactions and that make distinct organisational representations more stable and lasting (Van Assche et al., 2020).

4.3. Methods

After a series of meetings with TUI managers in the Netherlands in 2016 and early 2017, we were invited to study the development of an innovation unit in TUI Benelux up close, for a prolonged period of time, and with access to key informants (TUI staff directly involved, sen-

ior management, and external advisors). A case-study approach was subsequently adopted. The case-study method is deemed suitable for exploring less accessible, unique organisational practices (see Tasci, Wei, & Milman 2020).

Our case – the development of an innovation unit in TUI Benelux – consisted of a collection of innovation unit meetings and workshops at various (external) locations, (management) meetings about the innovation unit, and related communications (email exchanges, informal conversations) that followed each other in rapid succession, happened at several places at once, but within a specific organisational context. We therefore opted for an iterative case-study design common in research premised on post-structuralist thought (see Beard, Scarles, & Tribe, 2016). Its integrated process of data generation and analysis granted us the required mobility and flexibility in the field (see Czarniawska, 2004): the possibility to change directions and include new events or informants during the inquiry as we learned more about innovation in TUI Benelux.

We entered the field in August 2017, when the development of the innovation unit began. We left in April 2018, after the process had (temporarily) stalled, but returned in June 2019 for a reflection (and learned about the unit's re-emergence). We generated data through direct observation and interviews. We observed different innovation unit events as they unfolded (see table 4-1). We used these events to present ourselves, our research, and to relate to and understand the TUI staff equipped with the task of shaping and operating the unit ('the innovation team'). We made *descriptive observations* (for instance of people, locations, presentations, and discussions) and *interpretative observations* (for instance our perceptions of the atmosphere, the interactions between people). We recorded these observations in field notes and a research diary.

Alongside, we interviewed members of the organisation directly and indirectly involved in the development of the innovation unit (see table 4-2). We used these interviews to trace interpretations of this process as informants reflected on – and made sense of – what had happened (see Czarniawska, 2004). In 2017, using a pre-tested topic list, we conducted 9 *semi-structured interviews* with innovation team members. In addition, we facilitated a *focus group discussion* (FGD) during the second innovation team event, in which innovation team members collectively identified, visualised, and clustered items enabling or hampering innovation in TUI. In 2018 and 2019, 4 *unstructured interviews* with TUI Benelux executive board

members – senior managers commissioning and supporting the innovation unit undertaking – served to facilitate retrospective reflections on the innovation unit process and the lessons learned, and complemented data generation. Inherent to our iterative approach, respondents were selected using a combination of purposive and snowball sampling (see Beard et al., 2016). The last unstructured interview (with R13) turned out to be of profound importance for our study as this respondent played a pivotal role in our case. Interviews lasted between 35 and 104 minutes. All interviews were audio-recorded and transcribed at verbatim (in Dutch).

Event	Participants	Duration	Date
Kick-off innovation team	Innovation team, external advisors, board member	6 hours	31-08-2017
Reflection kick-off innovation team	Coordinator	1 hour	04-09-2017
Reflection kick-off innovation team	Coordinator, senior manager	1 hour	04-09-2017
Preparation next innovation team meeting	Coordinator	1 hour	13-09-2017
Preparation innovation engine	Coordinator, some innovation team members, external advisor	2 hours	18-09-2017
2 nd Innovation team event (introduction innovation engine) & FGD	Innovation team, external advisor, board member	6 hours	28-09-2017
3 rd innovation team event (visioning)	Innovation team	2 days	29-11-2017 & 30-11-2017
4 th innovation team event (operationalisation)	Innovation team	3 hours	22-12-2017
Design sprint innovation team	Innovation team	3 days	06-02-2018 to 08-02-2018
Reflection innovation team	Coordinator	2 hours	03-04-2018

Table 4-1 Observed innovation unit events

Respondent	Expertise as stated in job title	Date
<i>Semi-structured interviews</i>		
R1	Corporate policy	21-11-2017
R2	Sales	13-09-2017
R3	Digital innovation	23-11-2017
R4	Innovation	27-10-2017
R5	Product management	17-10-2017
R6	Human resources	28-11-2017
R7	Retail	19-10-2017
R8	Human resources	14-11-2017
R9	ICT	26-10-2017
<i>Unstructured interviews</i>		
R10	Executive	19-01-2018
R11	Executive	19-01-2018
R12	Executive	19-01-2018
R13	Executive	06-06-2019

Table 4-2 Interviews and respondents

In this study we had very useful access to key informants. The participating TUI staff have been helpful, welcoming, and open to discuss issues during interviews and innovation unit events. Overall, the applied techniques enabled us to identify and follow the evolution of the innovation unit. Yet, regardless of the duration of fieldwork and the techniques deployed, access is always precarious and partial (Czarniawska, 1998). In the field, we positioned ourselves as researchers. Despite being overt about our role, we sporadically got the impression that some informants viewed us as innovation experts rather than researchers and welcomed our inputs. To maintain optimal access in these cases, we sometimes had to shift our role from observer to participant-observer. This may have influenced the practices we subsequently observed: our presence and contributions may have helped others in creating arguments that further legitimised – or delegitimised – aspired courses of action (see Czarniawska, 2001). Related, organisational hierarchies and pecking orders arguably confined group discussions during the observed events. Specific participant observation techniques, such as shadowing and observant participation (see Czarniawska, 2004), could have provid-

ed further insights into these institutionalised repertoires, i.e. by contrasting our direct observations of the events with observations of less visible, informal practices that existed outside of these events.

In our data we traced the innovation unit as a token (see Beard et al., 2016): a circulating quasi-object that transforms through the discussions it evokes (Latour, 1996a). Data analysis comprised three steps: (i) we repeatedly read the interview transcripts, observational notes, and research diary to familiarise ourselves with all data; (ii) we chronologically ordered relevant data to identify the aggregated sequence of events constituting the innovation unit's evolution; and (iii) we used combinations of initial and focused coding (see Charmaz, 2014) to detect multiple, evolving interpretations of TUI, innovation (within TUI), and the innovation unit. In terms of data triangulation, we treated the interviews as standard accounts – distinct representations of TUI's institutionalised repertoire – and the observations as interfering accounts that did not share this interpretative tradition (see Czarniawska, 2009). We regularly discussed our interpretations of the data and reviewed the coding process. And we deployed document analysis (websites, annual reports, academic publications) to verify, supplement, and contextualise data. Initial findings were shared with TUI Benelux. Meetings with key informants in April 2018 and June 2019 further enhanced our interpretations. The result is a comprehensive case-study account illustrating the innovation unit's evolution and related reality effects, as presented next.

4.4. Case: innovation in TUI Benelux

First, we situate our case in its organisational context. Then we present the evolution of the innovation unit.

4.4.1. TUI, a brief history

The history of present-day TUI is one of corporate venturing. It started around the millennium when the German company Preussag, a diversified industrial conglomerate at the time, implemented what Dittmann, Maug, and Schneider (2008) describe as a rarely seen strategy of business migration. Holdings in mining, oil exploration, and shipbuilding were disinvested; different tourism-related companies were bought. Among the acquisitions was TUI: Germany's main tour operator. Preussag changed its name to TUI in 2002 and has developed its tourism enterprises ever since. Through vertical integration it sought control of the entire tourism value chain and directed consumers to company-owned airlines, hotels, and cruise

ships to secure high occupancy rates. Shareholdings in different hotel groups were acquired and large tour operators in Europe's main source markets, including Belgium and the Netherlands, were procured. In 2007, the tour operating business of TUI AG merged with the UK listed company First Choice to form the London Stock Exchange listed company TUI Travel PLC, which merged in 2014 into the TUI Group.

TUI Group is presently structured as a matrix organisation based on the components of its core business (Markets & Airlines; Cruises; Destination Experiences) and the source markets of its tour operator acquisitions (Northern, Central, and Western Region). TUI Netherlands and TUI Belgium form the TUI Benelux cluster of the Western Region Segment (TUI Group, 2018). They operate under a shared TUI Benelux management board.

In the Benelux as well as elsewhere, stories of mounting pressure on the standard package holiday market had been circulating for years (see e.g. World Tourism Organisation, 2004). Today's challenges include strong competition, low margins, seasonality, and the impending market entrance of global tech companies like Google (R12). To address these challenges and safeguard its future, TUI adopted a new strategy in 2014, transforming itself into a so-called integrated tourism company that offers customers an end-to-end holiday experience (flights, hotels, cruises, activities) (see TUI Group, 2018).

The TUI Benelux board (hereafter referred to as board) welcomed TUI's transformation despite the enormous challenge of implementing the new strategy. The different country offices of TUI Nederland and TUI Belgium had to be aligned with the new matrix organisation of the Western Region Segment. The purpose of the matrix organisation was to have different departments learn from one another, the rapid transfer of "successful models" from one market to another, and harmonisation of "non-customer facing activities" (TUI Group 2018, p. 7). This transformation proved more difficult than expected:

'We have seven content departments now... seven! And that's only in our region! So, the effort put in coordinating that is enormous. At the same time, we need to merge things within the company, simplify things. At present, we do a lot of double work. In my opinion, that is the biggest challenge for top-level management.' (R11)

The board realised that the on-going strategic realignment process constrained rather than improved the identification and uptake of new ideas in TUI Benelux, and that – as a result – they wasted a lot of potential (R11, R12). In January 2017, they therefore decided to set up

an innovation unit. This unit, they envisioned, would operate as a cross-functional team rather than a business incubator independently pursuing new business opportunities (see Gonthier & Chirita, 2019; O'Reilly III & Tushman, 2004). It would identify and centralise the different innovation initiatives in the organisation (R10; R11). A senior manager (hereafter referred to as C.) was assigned to coordinate this process, and form an interdepartmental team.

4.4.2. The evolution of an innovation unit in TUI Benelux

On 9 August 2017, fifteen TUI Benelux staff members received an email from C. informing them that the board had selected them to join TUI Benelux's innovation team. Recipients held different positions and worked in different departments, equally representing TUI Nederland and TUI Belgium.

Three weeks later, ten of the invitees met up. C. led the meeting and started with a presentation explaining that participants would develop an innovation agenda together. C. emphasised the importance of growth – 'an important Key Performance Indicator (KPI)' – and reminded participants that 'they had been picked by the board' to join this initiative. C. concluded with some pointers, mainly formulated by the board, about organising innovation in TUI: 'Looking further ahead (2-5 years); Define priorities and make an action plan; 'Thinking' separated from 'doing'; Facilitate; Structurally rather than ad hoc; Platform for ideas and solutions sourced from stakeholders; Innovation-driven.'

A second presentation followed, delivered by an external expert in industrial product design, who talked about design thinking techniques. Then, participants collectively started working on an innovation agenda that resulted in the ranking of twenty problem statements that covered a wide range of topics, including sustainability, technology, customer relations, human resources, and the relevance of TUI's business model. After this exercise, C. announced that a project management structure would set implementation priorities based on internal and external needs. This sparked unease among the participants. A discussion started, in which the idea of the innovation team got entangled with various operational concerns. Participants expressed unease about the board controlling the projects, the additional work on top of their regular jobs, the organisation's culture, and possible friction with operational and sales targets. C. tried to calm everybody down by proposing that the attendees would answer two questions for themselves: 'do I want to be involved?'; 'can I get time for this

from my manager?’ It was a futile attempt. Participants demanded clear targets and deliverables. Energy in the room drained. The meeting ended in an employee-manager dichotomy and without clear conclusion. C. was disappointed but did not give up and called a second meeting on 29 September 2017.

This time, nine TUI staff (seven had also participated in the kick-off) and another external expert (an agile business consultant) gathered in a room decorated with pre-drawn flipchart papers. C., who again led the meeting, had opted for a more directive approach. C. introduced (a flipchart with a drawing of) ‘the innovation engine’ (Figure 4-1). This innovation engine, which C. had developed earlier with the help of the agile business consultant, was a generic innovation process based on Cooper’s (2011) stage-gate model. The engine’s purpose, C. explained, was to put something in and to get something out. The innovation engine consisted of four different silos. The innovation team was supposed to staff the engine. In each silo, there would be a smaller team carrying out specific tasks. These smaller teams would be ‘self-steering’ and, because of that, C. contended, they would ‘automatically add value’. Yet, the tasks of these self-steering teams had already been defined on some of the flipcharts. The first team would be responsible for portfolio management, and manage and prioritise the innovation agenda. The second team would be the creative engine team, manned with people who could ‘think out of the box’ to identify solutions to selected problems. The third team would set project parameters for implementation, and the fourth team would execute the project. Collectively, these teams had to ensure that the innovation engine would ‘produce’ ‘innovations’ on a three-monthly basis.

The explanation raised all sorts of questions and turned the conversation to product design, which seemed to narrow the engine’s possibilities. Participants wondered whether the engine was going to ‘facilitate’ or ‘create’ new ‘products’? Was the engine going to be fed with problems, opportunities, or ideas? One participant quoted TUI’s Chief Executive Officer, who once said that companies with innovation teams often find it unnecessary to ‘create’ things and that it is more useful if an innovation team would solve real problems. Others wondered whether it was feasible to complete one ‘innovation’ within the proposed three-month timeframe? Was this engine capable of stimulating an innovation-minded culture in the company? And how to measure results?

'If you want to see results, how can you do that with opportunities only? How do you calculate the results? When you use problems, you can measure results.' (R7)

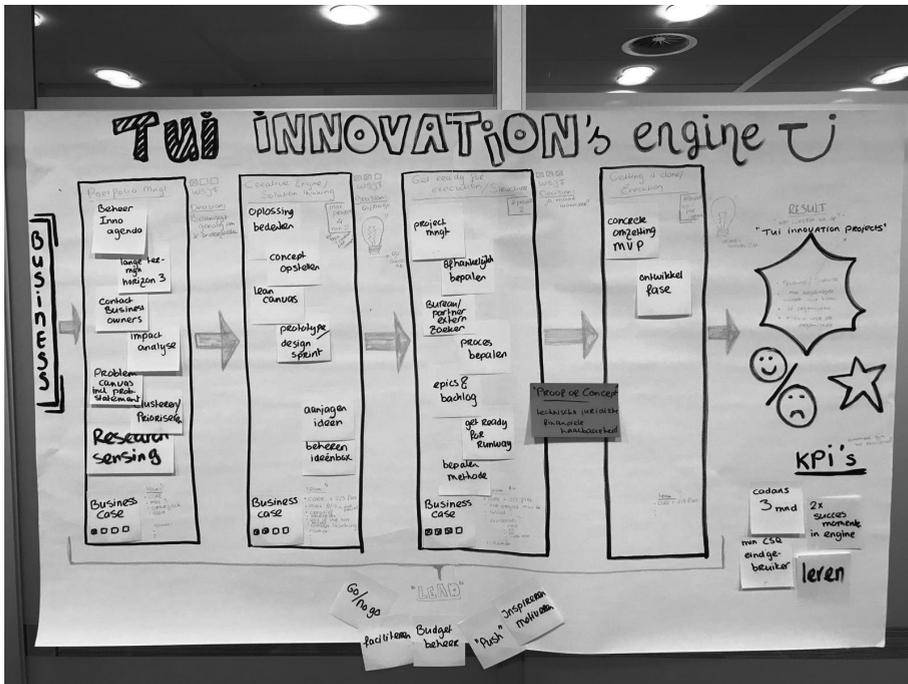


Figure 4-1 The 'innovation engine'

There was discussion about vision, scope, and KPIs. About what the engine should *deliver* and what it should *not deliver*. The engine's innovations had not yet been defined. Yet, there was consensus that TUI was an organisation that celebrated success and results first and foremost. Therefore, the engine should deliver rapid results and solve practical problems fast. They ran out of time with many questions unaddressed.

'The main thing I remembered (from that meeting) was the lack of a goal and the road towards it' (R1)

'Are we the ones that should decide upon the future of TUI? It was completely unclear what was supposed to happen.' (R4)

The meeting ended without a clear conclusion, but one thing had become clear. Those who had participated in both meetings had become the innovation team of TUI Benelux.

In the third innovation team meeting, on 29 and 30 November 2017, 11 TUI staff participated. The vibe was positive. A guest speaker advised the innovation team to define their purpose. This inspired the team. ‘Customer-centric innovation’ was embraced as purpose. They decided to address a business problem as a test case: how to motivate customers to book again as quickly as possible after their trip? The team came up with the travel box concept: a meta-holiday package offer that sells customers multiple package holidays at once, strengthens ties with customers, and accomplishes lock-in, i.e. high-volume repeat business (see Amit & Zott, 2001). There was an atmosphere of enthusiasm when the meeting ended. Some proposed to present the team’s purpose to the board.

To continue the discussion and plan for the future of the innovation team a follow-up meeting was planned in December 2017. Eight TUI staff participated. Initially, there was little trace of the last meeting’s enthusiasm. Focus concentrated on the travel box. Some questioned it, wondering whether this concept was really ‘customer-centric’. Nevertheless, they decided to proceed with the travel box, eager to demonstrate commercial success. To this end, C. proposed a multiple-day design sprint in which an external facilitator would push the team to develop a solution. This proposal went down well and the meeting ended.

The design sprint took place from 6 to 8 February 2018. Nine TUI staff were present. The external facilitator asked the team to do various assignments, including goal-setting exercises and customer interview role plays. They had to develop a pitch and sell their ideas to the board. After 3 days, despite all good intentions, they still lacked concrete output. Energy levels were low. People wanted to go home. At that moment, C. started a discussion about the next steps and proposed to send the outcomes of the design sprint to the Project Management Office (PMO), a department responsible for the implementation of ICT-related projects in TUI Benelux. This caused a stir. Some were worried they would end up at the bottom of PMO’s priority list. C. acknowledged that, at PMO, ‘must have’ comes first, and ‘nice to have’ second, and said PMO would be difficult to convince. They also knew they could not show up at the board with half-baked ideas and felt they had not progressed much since December. C. concluded.

‘If I don’t believe in this product, if I don’t believe in it, then, who does?’

At the end of the design sprint, we observed a sense of failure. Despite all the hard work, the travel box concept had remained a concept and the team stood empty-handed.

At first, the idea of the innovation engine was kept on the table, as a work in progress. In April 2018, its proclaimed purpose was culture change by achieving tangible results and vice-versa. The engine was still to be fed with ‘problems’ that the business could not solve. ‘Solutions’ at the other end would have to demonstrate (quick) success. At least two of the four envisioned silo teams were still incomplete. The travel box concept also lingered. There were design-sprint participants who wanted to give it another try. Some blamed the external facilitator for its initial failure.

Eventually, as the innovation team disintegrated in the course of that spring, the ideas of the innovation engine and travel box stalled.

‘The whole thing collapsed, there was no follow up. People were preoccupied with their main tasks, changed jobs, or left the company (...) it did not work.’ (R13)

Over summer, C. looked into design thinking techniques and took a change management course. A consultancy firm was hired to restructure C.’s department and to jointly develop an innovation programme that would organise ‘real’ innovation in TUI Benelux. This program, named the ‘employee journey’, depicted innovation as a 5-pillar employee development process. The first pillar was about ‘inspiration’, and consisted of in-company sessions about trends and developments. The second pillar they called ‘the academy’, in which employees were offered courses in lean methods and design thinking. The third and the fourth pillar were ‘accelerators’. The third pillar was about process optimisation and aimed at efficiency gains:

‘How can I improve operational processes and make them more efficient, so that it no longer is an 8-hour but a 6-hour task, and I create time to work on different things?’ (R13)

Employees that succeeded in reducing the time they spent on their operational tasks could join the ‘accelerator tomorrow programme’ (the fourth pillar) and work on new customer-centric products. The fifth pillar, ‘the sandbox’, was about playing: experimenting without clear targets, for instance with new technologies. By making their own work processes more efficient in the third pillar, people created their own space to develop new capabilities, which they could subsequently deploy for business development and innovation:

‘Without time and capabilities, it is not possible to work on new things anyway.’ (R13)

Meanwhile, C.'s department had gained prominence. In September 2018, TUI hired a new innovation head with a background in business and innovation rather than ICT. In January 2019, C. joined the TUI Benelux board. By June 2019, C. managed a team of fifteen. Most staff were new hires; none of them had participated in the innovation team. 'Process excellence' was added to the department's existing tasks of 'business development' and 'innovation'. Team members had job titles ranging from 'lean consultants' and 'design experts' to 'business development managers' and 'category managers'. In June 2019, when our empirical enquiries ended, the implementation of the 'employee journey' was about to begin.

4.5. Analysis: Innovation as a concept in TUI Benelux

We will now analyse our case in three sections. We first analyse innovation as an open concept. Then we examine its generative and transformative functions.

4.5.1. Innovation as an open concept

In this case study, innovation operated as an open concept. Multiple interpretations of innovation emerged, through discussions about innovation and the innovation unit, and there was no consensus on its meaning (cf. Kooij et al., 2012).

In the board, some depicted it as an integral aspect of daily operations (R11), and talked about a constant collective process of implementing incremental improvements that, over time, enabled the company to thrive. Others represented it as a means to advance strategy (R10). Innovation could comprise anything new, provided it fitted the strategy. And there were those who portrayed innovation as something that covered multiple scales, distinguishing between small, incremental improvements and a strategic exercise to address long-term, more profound issues (R12).

Innovation team members mostly presented innovation as something that would solve problems. Once addressed, there would be success, in the shape of (more) growth, relevance, bookings, and/or profit (R2). To some, innovation was about creating new products that generated media attention and served as a means to earn the company a reputation of being innovative (R9). Others talked of innovation in terms of organisational transition, asking oneself existential questions, and getting rid of ingrained habits (R3).

Also, the innovation unit was open to different interpretations. When the board decided to establish an innovation unit in January 2017, they wanted a panel that would structure and

streamline idea uptake in support of TUI's corporate strategy. But during the August 2017 kick-off meeting, rather than mapping existing ideas in the organisation, attendees ranked a selection of individually prepared problem statements. Those with an interest in changing the product viewed the innovation unit as a 'creative engine' (R1; R4). They used start-up vocabulary, such as design sprints, Minimal Viable Products, and Proof of Concepts, to describe their ideas. They talked about (the need for) an external incubator that could develop ideas independent from TUI's regular procedures (see e.g. Gontha & Chirita, 2019). Others wanted it to address urgent operational issues (R2; R6; R8). As a result, some staff wanted to end this babel and expressed a longing for clear definitions:

'We must avoid confusion of tongues. We should be clear about what innovation means! Let me ask you the same question; do you know what innovation means in TUI? Did people give you the same answer ten times? Did people tell you ten times the same about the purpose and importance of innovation? Is it just an add-on or is it a necessity? If these people gave you the same answer ten times, then it is well communicated. If not, then I made my point.' (R1)

The multiple interpretations of innovation and the innovation unit proved productive in different ways, as presented next.

4.5.2. The generative function of innovation

Discussions about innovation and an innovation unit generated different tensions and conflicts. We observed unease about TUI's concentration on short-term gains. Respondents understood that, as part of a public listed company, they had to perform. There was constant pressure to deliver quick returns; the KPIs they worked with were designed to guarantee immediate success. Yet, there were concerns that, to some extent, this came at the expense of long-term investments vital to address fundamental challenges and safeguard the company's future:

'We are listed on the stock market and therefore have only one prime goal: being attractive for investors. (...) When investors lose interest in our company, our cash flow will decline, we will have no resources to invest. Consequently, our potential as a venture diminishes; we cease to exist.' (R1).

We also noted doubts about TUI's new strategy. Some wondered whether the integrated tourism company concept would be viable in the market of the Western region, which was structurally shrinking. Others wondered whether TUI had got what it would take to imple-

ment this new strategy. Despite all the efforts to distance itself from traditional tour operating, they felt that TUI Benelux remained mired in traditional tour operating conventions.

Some board members of TUI Benelux shared these worries. There were doubts about the persisting convention that TUI always had to compete on price and the corresponding need for operational excellence, despite all efforts to emphasise the TUI brand:

'Take for instance a five-star all-inclusive trip to Turkey. Nobody cares about whether the accommodation belongs to TUI. (...). I think if you ask the average customer what tour operator they booked with, they will give you the name of their travel agency.... As a result, we primarily compete on price. The customer simply does not care about the tour operator they booked with. And people who do not care about that, base their choice on price' (R12).

In addition, the establishment of the innovation unit prompted discontent within various organisational practices. Some felt unhappy with their workload and described how (their) innovation efforts failed because they got stuck in project groups with unmotivated people (R2; R3; R5; R8; R9). Others argued this was due to a flawed employee assessment process and a correspondingly low staff turnover rate:

'When I accept a new task, I keep my present workload; none of my current tasks are redistributed to others.' (R5)

'Managers seem reluctant to score their staff either high or low. Obviously, there are a lot of people doing the same job, which makes it more difficult, but if people are constantly graded 3 out of 5 it results in a lack of sharp-mindedness, a lack of feedback. So, yeah, individuals are valued here, but also people that should be doing something else.' (R8)

Talking about innovation made people complain about managerial hierarchy complicating idea uptake. In their eyes, disliked or misunderstood ideas were dropped; and the grounds for these decisions were often unclear. Also, when managers liked ideas, this did not automatically result in implementation:

'If he (the manager) likes it then he will work on it himself or pass it through to the general manager.' (R9)

Others felt that TUI missed a method to systematically learn from mistakes. According to some, the problem was not that mistakes happened, but the astonishment, blame-game, and finger-pointing following such mistakes, at all levels of the organisation:

'I believe this is so bad. Especially senior management has to admit mistakes, show that they learned from it, and how they will do a better job next time, rather than shifting the blame onto others, or even denying that something went wrong in the first place. That would show a lot more leadership and professionalism.' (R8)

These tensions and conflicts – confronting innovation team members with their own conflicting loyalties (cf. Grabher, 2004) – revealed discontent with the functioning of the organisation. From April 2018 onwards, some of this discontent created a 'burning platform' for reflection on TUI's current situation and its future (cf. Van Assche et al., 2020), as it was turned into a productive argument to create a sense of urgency and mobilise support for an integrated innovation approach in TUI Benelux. We examine this next.

4.5.3. The transformative function of innovation

Some argued that, in TUI Benelux, innovation had become an aim in itself. This, they felt, fostered inertia rather than a transformation of organisational routines.

'Everybody wants to have the word innovation in his or her job title or company, since it is hip and trendy. They just want to paste the name on it, but don't want the action. So, eventually, nothing gets done.' (R4)

'Sometimes, I have the feeling that we are innovating just to innovate, just because we have to, not because our heart is really in it.' (R5)

Yet, the events since February 2018 paint a different picture. Initially, indeed, there was inaction. A period of lack of resolve followed the unproductive design sprint of February 2018. That spring, there was no joint evaluation, with or without the board, on the failed attempt to establish the innovation engine. There was simply no time to learn from mistakes:

'We are always running (...) from project to project. Always in a hurry. Often, we do not even complete a project, because there is already something new that demands our attention. We never stop. We never look back, and think about how did I do this, how can I do this better next time?' (R13)

At that point, interest in the necessity of changing the culture of the organisation had waned. The board was under the impression that culture change had been achieved. Staff, after all, had been granted more freedom, but the problem was, as we were told, that they did nothing useful with that freedom.

This was followed by a period in which the concept of innovation displayed its transformative function. From the summer of 2018 onwards, the first 8 months of the innovation unit,

4

with the innovation team and innovation engine, evolved into a history of failure, in which some of the organisational discontent was used to explain the engine's lack of success (cf. Akrich et al., 2002a). Staff were overburdened and lacked the required know-how. The engine lacked a clear scope and sat in an organisation that rarely granted people time for reflection, to think things through:

'Initially, I went straight into doing new things, full focus on new passengers, new services, but it did not work. I ran into a brick wall, in spite of my drive, of working 24 hours a day. I blamed it on other people (colleagues). But they were not to blame. The cause of failure was a lack of time, and that people simply do not know how to do new things. They have been trained to do their daily jobs.' (R13)

(In such situations) 'one tends to forget, what is actually the problem we are trying to solve. The essence. Verify for whom we are doing it. What are suitable solutions? (...) A lot of it was waste because it did not create any customer value. We were doing the wrong things.' (R13)

Lessons were learned too. Developing and delivering new products and services and tapping into new markets requires an organisational culture embracing innovation and staff that strive for constant self-improvement:

'So, a culture of constant improvement contributes to an innovation culture, contributes to innovation and contributes to customer value.' (R13)

To accomplish this, the history of the innovation team and innovation engine was integrated into a new narrative, in which the innovation unit re-emerged, this time renamed as the 'employee journey'. The engine metaphor and its mechanical, impersonal, and product-oriented connotations gave way to an emphasis on inclusive employee development. The focus had moved from solving problems to fostering talent while achieving efficiency gains: two elements that fitted – and contributed to – TUI's concurrent strategy (see TUI Group, 2018).

Process excellence is the creation of spare time. And innovation, 'is using that time to address tomorrow's challenges and opportunities.' (R13)

The narrative of the 'employee journey' was subsequently used to create leverage for an integrated innovation approach in TUI Benelux. It downplayed the importance of the innovation team and innovation engine. The team's struggles were retrospectively labelled as an 'experimentation phase', 'chaos', and a necessary *first* step that involved 'ambassador' em-

ployees, generated initial ideas, and harboured experiments, like the failed design sprint in February 2018. The team's lack of success was instrumentally insignificant: it did not harm the organisation, affect sales, scare customers, et cetera. Yet, rhetorically, it made a valuable pretext for the employee journey, strengthening the plot of this narrative. Failure lends itself well to dramatisation (Czarniawska, 1998). In our case, failure was strategically deployed to create a sense of urgency:

'Sometimes, you just have to create that sense of urgency, you know, like, dear people, it is really great I am working on this, but it is not going to work. And then actually show that it is not going to work.' (R13)

'You get (leverage), because I have this burning platform, and that is, I think, to create that sense of urgency, and I think I am good at that.' (R13)

The 'employee journey' aided coalition building (cf. Nordin & Hjalager, 2017; Rodriguez-Sanchez et al., 2019) and provided focus to innovation discussions (cf. Van Assche et al., 2020). Upon completion of our case, we learned that initial reactions among TUI staff were positive. There was a feeling that this time they were on the right track.

4.6. Conclusion and discussion

In this chapter we examined the productive role of innovation in a large tourism organisation (TUI). Our study showed that in this organisation innovation is subject to many interpretations and definitions. These 'misunderstandings' about innovation initially created a self-perceived failure as it generated tensions and conflicts typical of efficiency-driven organisational cultures (see Doz & Kosonen, 2010). It also enhanced reflexivity within the organisation by highlighting different forms of discontent with the functioning of the organisation, including doubts and speculations about TUI's future, corporate strategy, and its implementation. Some forms of organisational discontent operated as 'known unknowns' that staff were generally aware of but did not directly communicate to management. Other forms of organisational discontent were part of an implicit knowledge within the organisation that foregrounded when the innovation unit was being set up and people discussed innovation. The different forms of discontent made the structural limits of innovation in the organisation explicit. Posed as barriers to innovation (cf. Rodriguez-Sanchez et al., 2019), they functioned as a reservoir of productive arguments that enabled strategising actors to mobilise support for their agendas and actions. In the end, this resulted in a version of the innovation

unit – the employee journey – that bolstered TUI’s concurrent corporate strategy and with that the position of its proponents: the TUI management.

In TUI Benelux, the concept of innovation thus eventually strengthened established institutions and actors (cf. Kooij et al., 2012). In other words, ‘doing innovation’ simultaneously undermined and stimulated innovativeness in this organisation, thereby demonstrating the paradox of innovation (Bontems, 2014). On the one hand, the discursive presence of innovation in organisational practices generated fundamentally different understandings of the organisation’s future. On the other hand, it illuminated the transformation of this wish to innovate into the conservative practice of gradually adding minor modifications to the status quo. Or, as Bontems (p. 55) puts it, “everything must change so that everything can stay the same”, highlighting innovation’s political dimension: ‘politics’, i.e. coalition building, is not a phase or task than can be delimited and planned in the innovation process (cf. Rodriguez-Sanchez et al., 2019), but is inherent to the use of the concept in organisations.

4.6.1. *The productive role of innovation*

This chapter studied innovation as a concept with multiple meanings that are produced through organisational practices. This approach diverges from many studies measuring innovativeness, which tend to assume that definitions of innovation are well-understood in organisations (cf. Tajeddini, 2010). Human aspects of innovation, i.e. the recognition of opportunities, the acceptance of and willingness to take risks and change, are often reduced to proxy variables fit for measurement (see e.g. Fraj et al., 2015; Kallmuenzer & Peters, 2018; Martínez-Román et al 2015). The resulting statistics on innovation and related terminology depict innovation as a technical matter and obscure that innovation involves many different negotiations with uncertain outcomes.

This approach also deviates from studies examining the innovation process and its sources (see e.g. Lowe et al., 2012; Nordin & Hjalager, 2017; Smith et al., 2016). These studies also highlight innovation’s inherent uncertainty, but focus on the (combined) character traits and cognition, i.e. the acquired knowledge and skills, of specific (collaborating) people. Both literatures display an actor-focused interpretation of agency (cf. Garud et al., 2014). Contributing to and at the same time diverging from these bodies of literature, we examined the possibility that the concept of innovation, through its presence and use in organisational practices, also accrues agency.

Our study showed that the concept of innovation served as an open concept to 'store' a multiplicity of interpretations. This makes innovation not only an attractive management idea, but also a political device in organisations (Czarniawska, 2008). Strategising actors operating under the innovation banner can pursue different goals as they turn circulating interpretations into productive narratives and mobilise support for their agendas, without disclosing the disparities that would be obvious if the innovation lexicon were more exact (Bontems, 2014). These narratives necessarily fluctuate to maintain their function as "trigger for actions towards goals that are forever changing" (Garud et al., 2014, p. 1181). In our case, the evolving enactment of distinct organisational representations about the organisation of change – the 'innovation engine' and 'employee journey' – created impressions of knowing, of collective reasoning and of consensus that is necessary to maintain coordination in an organisation (cf. Van Assche et al., 2020; Kooij et al, 2012). Thus, 'innovation' can become productive through its conceptual vagueness. Vagueness allows actors to contextualise innovation through evolving narratives that gradually add more specific meanings to the concept and delineate innovation in an organisation (cf. Garud et al., 2014). This raises implications for (tourism) innovation research.

4.6.2. Innovation beyond accomplishment

The findings of our study open up analytical space to evaluate the productive role of innovation as a concept for the creation and adoption of novelty in tourism organisations. We therefore encourage researchers measuring innovativeness to treat vagueness as an important empirical feature of innovation, rather than as a definitional and methodological obstacle inhibiting its accurate measurement (see e.g. Montresor, 2018; Camisón & Monfors-Mir, 2012). Innovation accumulates different meanings that result in site-specific effects that are not easily foreseen or masterminded (cf. Kooij et al., 2012). We argue that it is precisely the anticipated and unanticipated, wanted and unwanted, reality effects that simultaneously strengthen and limit innovativeness in organisations. They can turn discussions about innovation into actual innovation, or its opposite. Rather than veiling innovation's conceptual vagueness with presupposed substance (Van Assche et al., 2014), studies measuring innovativeness in organisations, we believe, should acknowledge these contradictory effects. Innovativeness thus, is best observed as an emergent effect embedded in distinct organisational practices. To acknowledge this specificity, studies can use more proximate

(micro- or meso-level) performance indicators (Guérard et al., 2013), or develop context-specific indicators in collaboration with actors in the organisation.

For the same reason, we call for researchers examining the innovation process to foreground innovation's political dimension in their studies. Coalition building, rather than a processual stage or task that can be delimited and planned (cf. e.g. Rodriguez-Sanchez et al., 2019), can be viewed as integral to innovation itself; narratives play a prominent role in this process (Garud et al., 2014). The accomplishments that individuals describe when describing their innovation journeys can result from prior intention or hindsight attribution and are strengthened through observation (Van Assche et al., 2020). We therefore believe that there is value in evaluating the accounts of these innovators not only for content-related aspects (see e.g. Lowe et al., 2012; Nordin & Hjalager, 2017), but also for their productive functions.

And lastly, we invite practitioners to evaluate innovation beyond output-based performance indicators. In (tourism) business and beyond, innovation is generally understood and represented in the context of competitiveness. In this frame, the difference between successful and failed innovation equates the realisation of distinct outputs – new products, technologies, processes, et cetera – that are expected to achieve a (competitive) advantage for organisations (see Pikkemaat et al., 2019). This frame, we conclude, is too narrow: innovation comprises generative and transformative functions in organisation. Output is an important aspect of innovation, but requires and results from divergent interpretations and ideas about novelty and its limitations in organisation. A one-sided focus on output, thus, risks failing to grasp these other important functions of innovation. Process-based indicators, such as indicators that capture the ability of an organisation to reflect on its own practices and learn from its successes and failures, are equally important.

4.6.3. Final remarks

Innovation will remain prominent in organisations, as a discourse, a goal, boardroom rhetoric, as practice and so on, not less so in the (post-)COVID-19 era. Actors pursuing change, like the TUI Benelux staff, will always run up against structural limits of some kind (Akrich et al., 2002a; 2002b). Ultimately, their desire for recognition drives submission to and mastery of the dominant organisational discourse (Laine, Meriläinen, Tienari, et al., 2016). In TUI, as we showed, this is a discourse of corporate venturing: maintaining profitability for the company's shareholders. In times of crisis, this discourse arguably gains prominence. Successful

corporate venturing requires top-level coordinated responses to secure shareholder and related executive interests. At the same time, top-down coordination and control progressively limits space for open-dialogue, productive conflicts and misunderstandings, and the consideration of new ideas. In the case of TUI Benelux, this contributed to the rigidities that limit the kind of innovation deemed necessary by those working to instigate change from within.

There are various ways to soften these rigidities and strengthen the adaptive capacities of efficiency-driven organisations. Reflexivity at board level can be strengthened (see Doz & Kosonen, 2010) and organisational structures that separate exploration from exploitation can be installed (see O'Reilly III & Tushman, 2004). We believe that acknowledging and stimulating the productive role of innovation as an open concept in organisations can smoothen the entire process. Open concepts enable actors to mediate present and future uncertainties (Kooij et al. 2012), like those presented by the current COVID-19 pandemic (Gössling et al., 2020). They accommodate constant adaptation, also when actors cannot admit this: plans and policies rarely work out as intended, yet their presence in organisations is essential (Van Assche et al., 2020). To make innovation more productive within an organisation, the vagueness of this concept should therefore be cherished rather than scorned.

4

CHAPTER 5

CONCLUSION, DISCUSSION, AND IMPLICATIONS



5.1. Introduction

Innovation is generally framed positively and often narrowed down to commercialised invention. This interpretation is largely seen as a given: explanations for this optimism are rarely offered. This understanding of innovation is also prominent in innovation discourses in the Dutch outbound travel industry and in the mainstream and tourism innovation literatures. The unquestioned faith in the merits of innovation made me curious about its uses and usefulness, i.e. the propriety of innovation as a concept for the coordination of novelty in the face of perceived change, in the Dutch outbound travel industry and beyond.

By means of three case studies conducted from 2016 until 2019, I therefore examined the uses and effects of innovation as a practice and discourse in tourism at different levels of organisation. The first case study traced the development of a carbon management calculator (CARMACAL) for tour operators in the Dutch outbound travel industry. The second case study evaluated the impact of a PhD thesis about aviation-induced climate change on Dutch aviation policy. And the third case study investigated the development of an innovation unit in a large tour operator (TUI).

The theoretical notions of *material events* and *reality effects* guided my analysis (see chapter 1). Material events are relations between (a particular) changing materiality and the construction of interpretations and responses through distinct organisational practices embedded in different discourses (Duineveld et al., 2017). The notion of material events enabled me to trace innovation as a construct that emerged and obtained meaning in situations when different actors coordinate responses to a perceived change of some kind. Reality effects are changing ways of understanding that can be linked to the coordinated responses of actors (Van Assche et al., 2020). The notion of reality effects helped me understand that innovation is contingent. Innovation both constituted and resulted from collective interpretations and representations of (changing) material and social environments that continuously evolve.

Next, I will present the conclusions; a discussion of the theories and main findings; as well as the implications of my research, which was guided by the following research question:

What are the reality effects of innovation in the Dutch outbound travel industry?

5.2. Conclusion

5.2.1. *Material events*

In this thesis, innovation manifested and gathered meaning through specific *material events*. These material events were not new to actors. The increasing contribution of tourism and aviation to climate change (chapter 2 & 3) and the arrival of powerful, new competitors (chapter 4) had lingered for some time and had been broadly recognised in the Dutch outbound travel industry (see Beulink et al., 2012; Capgemini, 2015; Reiserwerk, 2015a) and beyond (Buhalis et al., 2019; Gössling, Hall & Peeters et al., 2010; Gössling, 2002; Law et al., 2014; Peeters, 2017). There had however been limited concerted response.

In the presented case studies, actors had come to rely on paths of action and corresponding arguments that justified inertia (cf. Van Assche et al., 2014). Among the tour operators in chapter 2, these were strategic, ideological, or both. Some viewed their product as a tool to create positive impacts in (long-haul) destinations in developing countries (see e.g. Van Wijk, 2009): an interpretation of tourism that does not sit easily with climate change mitigation (Peeters & Eigelaar, 2014). In chapter 3, actors sensed there had never been a realistic or impactful way to respond. The environmental movement, for instance, had been aware of the decades-old national policy path of stimulating aviation growth and its adverse environmental impacts: a policy process that they had come to consider as difficult to influence. And TUI's efficiency-driven corporate environment (chapter 4) had always compelled managers and staff to focus on operations and short-term results rather than probing their implicit knowledge about the company's ageing clientele and the limitations of its integrated tourism concept. Thus, these material events – even though they became the subject of discussions and were viewed as relevant and important – did not automatically trigger concerted actions (c.f. Duineveld et al., 2017).

Instead, collective interpretations needed to be reached first: interpretations that can trigger and delineate some sense of coordination towards a response. In chapter 2, a presentation during an industry event introduced the idea of carbon labelling and triggered the joint interest in carbon measurement. This led to a subsidised project that created CARMACAL: a piece of software that enables tour operators to uniformly measure the carbon footprint of their products. In chapter 3, a PhD thesis had re-introduced the problem of aviation-induced climate change in Dutch aviation policy (where it historically had been treated as an interna-

tional policy issue). As a discursive object, aviation-induced climate change helped to expose the heavily institutionalised expansion politics of Dutch national airport Schiphol and KLM Royal Dutch Airlines. New actors – citizen action groups and environmental NGOs – then entered the debate. And in chapter 4, an initiative to improve idea uptake in TUI Benelux made people discuss innovation in the organisation and accentuated the organisation's structural weaknesses that, until that moment, had been 'known unknowns' – blind spots that managers and staff were generally aware of but could not directly address. In each of the presented case studies, coordinated responses correspondingly manifested.

5.2.2. *Reality effects*

The *reality effects* that became apparent both constituted and resulted from these coordinated responses. As they comprised distinct organisational practices and communications, they had both material and discursive dimensions.

In chapter 2, reality effects constituted the different, changing and contradicting ideas about carbon management that CARMACAL entangled. The identities and roles of the actors involved in its creation fluctuated, triggering different, accusational discourses in the process (see Akrich, Callon & Latour, 2002a). These discourses foregrounded various absences, such as money, customers, and business travel operators (see Van der Duim, Ren & Jóhannesson, 2013). Upon completion, CARMACAL did not create a sense of stability or common purpose. Instead, it had made different carbon management approaches possible, each prescribing its own conditions for success. Disputes about these ideas and their representatives soon arose, and CARMACAL – envisioned as a way to address the carbon footprint of tour packages – remained a passive tool, subjugated to the established business routines that it was supposed to transform.

Similarly, in chapter 3, reality effects comprised an environmental policy struggle that began to unfold after the PhD thesis had reintroduced the object of aviation-induced climate change to the Dutch aviation policy process and new actors had entered the debate. Two discourse coalitions subsequently emerged that represented the object in different ways (cf. Hajer, 2005): an environmental alliance presenting aviation-induced climate change as a matter of climate justice and institutional change; and a government-mobilised industry alliance depicting the object as a technological challenge and that proposed their Smart and Sustainable Action Plan as a solution. Among different tested strategies of exerting influ-

ence, actors across the discursive spectrum used the method of ‘commissioned results’: commission scientific research and use the resulting evidence to construct objective truth claims that support one’s own position and discredit the position of one’s opponents. In this way, additional knowledge objects were drawn into the discussion, including the object of ‘technological innovation’. This environmental policy struggle still continues today with no change of the status quo in sight.

And chapter 4 showed how the concept of innovation itself generated reality effects through its use in organisational practices. In the collective attempts of an innovation team to develop an innovation unit in TUI Benelux, the concept operated as an open concept that was subjected to many interpretations and definitions (see Kooij et al., 2012). Organisational discontent arose, and people questioned the organisation’s strategy and its future. Some of this discontent operated subtly, as part of tacit knowledge present in the collective memory of the organisation, and created impressions of knowing, of collective reasoning, and of consensus that is necessary to maintain coordination in organisations (Van Assche et al., 2020). The different forms of organisational discontent functioned as a reservoir of productive arguments that enabled strategising actors to mobilise support for their agendas and actions. In the end this resulted in a version of the innovation unit that bolstered TUI’s existing strategy and with that the position of its proponents: the TUI management.

5.2.3. *The reality effects of innovation in the Dutch outbound travel industry*

In sum, in the Dutch outbound travel industry, reality effects of innovation unfold through practices and communications that emerge whenever – lingering – material events become the subject of active and evolving interpretations and representations. These interpretations and representations link a changing materiality to concrete and delineated issues and postulate an urgency of some kind to address these issues. Different and at times conflicting concerted actions and reactions correspondingly manifest. In the presented case studies, these actions and reactions took the form of projects, project teams, coalitions, platforms, and formalised organisations that functioned as *sites* (Van Assche et al., 2014): spaces where actors assessed joint actions and coordinated different, collective responses. Innovation constitutes these sites and the resulting aggregated actions and their outcomes. As the case studies presented in this thesis show, these actions and outcomes can be intentional and

unintentional; they can come in many shapes, and can trigger their own support and resistance.

5.3. Discussion

5.3.1. *Theoretical reflection*

For this PhD thesis, I used insights from Actor-Network Theory (ANT) (chapter 2), Discourse Theory (chapter 3), and post-structuralist organisation theory and Evolutionary Governance Theory (chapter 4).

In chapter 2, ANT helped me understand eco-innovation as an actor-network that is performed in a variety of ways, and that consists of evolving relations between human and non-human elements. This conceptualisation made it possible to identify the firm-centred interpretations of eco-innovation that dominate the eco-innovation literature – a feature this literature shares with innovation studies (see e.g. Fagerberg et al., 2012, Fagerberg & Verspagen, 2009; Fagerberg, 2003) – and the related tendency to explain innovation with pre-determined object-subject divides using social variables only (see e.g. Hojnik & Rozzier, 2016). With the help of ANT I could reach beyond this frame, and analyse eco-innovation as dynamic, multiple and hybrid rather than stable, singular and social. This broadened my analytical perspective. It enabled me to focus not only on people and firms: I could also grant various non-humans (such as technology, CO₂, tour packages) equal analytical weight. By putting humans and non-humans on equal analytical footing, I traced, among others, distinct interpretations of sustainability in the different carbon management approaches that actors advocated.

In chapter 3, discourse theory and the related notion of object formation (see Duineveld & Van Assche, 2011) enabled me to trace innovation in the shape of research impact: a collection of long-term, emerging reality effects that build over time. These reality effects manifested subtly through the conflicting actions and reactions of opposing actors and through a constellation of knowledge objects – including new technology – that were both embraced and marginalised. Here, the notion of object formation accommodated a broader conceptualisation of research impact, beyond the substance of science and policy. As a result, I could observe how different policy actors use the same knowledge objects in different discourses. It then dawned on me that creating pro-environmental policy change involves negotiating different constructions of risk in the face of a future that cannot be known or predicted. On-

tologically and epistemologically speaking, discourse theory is compatible with ANT. Hence the move from ANT to discourse theory was a straightforward one. Both treat reality as a constantly evolving social construct (see e.g. Howarth, 2000). Discourse theory helped to focus on communications and interpretations as construction mechanisms.

Finally, in chapter 4, I turned to post-structuralist organisation and governance theory – another ontologically and epistemologically compatible field of theory – because it accommodated a shift of analytical focus. It made it possible to move beyond two common interpretations and representations of innovation in the literature: instrumentalist conceptualisations that depict innovation as input or output of different organisational performance aspects, and interpretivist conceptualisations that understand innovation as a product of the (combined) character traits and cognition of specific individuals. Aided by the notions of performativity and open concepts (Mackenzie et al., 2007; Kooij et al., 2012), I was able to conceive innovation as a seemingly vague idea that has a life of its own, and that becomes productive, i.e. displays generative and transformative functions, once actors in an organisation start to use it in their communications. This allowed me to highlight how the concept of innovation acquires multiple meanings through the organisational practices in which it is used and accrues an agency of some kind.

The used theories in chapter 2, 3 and 4 share a common ground (see chapter 1). They tend to explain interactions between material and social worlds with the help of an integrated ontology and epistemology. And they assume that reality is multiple and performed: an effect of distinct and continuously reproduced interpretations of materiality and (other) social elements. The theoretical notions ‘material events’ (Duineveld et al., 2017) and ‘reality effects’ (Van Assche et al., 2020) functioned as a bridge, linking the different theories. I will reflect on these notions next.

The notion of material events proved useful in constructing an analytical distinction between change and innovation. Change evolves through interactions between material and social worlds; whereas innovation emerges and obtains meaning through these interactions. This analytical distinction, in my view, is imperative as innovation is not the only possible coordinated response to change. Take, for instance, the imported innovation jargon of experts-consultants and academics that limited a response to change in the Dutch outbound travel industry to e-commerce in chapter 1. This response is not self-evident but requires explana-

tion. There are always *alternatives* (Barba Lata, 2017) – other conditions of possibility, (ideas about novelty, the value of its uses, and associated materialities) – to the paths advocated by those gathering under the innovation banner. And, as the studied cases in this thesis illustrate, even among the so-called innovators, innovation both created and constituted a variety of reality effects that are difficult to predict or mastermind.

The notion of reality effects highlighted these inherent dynamics. It helped me understand innovation as a context-specific material-discursive arrangement that comprises different, at times contrasting, interpretations of change and related, coordinated responses from actors (Van Assche et al., 2020). As a concept that indicates novelty in organisational practices, innovation constitutes sometimes gradual and at other times rather sudden redefinitions of material and social worlds. It can create or erode distinctions as well as completely transform the identities of focal objects (Latour, 1990). Viewed in this way, innovation transcends the attempts of individuals or organisations to realise an idea of some kind. Aided by its conceptual vagueness, innovation provides fertile grounds for different, competing ideas to manifest. These ideas represent and perform different realities and corresponding conditions for success and failure. They can introduce miscellaneous knowledge objects, such as current and future technologies, that are both embraced and marginalised, and that serve different past, present and future interests.

In sum, the theoretical notions ‘material events’ and ‘reality effects’ enabled an integrated analysis of the different case studies. They offered a broader theoretical base to study innovation and surpassed the disadvantages of theoretical essentialism: becoming too mired in the conventions of a single theory in the analysis and explanations of phenomena (cf. Cohen & Cohen, 2012). They helped me understand how innovation, through its use in communications and practices, creates spaces that explore – and contest – alternatives (Barba Lata, 2017), an insight that highlights innovation’s political dimension.

5.3.2. Innovation as politics

The political aspect of innovation as presented in the case studies of this thesis has received limited attention in mainstream and tourism innovation research. Prevalent in these literatures are neo-Schumpeterian or evolutionary economics-inspired frameworks that consider innovation as the basis of economic growth; innovation is portrayed as the unquestioned foundation of firms to compete and create new products (Fagerberg, 2003). In this view,

markets feature as a selection mechanism; routines within firms influence their ability and capacity (knowledge, resources) to develop these products (Fagerberg et al., 2012; Martin, 2012). These frameworks presuppose that markets and firms are solid and rational actors fully able to steer and control their development (Kooij et al., 2012; Law, 2001). They also suggest that economic growth is the undisputed premise of innovation. This depoliticisation of innovation can be viewed as problematic in the light of the case studies presented in this thesis: they show innovation – the idea and associated activities – as a political endeavour.

The material events I examined in this thesis were commonly recognised as urgent, yet did not automatically trigger action (Duineveld et al., 2017). In the presented case studies, individuals and organisations were either mobilised or required mobilisation to become actors in addressing these events (see Callon, 1986). Only occasionally (the impression was raised that) their actor-status formed more or less organically. Take, for instance, the nationwide protest movement against aviation growth in chapter 3. This movement developed spontaneously in part, but the environmental movement also stimulated its formation. The preparation and delineation of plans, projects and actions took time. The resulting innovation activities sparked competitions for influence (chapter 2 & 4) or competitions for influence evoked interpretations of innovation (chapter 3). Regardless of their existence as communications or materialised practices – these activities generated their own support and resistance. Actors constantly evaluated their positions and commitments. Viewed in this way, competitions for influence – particularly those revolving around environmental controversies (cf. Hajer, 1996) – are a hostile setting for accomplishing solutions. Solutions may end certain debates, but consensus, compromise, and even agreement can trigger new uncertainties that jeopardise actors' credibility and acquired positions of power.

These acquired positions of power, in my view, are central to our understanding of innovation as a concept for coordinating novelty and change. Power, surprisingly enough, receives limited attention in mainstream innovation literature. It is usually considered in abstract terms as the power of markets, consumers, and knowledge (Fagerberg, 2003; Martin, 2016; 2012). Fagerberg (2003) and Martin (2016) locate it – rather one-sidedly – in the old ideas, routines, and related path dependencies that hold back innovation. The possibility that innovation also operates as a technique of power that serves the Establishment is disregarded in this literature.

As the case studies presented in this thesis illustrate, innovation is an attractive idea to strategising actors who attempt to reinforce their positions of power. Innovation is commonly considered as inherently good and value-free but lacking in clear definitions (Blok, 2018b; Bontems, 2014; Godin, 2015). This combination grants actors operating under the innovation banner space to manoeuvre. As a seemingly value-free idea, innovation is difficult to reject. Its conceptual vagueness allows for multiple interpretations to co-exist. And being associated with innovation suggests a dedication to actions that promise progress of some kind. It allows tour operators relying on long-haul holiday products to advocate carbon management, expansion-driven airports and airlines to promote smart and sustainable aviation, or an efficiency-driven organisation to champion personalised employee development in its pursuit of even more efficiency through process excellence. Focusing attention on innovation, in other words, can gloss over these inherent contradictions, and give impressions of collaboration and commitment to change that can take the sting out of the opposition's arguments. In this way, strategising actors can buy time as they pursue different goals. It allows them to turn circulating interpretations into productive narratives and mobilise support for their agendas, without disclosing the disparities that would be obvious if the innovation lexicon were more exact, which highlights the paradox of innovation (Bontems, 2014).

5.3.3. Innovation as paradox

In this thesis, I presented evidence of how innovation simultaneously gives shape to new directions and holds back change (Bontems, 2014). This inherent contradiction of innovation has been largely overlooked in the mainstream innovation literature. Recent self-analysis identifies the field's bias towards high-tech innovation and its dated economic rationale (Martin, 2016). Similarly, emerging spin-off literatures scrutinise the current economic/technological fixation of innovation. These literatures promote various alternative acronyms and labels of innovation as capable of addressing contemporary sustainability challenges (see e.g. Hellstrom, 2003; Soete, 2013; Lechevalier, 2019). Some of these labels – notably 'eco-innovation' – also resonate in tourism innovation research (see Pikkemaat et al., 2019). These literatures however maintain an unquestioned faith in 'innovation' as problem solver: the propriety of this concept to create novelty and change is rarely disputed.

The case studies I presented in this thesis illustrate instead how innovation can strengthen established institutions and actors (cf. Kooij et al., 2012). In chapter 2, the engineers envi-

sioned their technology as a device that would make tour operators reduce the carbon footprint of their product portfolios. Instead, CARAMCAL also made soft approaches possible (i.e. carbon offsetting), increasing the legitimacy of tour packages containing (long-haul) flights. The proponents of climate justice in chapter 3 faced an industry coalition that proposed technological innovation as a strategy to realise a ‘smart’ and ‘sustainable’ aviation sector. Well aware of the political risks inherent to compromise, namely losing leverage, relevance, and – ultimately – influence, they have so far preferred to keep up the dialogue of the deaf (see Huijs, 2011). And when the innovation team members in chapter 4 temporarily mimicked start-up behaviour, they got a sense of the creative liberties that middle managers in efficiency-focused organisations often lack (see e.g. Doz & Kosonen, 2010). But the ultimate version of the innovation unit bolstered the organisation’s efficiency-driven corporate strategy and the position of its proponents in senior management. Thus, conservative practices prevailed that used the created novelty to maintain the status quo. Or, as Bontems (2014, p. 55) puts it, “everything must change so that everything can stay the same”.

Innovation is therefore not to be viewed as the exclusive domain of the protagonists: the fiercest advocates of change face the “unique reproductive logic of the reigning actor/institution configuration” (Van Assche et al., 2014, p. 42). In each of the presented case studies, ‘innovation’ lured actors that represent and benefit from the status quo: tour operators persisting in their reliance on the sales of long-haul holidays; Schiphol, KLM, and their associates in the Dutch government; TUI’s corporate executives and short-term profit oriented shareholders. Likewise, some of the *sites*, such as the sustainable aviation Climate Agreement sub-platform (chapter 3) and the innovation team (chapter 4), functioned as prescribed forms of group interactions that reinforced the dominant discourse and related hegemonies (Jasanoff, 2002; Laine, Meriläinen, Tienari, et al., 2016). This can explain why innovation is such a captivating enterprise in the eyes of the Establishment (see 1.1): they can turn the concept into a vehicle for their ideas.

5.3.4. Innovation as technology

Finally, this thesis provides insights into the role of technological innovation in the organisation of change. The mainstream innovation literature tends to analyse technology in instrumental, economic terms as a source of innovation (see e.g. Di Stefano et al., 2012; Fagerberg et al., 2012). It depicts technology as part of an attractive message to policymakers: new

CONCLUSION, DISCUSSION, AND IMPLICATIONS

technology is presented as a source of economic growth, and science should therefore support technological innovation (Godin, 2012). This message – and in particular its advocated aim of economic growth and its emphasis on high-tech – has recently been challenged within mainstream innovation research (see Martin, 2016). Earlier work already raised questions about the negative social effects of technological innovation (see Soete, 2013). More recently, calls have been made to move innovation beyond technology and economic growth (see e.g. Lechevalier, 2019). While relevant, these concerns mainly address the utility of technological innovations, namely the impacts of their instrumental application on society. They tend to overlook the more political uses of technological innovation as an object in policy processes. The examples that I provided in this thesis make two contributions to these debates.

The first one is of an instrumental nature but has an important political implication. Technological innovation by itself does not necessarily instigate the type of change aspired by its creators (see Latour, 1996b for a case in point). As chapter 2 illustrated, once in the hands of its users, CARMACAL made different and contradicting carbon management approaches possible. These approaches embodied ‘strong’ and ‘weak’ forms of sustainability (Hansson, 2010) and conflicting socio-technical imaginaries (Strand, Saltelli, Giampietro et al., 2016; Jasanoff & Kim, 2009). CARMACAL succeeded – albeit temporary – in holding these different ideas together, realising tourism industry support for effective climate action. Thus, technological innovation trajectories can connect seemingly incompatible ideas and, in this way, gradually develop broader – political – support for sustainability transitions. However, there is a caveat that should be noted; hence, the second contribution.

This one is (again) of a political nature. As a policy object, technological innovation is central to the dominant policy discourse of technological optimism (see Strand et al., 2016). Some of the examples I presented in this thesis suggest that the *promise* of (future) technological innovations function as a political legitimisation instrument. In chapter 2, CARMACAL, simply by being present and by being heralded (it won international tourism innovation awards), granted legitimacy to the routines of its advocates and potential users, including tour operators who did not have the explicit ambition to manage the carbon footprint of their product. In chapter 3, ‘technological innovation’ functioned as “repository of power” (Jasanoff, 2002, p. 253) that legitimised “the practice of statecraft” (p. 257). Established hierarchies, namely

the 'Iron Triangle': the Ministry of Infrastructure and Water Management, Schiphol and KLM (Huijs, 2011), associated themselves with (concepts of) novel technologies to reinforce their positions when faced with increasing opposition from parliament, environmental NGOs, and resident action groups. Technological innovation, in other words, can provide temporary certainties in the face of uncertainty that reinforce the positions of those in power. Viewed in this way, technological innovation can be regarded as an obstacle to more profound institutional change.

5.4. Implications: beware of chameleons – chameleons beware

In this thesis I showed innovation is a dominant idea in tourism-related organisations, as a goal, rhetoric, as a practice, and so on. It will remain prominent in the future, not less so in times of crisis, such as the Covid-19 pandemic. Actors in government, business, and society at large will continue to see innovation as something good and beneficial. At some point, actors advocating change are likely to adopt or come across the concept of innovation and, as the examples I presented in this thesis suggest, run up against structural limits of some kind.

Over the past five years, I got the impression that, sooner or later, these protagonists of change will encounter chameleons on their path: hegemonic strategising actors that represent the status quo and that – like their reptilian equivalent – change colour to suit the changing situation. They can reside in old institutions disguised as new ones, such as the Smart and Sustainable Action Plan (chapter 3). By accident or by intent, chameleons 'talk the talk' but do not 'walk the walk'. Chameleons proclaim commitment to transformations, but their rhetoric and practices tend to contribute to the rigidities that limit the kind of change deemed necessary. Chameleons, in other words, embody the paradox of innovation.

Chameleons are remarkably difficult to detect. In my research, I became aware of their presence on a number of occasions. They were arguably at play when hired consultants showcased and heralded Silicon Valley market shake-ups at near-delusional levels (chapter 1); certain participants of a carbon management project tacitly frustrated its progress (chapter 2); aviation sector incumbents began preaching smart and sustainable aviation out of the blue (chapter 3); and a corporate tourism organisation pursued even higher levels of efficiency under a newly-crafted pretext of employee development (chapter 4). These examples suggest that chameleon sightings can be embittering experiences. But they are not.

As my research progressed, I learned that it is pointless to hold a grudge against them. Many of the people I interviewed felt frustrated, even intimidated, in the presence of chameleons. At the same time, some of them were not aware of their own 'chameleonism'. Chameleons are the product of changing circumstances. As the reptile changes colour when it is stressed, chameleonism manifests in governance whenever impressions dawn that things are starting to fall apart, centres cannot hold, and well-trodden policy pathways and related dependencies begin to lose their relevance (cf. Van Assche et al., 2014). The protagonists of change should therefore treat the first sightings of chameleons as a sign of hope and encouragement: transformation, after all, could be just around the corner. Below I will wrap up with some ways forward that can hopefully help researchers and practitioners to better understand and deal with these tricky creatures.

5.4.1. Research implications

Research that traces chameleonism can arguably contribute to a more nuanced and empirically underpinned understanding of the contemporary use of innovation – and other open concepts (cf. Kooij et al., 2012) – in addressing contemporary global challenges. To increase our chances of spotting chameleonism in these settings, I argue that there is value in accentuating – and arguably reinstalling – the political dimension of innovation as a concept for coordinating novelty. Such an exercise, in my view, could comprise two steps, as detailed below.

We could begin with research that examines from up close the competitions for influence that emerge when strategising actors use the term innovation. Such examinations of their innovation-related communications and practices are in my view a helpful and necessary first step, because mainstream and tourism innovation literatures have been dominated with research focusing on the measurement of innovation. As explained in chapter 4, there is nothing wrong with that. Measurement makes comparison and benchmarking possible. The resulting statistics and related terminology however depict innovation as a technical matter. The resulting representations tend to reduce organisations to faceless, taken-for-granted entities, and obscure that innovation involves many different negotiations with uncertain outcomes.

Attempts have been made to illustrate the innovation practices of actors, as shows, for instance, from specific, micro-level studies examining the innovation process and its sources

(see e.g. Nordin & Hjalager, 2017; Rodriguez-Sanchez, Williams, & Brotons, 2019 for examples in tourism innovation research). While valuable, the focus of these studies tends to concentrate on the (collective) knowledge and skills that are required of entrepreneurial individuals if they wish to accomplish successful innovations. The politics that comes with the enactment of entrepreneurial identities, opportunities, failures, and successes (see e.g. Garud, Gehman, & Giuliani, 2014; Korsgaard, 2011) are given limited attention. Politics is viewed as a distinct activity or task that can be managed or planned as part of a clear-cut innovation process. Further studies that highlight the productive political roles of innovation, i.e. the different ways in which actors strategising under the innovation banner foster both progress and inertia, are therefore relevant.

Once we have learned more about this – arguably neglected – aspect of innovation (see Godin, 2015), we could embark on a journey back in time. We could revisit earlier, historical interpretations of innovation, rediscover them if you will, and conduct research that evaluates their merits in addressing contemporary global challenges.

This undertaking could begin with a focus on the first half of the 20th century. In this war-marked epoch, interpretations of innovation were less sterile than the ones that emerged with the rise of technological innovation studies from the 1960s onwards (see chapter 1). We could revisit the proclaimed founding father of this field, Joseph Schumpeter. Such a revisit is not necessarily original and should not ignore Schumpeter's peers (see e.g. Fagerberg, 2003; Godin, 2008). But, for our purpose here, it is useful because it could help us in appreciating that, to Schumpeter, innovation was not unilaterally positive. He talked about it in terms of economic *waves* and creative *destruction* (Blok, 2018a). Maybe this was because Schumpeter – like Karl Marx before him – did not have much faith in capitalism. As Bontems (2014) explains, Schumpeter believed in the inevitable self-destruction of this economic production system. Innovation was simply one of two delay mechanisms that could prevent this from happening (the other was war). In Schumpeter's view, innovation – particularly the disruptive kind – served to upset economic systems and renew elite groups. Only in this way, unhealthy levels of capital concentration and the related oligopolies and monopolies could be averted. Viewed in this way, innovation is not necessarily part of (the capitalist) economic production system, but resembles its limits (Blok, 2018a). Future research could treat it as such.

This interpretation of innovation puts the figure of the Schumpeterian entrepreneur in a different light. Nowadays embraced as the driving force of start-ups that shake up markets with new products and services in tourism and beyond (see Calvino, Criscuolo, & Menon, 2016; OECD & Eurostat, 2018; Pikkemaat et al., 2019), in the early 20th century, Schumpeter's entrepreneur was an organiser rather than an inventor; a fixer of some kind. Entrepreneurs did not necessarily trade, but combined, adopted, and imitated (by copying novelty from elsewhere), renewing elites as they progressed. If this character had a business, it was the business of overcoming resistance to change (cf. Fagerberg et al., 2012). This process, in my view, requires further examinations at different organisational levels and in different contexts.

We could then go further back in time and find that up until the 19th century innovation was contested and prohibited – a threat to the power of institutions, such as the state and the church – and not yet part of the discourse of science and progress (Godin, 2015). It was considered destructive, but not yet economically, as in Schumpeter's days. Innovation was about political destruction and undermining the established order (Blok, 2018a). As Godin explains (2015, p. 2), the innovator was a person who deviated from social norms (a dangerous thing to do in those days). Protagonists of change avoided using the term. Instead, "innovation was a word used by the opponents of change". Chameleons, it seems, share a history with the concept. I think that there is value in research that seeks to better understand this contradiction in relation to different contemporary global challenges.

Efforts to better understand this apparent contradiction of innovation and change could take us further back in time and to Niccolò Machiavelli and Francis Bacon. Godin (2015) and also Bontems (2014) provide insightful accounts of how these Renaissance thinkers understood innovation in relation to ruling elites. Godin (2015) illustrates that, to Machiavelli, innovation was a quasi-military act that involved (covert) actions to acquire or maintain power; that required the willingness to inflict damage on one's opponent; and that aimed to replace old institutions with new ones. These sorts of risky disruptions aimed to break with (bad) habits: they were to be deployed in crisis situations only, as under normal circumstances innovation would harm the current ruler (Bontems, 2014).

Bacon, like Machiavelli, considered innovation as a risky undertaking. As Bontems (2014, p. 43) describes, to Bacon any change was inevitable, inherent to the passing of time and the

related evolution of all things human, and innovation was a way of resisting time. Yet, such resistance made things progressively worse: “ill worsens whereas good weakens”. Bacon’s solution was gradualism: in attempts to improve conditions, the innovator should follow rather than oppose the natural ways of things and operate quietly and – unlike Machiavelli’s innovator – openly and slowly, akin to time itself (Godin, 2015).

Both Machiavelli and Bacon opposed the idea of valuing innovation for the sake of it. As a commonplace activity, innovation would only make things worse. So, for innovation to bring change, it is to be used in specific occasions and with great care. On the one hand, Machiavelli’s approach of ‘walking the walk’ and not ‘talking the talk’ appears to be the opposite of chameleonism and could arguably take the chameleons by surprise. On the other hand, Bacon’s gradualism is possibly more chameleon-friendly. It grants the reptile time to adjust – not by changing colours but through a natural evolution of its species. These approaches raise relevant 21st-century questions that are worth pursuing in further research. Will the resulting fallout of Machiavellian disruptions also inflict damage on the innovator? And can Bacon’s gradualists afford to be patient, or is (Earthly) time simply running out?

5.4.2. Practical implications

The main, and pretty basic, lesson that we can learn from this thesis is that the creation of novelty, let alone change, is not easy. And it should not be easy. Innovation hurts. And it *should* hurt. If innovation does not hurt, the kind of change propagated is likely to be marginal at best. Chameleonism embodies the notion that change without pain is an idea that can be sold but that is impossible to accomplish. Related, the creation of novelty and change is not value-free. Benefits and disadvantages are rarely evenly distributed. Some suffer more than others; benefits tend to create new elites. In my view, the prevailing positive, narrow, and seemingly value-free interpretations and representations of innovation that tend to equate the concept with commercialised technological invention are therefore deeply problematic. The innovators, or at least those who are really after toppling dominant orders, should realise that. And they should come prepared. This thesis concludes with four interrelated ways forward.

1. Beware of the chameleons

First and foremost, if you seek to instigate genuine change, you should beware of chameleons. Steadfastness is a virtue in the face of these reptiles (chapter 3 illustrated that). You

should always listen to the ideas and arguments of others but stay loyal to your hopes and aspirations. In your communications, you are probably better off when you follow Machiavelli's lesson and avoid the term innovation altogether. Be particularly cautious when opponents or partners begin using the word. Stay out of that discourse. In the long run, such a strategy could prove useful for all. Innovation will eventually become the exclusive domain of chameleons. In this way these creatures are much easier to spot and expose.

II. Create soft spaces to foster experiment and open up debates

Soft spaces are 'free' spaces that attempt to disconnect an issue from the established logic and routines that perpetuate its existence (Hajer, 2017). As Hajer explains, soft spaces comprise – often temporary – collaborations between unusual agents of change. They can connect various organisations in different ways and bridge existing institutional gaps. Soft spaces are relevant here because they can help you in mediating the current and future uncertainties that you are facing, spark new ideas, and help you and your organisation get accustomed to the practice of experimentation (see Brown, Farrelly & Loorbach, 2013). In this way, you can use soft spaces to make it clear what the underlying assumptions of conventional practices in your organisation are, but also in government, business, and society at large.

These assumptions are not simple, operational matters; they comprise quite fundamental and taken for granted ideas about organisations and their future that are embedded in dominant discourses. They are of the type that confine tourism innovation to e-commerce (chapter 1); that portray climate change in tourism as a carbon management issue and technological challenge (chapter 2, 3); and that treat improved idea uptake within an organisation as a vehicle of process excellence (chapter 4). Hopefully, one day, policy mechanisms such as RAAK (chapter 2) can be altered so that they can be used to stimulate the development of soft spaces. These mechanisms then would first have to abandon their output-orientation (see also Smith, Voß & Grin, 2010) and install performance indicators that include the value of the lessons learned (of particular interest are the lessons we learn from failures); the articulation of supportive institutional requirements; and – up next – the enrolment of new actors.

III. Introduce new actors that challenge the Establishment

Up until now, the presented ways forward have been rather mild and arguably aligned with the ideas of Francis Bacon. Now I incline towards Machiavelli. Soft spaces are first and foremost soft: they do not offer any guarantees for success. Chances are that you see a return to business as usual the moment dialogues and experiments end. To compensate for this risk, soft spaces can serve a dual purpose. They can be deployed to manipulate hard spaces, i.e. the formal policy setting. They can be used to give new and unusual actors that were never considered as stakeholders a seat at the table (or to create a seat for them). The change trajectories presented in this thesis, for instance, could have included exemplary low carbon tourism operators (chapter 2); youth organisations and the National Ombudsman for youth affairs (chapter 3); and successful social enterprises and slow tourism businesses (chapter 4). Yet – up until this point – they do not. This, I think, is a missed opportunity. Simply by being present, these actors can provide new insights and challenge dominant discourse and related practices. I therefore invite you to look beyond the usual suspects when mobilising support for your agendas. Chameleons, after all, may not know how to behave – what colour to wear – in the face of strangers. This could help your cause.

IV. Dismantle established institutions

Replacing old institutions with new ones was, according to Machiavelli, a main objective of innovation (see above). Institutions are however not easily replaced. They constitute rules and norms that have structured interactions for prolonged periods of time and that are embedded in narratives, possibly even ideologies, which make them look solid and powerful (Van Assche et al. 2014). Actors affiliated with established institutions will obviously resist their dismantlement, but sooner or later they will have no other choice than to give in.

In chapter 3, the Alders Table – a ‘permanent’ institution that has directed decision-making regarding the expansion of Dutch national airport Schiphol for over a decade – dismantled itself after sustained public pressure and the arrival of (yes) new actors on the scene. This only took two years. Granted, the disintegration of Alders was a by-product of a larger environmental policy struggle, but it shows that consistently confronting institutions with their imminent irrelevance can ultimately topple them.

Similarly, in chapter 4, the package holiday conglomerate TUI can be viewed as an institution that is losing relevance fast. Current pandemic conditions have exposed TUI’s structural

CONCLUSION, DISCUSSION, AND IMPLICATIONS

weaknesses. But TUI is a corporate venture. They will survive as long as they succeed in convincing their prime customers – the shareholders and, at present, the German government – that selling mass tourism packages to a predominantly aging clientele is sound 21st-century business. Once this carefully crafted illusion comes to an end, TUI's executives may repeat Preussag's old trick (see Dittmann, Maug, & Schneider, 2008): disinvest current assets, pursue quick returns elsewhere, and adopt the name of their most strategic acquisition in the process. Old habits, after all, die hard.

Whether the dismantlement of old institutions is the nuclear option, I do not know. The resulting effects can be unpredictable or can sustain already existing deadlocks. But it is possible, and in tourism, urgently needed.

References

- ACN, AOPA Netherlands, BARIN, Correndon, Dnata, easyJet, . . . VNO-NCW. (2019). *Ontwerpakkoord Duurzame Luchtvaart [Draft Covenant Sustainable Aviation]*.
<https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/rapporten/2019/03/27/bijlage-2-ontwerpakkoord-duurzame-luchtvaart/bijlage-2-ontwerpakkoord-duurzame-luchtvaart.pdf>
- Aguiló, E., Alegre, J., & Sard, M. (2003). Examining the market structure of the German and UK tour operating industries through an analysis of package holiday prices. *Tourism Economics*, 9(3), 255-278. <https://doi.org/10.1177/135481660300900302>
- Akrich, M., Callon, M., & Latour, B. (2002a). The Key to Success in Innovation Part I: The Art of Inter-essement. *International Journal of Innovation Management*, 6(2), 187-206.
<https://doi.org/10.1142/S1363919602000550>
- Akrich, M., Callon, M., & Latour, B. (2002b). The Key to Success in Innovation Part II: The Art of Choosing Good Spokespersons. *International Journal of Innovation Management*, 6(2), 207-225.
<https://doi.org/10.1142/S1363919602000562>
- Alders, H. (2008). *Aldersadvies Schiphol [Alders advice Schiphol]*.
https://www.omgevingsraadschiphol.nl/wp-content/uploads/2020/01/advies-alders-middellange_termijn.pdf
- Amit, R., & Zott, C. (2001). Value creation in E-business. *Strategic Management Journal*, 22, 493-520.
<https://doi.org/10.1002/smj.187>
- ANVR (2020). *ANVR Brochure 2021. [ANVR Prospect 2021]*.
<https://www.anvr.nl/publicaties/brochure.aspx>
- ANVR (2017, September 4). *ANVR en Nyenrode starten leerstoel innovatie in toerisme. [ANVR and Nyenrode Business Universiteit start special professorship innovation in tourism]*.
<https://www.anvr.nl/lists/nieuws/artikel.aspx?ID=8064>
- ANVR. (2015). *ANVR View 2015(2)*.
<http://content.yudu.com/web/1r3p1/0A2i0bs/View1502/flash/resources/index.htm?referrerUrl=http%3A%2F%2Fleden.anvr.nl%2Fnieuws%2Fanvr-view-2015-16565%2F>
- ANVR. (2014). *ANVR View 2014(2)*. https://www.anvr.nl/publicatie/VIEW02_2014.pdf
- ANVR. (2013). *ANVR Jaarverslag 2013. [Annual Report 2013]*. ANVR
- ANVR. (2012). *ANVR Jaarverslag 2012. [Annual Report 2012]*. ANVR

-
- ANVR. (2011). *ANVR jaarverslag 2011. [Annual Report 2011]*. ANVR
- ANVR. (2010). *ANVR Jaarverslag 2010. [Annual Report 2010]*. ANVR
- ANVR. (2009a). *ANVR Jaarverslag 2009. [Annual Report 2009]*. ANVR
- ANVR. (2009b). *ANVR View 2009(4)*. <https://www.anvr.nl/publicatie/View%202009%20nr4.pdf>
- ANVR & Capgemini. (2015, June 16). *Travel Tomorrow Congress [ANVR Travel Tomorrow Congress]*, Utrecht.
- Barba Lata, I.I.V. (2017). *Dis-locating innovation: Amphibious geographies of creative reuse and alternative value production*. [Unpublished doctoral dissertation]. Wageningen University.
- Barnosky, A.D., Hadly, E.A., Bascompte, J., Berlow, E.L., Brown, J.H., Fortelius, M., Getz, W.M., Harte, Hastings, A., Marquet, P.A., Martinez, M.D., Mooers, A., Roopnarine, P., Vermeij, G., Williams, J.W., Gillespie, R., Kitzes, J., Marshall, C., Matzke, N.... Smith, A.B. (2012). Approaching a state shift in Earth's biosphere. *Nature*, 486(7401), 52-58.
<https://doi.org/10.1038/nature11018>
- Beard, L., Scarles, C., & Tribe, J. (2016). Mess and method: using ANT in tourism research. *Annals of Tourism Research*, 60, 97-110. <http://dx.doi.org/10.1016/j.annals.2016.06.005>
- Beck, U. (2009). *World at risk*. Polity Press.
- Becken, S. (2017). Evidence of a low-carbon tourism paradigm? *Journal of Sustainable Tourism*, 25(6), 832-850. <https://doi.org/10.1080/09669582.2016.1251446>
- Beeton, S. (2005). The Case Study in Tourism Research: a Multi-method Case Study Approach. In: B. Ritchie, P. Burns, & C. Palmer (Eds.), *Tourism Research Methods* (37-48). CABI Publishing.
<https://doi.org/10.1079/9780851999968.0037>
- Better Places. (2017, June 15). *CO₂ uitstoot per reis [Carbon footprint per trip]*.
<https://www.betterplaces.nl/co2-uitstoot-per-reis>
- Beulink, P., Dijkmans, C., Erdkamp, C., Lier, H., & Mensink, H. (2012). *ToT 2025. Toekomstvisie op Toerisme*. (Future vision on tourism).
https://www.anvr.nl/publicatie/Toekomstvisie_2025_ANVR.pdf
- Blok, V. (2018a). Towards an Ontology of Innovation: On the New, the Political-Economic Dimension and the Intrinsic Risks involved in Innovation Processes. In D. Michelfelder & N. Doorn. (Eds.), *Routledge Handbook of Philosophy of Engineering*. Routledge.
<https://doi.org/10.4324/9781315276502>

-
- Blok, V. (2018b). Philosophy of Innovation: A Research Agenda. *Philosophy of Management*, 17, 1-5.
<https://doi.org/10.1007/s40926-017-0080-z>
- Boaz, A., Fitzpatrick, S., & Shaw, B. (2009). Assessing the impact of research on policy: a literature review. *Science and Public Policy*, 36(4), 255-270.
<https://doi.org/10.3152/030234209X436545>
- Bontems, V.K. (2014). What does Innovation stand for? Review of a watchword in research policies.. *Journal of Innovation Economics & Management*, 3(15), 39-57.
<https://doi.org/10.3917/JIE.015.0039>
- Boons, F., Van Buuren, A., & Teisman, G. (2010). Governance of sustainability at airports: Moving beyond the debate between growth and noise. *Natural Resources Forum*, 34(4), 303-313.
<https://doi.org/10.1111/j.1477-8947.2010.01314.x>
- Bramwell, B., Higham, J., Lane, B., & Miller, G. (2016). Advocacy or neutrality? Disseminating research findings and driving change toward sustainable tourism in a fast changing world. *Journal of Sustainable Tourism*, 24(1), 1-7. <https://doi.org/10.1080/09669582.2015.1106146>
- Bramwell, B. (2015). Theoretical activity in sustainable tourism research. *Annals of Tourism Research*, 54, 204-218. <https://doi.org/10.1016/j.annals.2015.07.005>
- Brown, R. R., Farrelly, M., & Loorbach, D. A. (2013). Actors working the institutions in sustainability transitions: The case of Melbourne's stormwater management. *Global Environmental Change*, 23, 701-718. <https://doi.org/10.1016/j.gloenvcha.2013.02.013>
- Bruinsma, G., & Stil, H. (2017, November 18). Luchtvaartexpert: Maak vliegen peperduur [Aviation expert: make flying very expensive]. *AD*, 26-27.
- Buckley, R. (2012). Sustainable tourism: Research and reality. *Annals of Tourism Research*, 39(2), 528-546. <https://doi.org/10.1016/j.annals.2012.02.003>
- Buhalis, D., Harwood, T, Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C., (2019). Technological disruptions in services. Lessons from tourism and hospitality. *Journal of Service Management*, 30(4), 484-506. <https://doi.org/10.1108/JOSM-12-2018-0398>
- Buijttendijk, H., Blom, J., Vermeer, J., & van der Duim, V.R. (2018). Eco-innovation for sustainable tourism transitions as a process of collaborative co-production: the case of a carbon management calculator for the Dutch travel industry. *Journal of Sustainable Tourism*, 26(7), 1222-1240. <https://doi.org/10.1080/09669582.2018.1433184>

-
- Caiado, R.G.G., Dias, R., Mattos, L.V., Quelhas, O.L.G., & Filho, W.L. (2017). Towards sustainable development through the perspective of eco-efficiency. A systematic literature review. *Journal of Cleaner Production*, 165, 890-904. <https://doi.org/0.1016/j.jclepro.2017.07.166>
- Callon, M. (1986). Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay. In J. Law (Ed.), *Power, action and belief: A new sociology of knowledge?* (pp. 196–223). Routledge.
- Calvino, F., Criscuolo, C., & Menon, C. (2016). *No country for young firms?: start-up dynamics and national policies*. OECD. <http://dx.doi.org/10.1787/5jm22p40c8mw-en>
- Camisón, C., & Monfort-Mir, V.M. (2012). Measuring innovation in tourism from the Schumpeterian and dynamic-capabilities perspectives. *Tourism Management*, 33, 776-789. <https://doi.org/10.1016/j.tourman.2011.08.012>
- Capgemini. (2015). *Travel Tomorrow. Envision the future of travel*. https://www.anvr.nl/publicatie/TravelTomorrow_Report-2943.pdf
- Charmaz, K. (2014). *Constructing Grounded Theory*. Sage.
- Cherrylab. (2016). *Travel Experience Tomorrow*. <https://www.anvr.nl/publicatie/Travel%20Experience%20Tomorrow%20%20-trendrapport.pdf>
- Christensen, C.M., & Raynor, M.E. (2003). Why Hard-Nosed Executives Should Care About Management Theory. *Harvard Business Review*, September 2003
- CNG. (2017, November 28). *About us*. <https://www.climateneutralgroup.com/en/about-us/>
- Cohen, S. A., & Kantanbacher, J. (2019). Flying less: personal health and environmental co-benefits. *Journal of Sustainable Tourism*, 28(2), 361-376. <https://doi.org/10.1080/09669582.2019.1585442>
- Cohen, S.A., Higham, J., G., Gössling, S., Peeters, P., & Eijgelaar, E. (2016). Finding effective pathways to sustainable mobility: bridging the science-policy gap. *Journal of Sustainable Tourism*, 24(3), 317-334. <https://doi.org/10.1080/09669582.2015.1136637>
- Cohen, E., & Cohen, S.A. (2012). Current sociological theories and issues in tourism. *Annals of Tourism Research*, 39(4), 2177-2202. <http://dx.doi.org/10.1016/j.annals.2012.07.009>
- Cohen, S.A., Higham, J., & Cavaliere, C.T. (2011). Binge flying: Behavioural addiction and climate change. *Annals of Tourism Research*, 38(3), 1070-1089. <https://doi.org/10.1016/j.annals.2011.01.013>

-
- Coles, T., Warren, N., Borden, D.S., & Dinan, C. (2017). Business models among SMTEs: identifying attitudes to environmental costs and their implications for sustainable tourism. *Journal of Sustainable Tourism*, 25(4), 471-488. <https://doi.org/10.1080/09669582.2016.1221414>
- Coles, T., Fenclova, E., & Dinan, C. (2014). Corporate social responsibility reporting among European low-fares airlines: challenges for the examination and development of sustainable mobilities. *Journal of Sustainable Tourism*, 22(1), 69-88. <https://doi.org/10.1080/09669582.2013.790391>
- Coles, T., Fenclova, E., & Dinan, C. (2013). Tourism and corporate social responsibility. A critical review and research agenda. *Tourism Management Perspectives*, 6, 122-141. <https://doi.org/10.1016/j.tmp.2013.02.001>
- Collinson, P. (2019, September 23). Why did Thomas Cook collapse after 178 years in business? *The Guardian* <https://www.theguardian.com/business/2019/sep/23/thomas-cook-as-the-world-turned-the-sun-ceased-to-shine-on-venerable-tour-operator> Accessed 27.11.20
- Cooper, R. G. (2011). The innovation dilemma: How to innovate when the market is mature. *Journal of Product Innovation Management*, 28(s1), 2-27. <https://doi.org/10.1111/j.1540-5885.2011.00858.x>
- CSTT. (2017a, June 3). CARMACAL. <http://www.cstt.nl/carmacal>
- CSTT. (2017b, June 3). CARMATOP. <http://www.cstt.nl/Pojects/CARMATOP/17>
- CSTT. (2017c, June 3). *Sustainable tourism and transport*. <http://www.cstt.nl/cstt-home>
- Czarniawska, B. (2009). STS Meets MOS. *Organization*, 16(1), 155-160. <https://doi.org/10.1177/1350508408098927>
- Czarniawska, B. (2004). On Time, Space, and Action Nets. *Organization*, 11(6), 773-791. <https://doi.org/10.1177/1350508404047251>
- Czarniawska, B. (2001). Is it possible to be a Constructionist Consultant? *Management Learning*, 32(2), 253-266. <https://doi.org/10.1177/13507601322006>
- Czarniawska, B. (1998). *A narrative approach to organisation studies*. Sage. <https://dx.doi.org/10.4135/9781412983235>
- de Jong, B., & Boelens, L. (2014). Understanding Amsterdam Airport Schiphol through controversies. *Systems Research and Behavioural Science*, 31(1), 3-13. <https://doi.org/10.1002/sres.2188>
- Didion, J. (1968). *Slouching towards Bethlehem*. Farar, Strauss, & Giroux
-

-
- Dijkma, S. A. M. (2017a). *Luchtvaartbeleid. #31936-390 [Aviation policy]*. House of Representatives of the Netherlands
- Dijkma, S. A. M. (2017b). *Luchtvaartbeleid. #31936-422 [Aviation policy]*. House of Representatives of The Netherlands
- Di Stefano, G., Gambardella, A., & Gianmario, V. (2012). Technology push and demand pull perspectives in innovation studies: Current findings and future research directions. *Research Policy*, 41, 1283-1295. <https://doi.org/10.1016/j.respol.2012.03.021>
- Dittmann, I., Maug, E., & Schneider, C. (2008). How Preussag Became TUI: A Clinical Study of Institutional Blockholders and Restructuring in Europe. *Financial Management, Autumn 2008*, 571-598. <https://doi.org/10.1111/j.1755-053X.2008.00025.x>
- Doz, Y.L., & Kosonen, M. (2010). Embedding Strategic Agility. A leadership Agenda for Accelerating Business Model Renewal. *Long Range Planning*, 43, 370-382. <http://doi.org/10.1016/j.lrp.2009.07.006>
- Dredge, D. (2015). Does relevance matter in academic policy research? *Journal of Policy Research in Tourism, Leisure and Events*, 7(2), 173-177. <https://doi.org/10.1080/19407963.2014.990661>
- Dredge, D. (2019, October 31). *Sustainability evidence-based tourism policies* [Online forum post]. TRINET
- Duineveld, M., Van Assche, K., & Beunen, R. (2017). Re-conceptualising political landscapes after the material turn: a typology of material events. *Landscape Research*, 42(4), 375-384. <https://doi.org/10.1080/01426397.2017.1290791>
- Duineveld, M. & Van Assche, K. (2011). The power of tulips: Constructing nature and heritage in a contested landscape. *Journal of Environmental Policy & Planning*, 13(2). 79-98. <https://doi.org/10.1080/1523908X.2011.572655>
- Dutch Aviation Group. (2018). *Slim én duurzaam: Actieplan Luchtvaart Nederland: 35% minder CO₂ in 2030 [Smart and Sustainable: Action plan Dutch aviation: 35% less CO₂ in 2030]*. Dutch Aviation Group.
- Eijgelaar, E., Nawijn, J., Barten, C., Okuhn, L., & Dijkstra, L. (2016). Consumer attitudes and preferences on holiday carbon footprint information in the Netherlands. *Journal of Sustainable Tourism*, 24(3), 398-411. <https://doi.org/10.1080/09669582.2015.1101129>

-
- Eijgelaar, E. (2011). Voluntary Carbon Offsets a Solution for Reducing Tourism Emissions? Assessment of Communication Aspects and Mitigation Potential. *European Journal for Transport and Infrastructure Research*, 11(3), 281-296. <https://doi.org/10.18757/ejtir.2011.11.3.2933>
- Fagerberg, J., Fosaas, M., & Sapprasert, K. (2012). Innovation: Exploring the knowledge base. *Research Policy*, 41, 1132-1153. <https://doi.org/10.1016/j.respol.2012.03.008>
- Fagerberg, J., & Verspagen, B. (2009). Innovation studies – The emerging structure of a new scientific field. *Research Policy*, 38, 218-233. <https://doi.org/10.1016/j.respol.2008.12.006>
- Fagerberg, J. (2003). Schumpeter and the revival of evolutionary economics: an appraisal of the literature. *Journal of Evolutionary Economics*, 13, 125-159. <https://doi.org/10.1007/s00191-003-0144-1>
- Font, X., Higham, J., Miller, G., & Pourfakhimi, S. (2019). Research engagement, impact and sustainable tourism. *Journal of Sustainable Tourism*, 27(1), 1-11. <https://doi.org/10.1080/09669582.2019.1560673>
- Font, X., Guix, M., & Bonilla-priego, M.J. (2016). Corporate social responsibility in cruising: Using materiality analysis to create shared value. *Tourism Management*, 53, 175-186. <https://doi.org/10.1016/j.tourman.2015.10.007>
- Fraj, E., Matute, J., & Melero, I. (2015). Environmental strategies and organizational competitiveness in the hotel industry: The role of learning and innovation as determinants of environmental success. *Tourism Management*, 46, 30-42. <http://dx.doi.org/10.1016/j.tourman.2014.05.009>
- Frankfurt, H.G. (1929). *On Bullshit*. Princeton University Press.
- Gad, C., & Jensen, C.B. (2010). On the consequences of Post-ANT. *Science, Technology, & Human Values*, 35(1), 55-80. <https://doi.org/10.1177/0162243908329567>
- Garud, R., Gehman, J., & Giuliani, A.P. (2014). Contextualising entrepreneurial innovation: A narrative perspective. *Research Policy*, 43, 1177-1188. <http://dx.doi.org/10.1016/j.respol.2014.04.015>
- Godin, B. (2015). *Innovation Contested. The idea of innovation over the centuries*. Routledge. <https://doi.org/10.4324/9781315855608>
- Godin, B. (2012). "Innovation Studies": The Invention of a Speciality. *Minerva*, 50, 397-521. <https://doi.org/10.1007/s11024-012-9212-8>
- Godin, B. (2010). Innovation Without the Word: William F. Ogburn's Contribution to the Study of Technological Innovation. *Minerva*, 48, 277, 307. <https://doi.org/10.1007/s11024-010-9151-1>

-
- Godin, B. (2008). In the Shadow of Schumpeter: W. Rupert Maclaurin and the Study of Technological Innovation. *Minerva*, 46, 343-360. <https://doi.org/10.1007/s11024-008-9100-4>
- Gonthier, J., & Chirita, G.M. (2019). The role of corporate incubators as invigorators of innovation capabilities in parent companies. *Journal of Innovation and Entrepreneurship*, 8(8). <https://doi.org/10.1186/s13731-019-0104-0>
- Gössling, S., Humpe, A., & Bausch, T. (2020). Does 'flight shame' affect social norms? Changing perspectives on the desirability of air travel in Germany. *Journal of Cleaner Production*, 266. <https://doi.org/10.1016/j.jclepro.2020.122015>
- Gössling, S., Scott, D., & Hall, C.M. (2020). Pandemics, tourism, and global change: a rapid assessment of COVID-19. *Journal of Sustainable Tourism*. <https://doi.org/10.1080/09669582.2020.1758708>
- Gössling, S., & Scott, D. (2018). The decarbonisation impasse: global tourism leaders' views on climate change mitigation. *Journal of Sustainable Tourism*, 26(12), 2071–2086. <https://doi.org/10.1080/09669582.2018.1529770>
- Gössling, S. (2016). Tourism, information technologies and sustainability: an exploratory review. *Journal of Sustainable Tourism*, 25(7), 1024-1041. <https://doi.org/10.1080/09669582.2015.1122017>
- Gössling, S., & Buckley, R. (2016). Carbon labels in tourism: persuasive communication? *Journal of Cleaner Production*, 11, 358-369. <https://doi.org/10.1016/j.jclepro.2014.08.067>
- Gössling, S., Hall, C.M. Peeters, P., & Scott, D., (2010). The Future of Tourism. Can Tourism Growth and Climate Policy be Reconciled? A Mitigation Perspective. *Tourism Recreation Research*, 35(2), 119-130. <https://doi.org/10.1080/02508281.2010.11081628>
- Gössling, S., Broderick, J., Upham, P., Ceron, J., Dubois, G., Peeters, P., & Strasdas, W. (2007). Voluntary Carbon Offsetting Schemes for Aviation: Efficiency, Credibility and Sustainable Tourism. *Journal of Sustainable Tourism*, 15(3), 223-248. <https://doi.org/10.2167/jost758.0>
- Gössling, S. (2002). Global environmental consequences of tourism. *Global Environmental Change*, 12(4), 283–302. [https://doi.org/10.1016/S0959-3780\(02\)00044-4](https://doi.org/10.1016/S0959-3780(02)00044-4)
- Grabher, G. (2004). Temporary Architectures of Learning: Knowledge Governance in Project Ecologies. *Organization Studies*, 25(9), 1491-1514 <http://dx.doi.org/10.1177/0170840604047996>
- Gren, M., & Huijbens, E.H. (Eds.). (2016). *Tourism and the Anthropocene*. Routledge. <https://doi.org/10.4324/9781315747361>

-
- Gren, M., & Huijbens, E.H. (2012). Tourism theory and the Earth. *Annals of Tourism Research*, 39(1), 155-170. <https://doi.org/10.1016/j.annals.2011.05.009>
- Guérard, S., Langley, A., & Seidl, D. (2013). Rethinking the concept of performance in strategy research: towards a performativity perspective. *Management*, 16(5), 566-578. <https://doi.org/10.3917/mana.165.0566>
- Hagens, P. J. (2017, November 11). Rem op vliegen [Break on flying] [Television series episode]. In *Buitenhof*. VPRO.
- Hajer, M. (2017). The Power of Imagination. [Inaugural speech]. https://www.uu.nl/sites/default/files/hajer_oratie_eng_0.pdf
- Hajer, M. (2005). Coalitions, practices, and meaning in environmental politics: From acid rain to BSE. In D. Howarth & J. Torfing (Eds.), *Discourse theory in european politics: Identity, policy and governance* (pp. 297–315). Palgrave Macmillan.
- Hajer, M. (1996). Ecological modernisation as cultural politics. In S. Lash, B. Szerszynski, & B. Wynne (Eds.), *Risk, environment, and modernity: Towards a new ecology* (pp. 246–268). Sage. <http://dx.doi.org/10.4135/9781446221983>
- Hall, C. M. (2019). Constructing sustainable tourism development: The 2030 agenda and the managerial ecology of sustainable tourism. *Journal of Sustainable Tourism*, 27(7), 1044-1060. <https://doi.org/10.1080/09669582.2018.1560456>
- Hall, C.M., & Williams, A.M. (2019). *Tourism and Innovation*. New York: Routledge <https://doi.org/10.4324/9781315162836>
- Hall, C.M., Amelung, B., Cohen, S., Eijgelaar, E., Gössling, S., Higham, J., Leemans, R., Peeters, P., Ram, Y., Scott, D., Aall, C., Abegg, B., Araña, J.E., Barr, S., Becken, S., Buckley, R., Burns, P., Coles, T., Dawson, J., ... Weaver, D. (2015). Denying bogus scepticism in climate change and tourism research. *Tourism Management*, 47, 352-356. <http://dx.doi.org/10.1016/j.tourman.2014.08.009>
- Hall, C. M., Amelung, B., Cohen, S., Eijgelaar, E., Gossling, S., Higham, J., Leemans, R., Peeters, P., Ram, Y., & Scott, D. (2014). On climate change skepticism and denial in tourism. *Journal of Sustainable Tourism*. <http://dx.doi.org/10.1080/09669582.2014.953544>
- Hansson, S. O. (2010). Technology and the notion of sustainability. *Technology in Society*, 32, 274–279. <https://doi.org/10.1016/j.techsoc.2010.10.003>

-
- Haug, B. (2012). Enacting Risk at Besseggen. In: R. Van der Duim, C. Ren, & G.T. Jóhannesson (Eds.). *Actor Network Theory and Tourism. Ordering, materiality and multiplicity* (80-93). Routledge. <https://doi.org/10.4324/9780203122976>
- Hellström, T. (2003), Systemic innovation and risk: technology assessment and the challenge of responsible innovation, *Technology in Society*, 25, 369-384. [https://doi.org/10.1016/S0160-791X\(03\)00041-1](https://doi.org/10.1016/S0160-791X(03)00041-1)
- Hillebrand, B. (2018). Innovatie in Toerisme. Een ecosysteem perspectief (Innovation in tourism; an ecosystem perspective). [Inaugural speech]. https://www.nyenrode.nl/docs/default-source/pdfs/pdf's---faculteit-research/oraties-meritaatsredes/oratieboekje_bhillebrand_okt18.pdf?sfvrsn=9829d614_5
- Hjalager, A.M. (2010). A review of innovation research in tourism. *Tourism Management*, 31, 1-12. <https://doi.org/10.1016/j.tourman.2009.08.012>
- Hjalager, A.M. (2002). Repairing innovation defectiveness in tourism. *Tourism Management*, 23, 465-474. [https://doi.org/10.1016/S0261-5177\(02\)00013-4](https://doi.org/10.1016/S0261-5177(02)00013-4)
- Hojnik, J., & Ruzzier, M. (2016). What drives eco-innovation? A review of an emerging literature. *Environmental Innovation and Societal Transitions*, 19, 31–41. <https://doi.org/10.1016/J.EIST.2015.09.006>
- Howarth, D. (2000). *Discourse*. Open University Press.
- Huijs, M. G. (2011). *Building castles in the (Dutch) air: Understanding the policy deadlock of Amsterdam Airport Schiphol 1989-2009*. [Unpublished doctoral dissertation]. TU Delft
- INRetail & NRIW (2014). *Highlights Shopping 2020*. <https://www.anvr.nl/publicatie/shopping2020.pdf>
- IPCC. (2013). *Climate Change 2013. The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. http://www.ipcc.ch/pdf/assessmentreport/ar5/wg1/WG1AR55_SPM_FINAL.pdf
- Isil, O., & Henke, M.T. (2017). The Triple Bottom Line: A Critical Review from a Transdisciplinary Perspective. *Business Strategy and the Environment*, 26(8), 1235- 1251. <https://doi.org/10.1002/bse.1982>
- Jasanoff, S. (2015). Future imperfect: Science, technology, and the imaginations of modernity. In S. Jasanoff & S.-H. Kim (Eds.), *Dreamscapes of modernity: Sociotechnical imaginaries and the*

- fabrication of power* (pp. 1-33). University of Chicago Press.
<https://doi.org/10.7208/9780226276663>
- Jasanoff, S., & Kim, S. (2009). Containing the Atom. Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea. *Minerva*, 47, 119-146. <https://doi.org/10.1007/s11024-009-9124-4>
- Jasanoff, S. (2002). New modernities: Reimagining science, technology and development. *Environmental Values*, 11(3), 253–276. <https://doi.org/10.3197/096327102129341082>
- Jóhannesson, G.T. (2012). “To Get Things Done”: A Relational Approach to Entrepreneurship, *Scandinavian Journal of Hospitality and Tourism*, 12(2), 181-196.
<https://doi.org/10.1080/15022250.2012.695463>
- Jørgensen, U. (2012). Mapping and navigating transitions. The multi-level perspective compared with areas of development. *Research Policy*, 41, 996-1010.
<https://doi.org/10.1016/j.respol.2012.03.001>
- Kallmuenzer, A., & Peters, M. (2018). Innovativeness and control mechanisms in tourism and hospitality family firms: A comparative study. *International Journal of Hospitality Management*, 70, 66-74. <https://doi.org/10.1016/j.ijhm.2017.10.022>
- Kasim, A., Gursoy, D., Okumus, F., & Wong, A. (2014). The importance of water management in hotels: a framework for sustainability through innovation. *Journal of Sustainable Tourism*, 22(7), 1090-1107. <https://doi.org/10.1080/09669582.2013.873444>
- Klein, N. (2007). *The Shock Doctrine: The Rise of Disaster Capitalism*. Metropolitan Books
- KLM. (2019). *Annual report 2018*. KLM Royal Dutch Airlines.
https://www.klm.com/travel/nl_nl/images/KLM_Annual_Report_2018_tcm541-1045331.pdf
- Kooij, H., Van Assche, K., & Lagendijk, A. (2012). Open Concepts as Crystallization Points and Enablers of Discursive Configurations. The Case of the Innovation Campus in the Netherlands. *European Planning Studies*. <http://dx.doi.org/10.1080/09654313.2012.731039>
- Korsgaard, S. (2011). Entrepreneurship as translation: Understanding entrepreneurial opportunities through actor-network theory. *Entrepreneurship & Regional Development*, 23(7-8), 661-680.
<http://doi.org/10.1080/08985626.2010.546432>
- Lachman, D.A. (2013). A survey and review of approaches to study transitions. *Energy Policy*, 58, 269-276. <https://doi.org/10.1016/j.enpol.2013.03.013>

-
- Laine, P., Meriläinen, S., Tienari, J., & Vaara, E. (2016). Mastery, submission, and subversion: On the performative construction of strategist identity. *Organization*, 23(4), 505-524.
<https://doi.org/10.1177/1350508415575629>
- Latour, B. (2014). Agency at the time of the Anthropocene. *New Literary History*, 45, 1- 18.
<https://doi.org/10.1353/nlh.2014.0003>
- Latour, B. (2005). *Reassembling the social. An introduction to actor-network theory*. Oxford University Press.
- Latour, B. (1996a). On actor-network theory: A few clarifications plus more than a few complications. *Soziale Welt*, 47, 369-381.
- Latour, B. (1996b). *ARAMIS or the love of technology*. Harvard University Press.
- Latour, B. (1990). Technology is society made durable. *The Sociological Review*, 38(1), 103-131.
<https://doi.org/10.1111/j.1467-954X.1990.tb03350.x>
- Law, J. (2007). *Actor Network Theory and Material Semiotics*.
<http://www.heterogeneities.net/publications/Law2007ANTandMaterialSemiotics.pdf>
- Law, J., & Urry, J. (2005). Enacting the Social. *Economy and Society*, 33(3), 390-410.
<https://doi.org/10.1080/0308514042000225716>
- Law, J. (2001). *Ordering and Obduracy*. Centre for Science Studies, Lancaster University.
<http://www.comp.lancs.ac.uk/sociology/papers/Law-Ordering-and-Obduracy.pdf>
- Law, J. (1992). Notes on the theory of the actor-network: Ordering, strategy and heterogeneity. *Systems Practice*, 5, 379–393. <https://doi.org/10.1007/BF01059830>
- Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. *International Journal of Contemporary Tourism and Hospitality Management*, 26(5), 727-750. <https://doi.org/10.1108/IJCHM-08-2013-0367>
- Lechevalier, S. (Ed.). (2019). *Innovation beyond Technology*. London: Routledge.
- Long, T., V. Blok. (2017). When the going gets tough, the tough get going: Towards a new – More critical – Engagement with responsible research and innovation in an age of Trump, Brexit, and wider populism. *Journal of Responsible Innovation*, 4(1), 64–70.
<https://doi.org/10.1080/23299460.2017.1319036>

-
- Lowe, M.S., Williams, A.M., Shaw, G., & Cudworth, K. (2012). Self-organising innovation networks, mobile knowledge carriers and diasporas: insights from a pioneering boutique hotel chain. *Journal of Economic Geography*, 12, 1113-1138. <http://dx.doi.org/10.1093/jeg/lbs021>
- LVNL-To70. (2009). *Luchtruim Flevoland 2020: een verkenning van de mogelijkheden [Airspace Flevoland 2020: a study of options]*. Luchthaven Schiphol, Netherlands: Air Traffic Control the Netherlands (LVNL).
- Mackenzie, D., Muniesa, F., Siu, L. (2007). *Do Economists make Markets. On the performativity of economics*. Princeton. <https://doi.org/10.1515/9780691214665>
- Marasco, A., De Martino, M., Magnotti, F., & Morvillo, A. (2018). Collaborative innovation in tourism and hospitality: a systematic review of the literature. *International Journal of Contemporary Hospitality Management*, 30(6), 2364-2395. <https://doi.org/10.1108/IJCHM-01-2018-0043>
- Martin, B. (2016) Twenty challenges for innovation studies. *Science and Public Policy*, 43(3), 432-450. <https://dx.doi.org/10.2139/ssrn.2744637>
- Martin, B. (2012). The evolution of science policy and innovation studies. *Research Policy*, 41, 1219-1239. <http://doi:10.1016/j.respol.2012.03.012>
- Martínez-Román, J.A., Tamayo, J.A., Gamero, J., & Romero, J.E. (2015). Innovativeness and business performances in tourism SMEs. *Annals of Tourism Research*, 54, 118-135. <http://dx.doi.org/10.1016/j.annals.2015.07.004>
- Medina-Muñoz, R., Medina-Muñoz, D., & García-Falcón, J. (2003). Understanding European tour operators' control on accommodation companies: an empirical evidence. *Tourism Management*, 24(2), 135-147. [https://doi.org/10.1016/S0261-5177\(02\)00062-6](https://doi.org/10.1016/S0261-5177(02)00062-6)
- MinlenW (2018, July 2). Partijen bundelen krachten voor duurzaam vliegen [Parties join forces for sustainable aviation]. [Tweet]. Twitter. <https://twitter.com/MinlenW/status/1013817489153806336>
- Montresor, S. (2018). Innovation in tourism. A diverging line of research in need of a synthesis. *Tourism Economics*, 24(7), pp. 765-780. <https://doi.org/10.1177/1354816618773189>
- Muniesa, F. (2015). Actor-Network Theory. *International Encyclopedia of the Social and Behavioral Science*, 2(1), 80-84. <https://doi.org/10.1016/B978-0-08-097086-8.85001-1>
- N&M, Greenpeace, & MNH. (2019). *Een nieuw toekomstbeeld voor de luchtvaart [A new future vision for aviation]*. Natuur & Milieu, Greenpeace & Natuur en Milieufederatie Noord-Holland.

-
- Nordin, S., & Hjalager, A.M. (2017). Doing, Using, Interacting: Towards a New Understanding of Tourism Innovation Processes. In A. Királová (Eds.), *Driving Tourism through Creative Destinations and Activities* (165-180). IGI Global
- NRIT Media, CBS, NBTC Holland Marketing, & CELTH (2020). *Trend report tourism, recreation, and leisure 2020*. NRIT Media
- NRIT Media, CBS, NBTC Holland Marketing, & CELTH (2019). *Trend report tourism, recreation, and leisure 2019*. NRIT Media
- NRIT Media, CBS, NBTC Holland Marketing, & CELTH (2018). *Trend report tourism, recreation, and leisure 2018*NRIT Media
- NRIT Media, CBS, NBTC Holland Marketing, & CELTH (2017). *Trend report tourism, recreation, and leisure 2017*. NRIT Media
- OECD/Eurostat (2018), *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition, The Measurement of Scientific, Technological and Innovation Activities*. OECD Publishing, & Eurostat. <https://doi.org/10.1787/9789264304604-en>
- OECD. (2011). *Better Policies to Support Eco-innovation*. OECD Publishing. <https://doi.org/10.1787/9789264096684-en>
- Oels, A. (2013). Rendering climate change governable by risk: From probability to contingency. *Geoforum*, 45, 17-29. <https://doi.org/10.1016/j.geoforum.2011.09.007>
- Omerzel, D.G. (2016). A systematic review of research on innovation in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 28(3), 516-558. <https://doi.org/10.1108/IJCHM-10-2014-0510>
- O'Reilly, C.A., & Tushman, M.L. (2004). The Ambidextrous Organization. *Harvard Business Review*, April 2004
- ORS. (2019). *Advies Toekomstbestendig NNHS & Advies Middellange termijnoplossing "wonen en vliegen" [Advice future-proof norms and enforcement regime & advice mid-term solution living and flying]*. Omgevingsraad Schiphol.
- Owens, S., Petts, J., & Bulkeley, H. (2006). Boundary Work: Knowledge, Policy, and the Urban Environment. 24(5), 633-643. <https://doi.org/10.1068/c0606j>
- Oxford Dictionary. (2020) Chameleon. In *Oxford Dictionary*. <https://www.lexico.com/definition/chameleon>

-
- Peeters, P., Higham, J., Cohen, S., Eijgelaar, E., & Gössling, S. (2019). Desirable tourism transport futures. *Journal of Sustainable Tourism*, 27(2), 173-188.
<https://doi.org/10.1080/09669582.2018.1477785>
- Peeters, P. (2019a). *Minder en duurzamer vliegen? [To fly less and more sustainable?]*. Paper presented at the DAG-Symposium 'De vlucht naar voren', Noordwijk, Netherlands.
- Peeters, P. (2019b). *Parlement en Wetenschap: Factsheet Vliegbelasting, gedrag en alternatieven. #2019Z12788 [Parliament and Science: factsheet aviation tax, behaviour and alternatives]*. The Hague, Netherlands: House of Representatives, De Jonge Akademie, KNAW, NWO, TNO, VSNU.
- Peeters, P., & Melkert, J. (2018). *Parlement en Wetenschap: Factsheet Toekomst verduurzaming luchtvaart. #2018Z11731 [Parliament and Science: Factsheet future sustainable development aviation]*. The Hague, Netherlands: House of Representatives, De Jonge Akademie, KNAW, NWO, VSNU.
- Peeters, P. (2017). *Tourism's impact on climate change and its mitigation challenges. How can tourism become 'climatically sustainable'?* [Unpublished doctoral dissertation]. TU Delft.
- Peeters, P., Higham, J., Kutzner, D., Cohen, S., & Gössling, S. (2016). Are technology myths stalling aviation climate policy? *Transportation Research Part D: Transport and Environment*, 44, 30-42. <https://doi.org/10.1016/j.trd.2016.02.004>
- Peeters, P., & Eijgelaar, E. (2014). Tourism's climate mitigation dilemma: Flying between rich and poor countries, *Tourism Management*, 40, 15-26.
<http://dx.doi.org/10.1016/j.tourman.2013.05.001>
- Peters, H. P. (2008). Scientists as public experts. In M. Bucchi & B. Trench (Eds.), *Routledge Handbook of Public Communication of Science and Technology* (pp. 131-146). Routledge.
<https://doi.org/10.4324/9781003039242>
- Pikkemaat, B., Peters, M., & Bichler, B.F. (2019). Innovation research in tourism. Research streams and actions for the future. *Journal of Hospitality and Tourism Management*, 41, 184-196.
<https://doi.org/10.1016/j.jhtm.2019.10.007>
- Pinkse, J., & Kolk, A. (2010). Challenges and Trade-offs in Corporate Innovation for Climate Change. *Business Strategy and the Environment*, 19, 261-272. <https://doi.org/10.1002/bse.677>
- Rayner, S. (2006). What drives environmental policy? *Global Environmental Change*, 16(1), 4-6.
<https://doi.org/10.1016/j.gloenvcha.2005.11.003>

-
- Razumova, M., Ibáñez, J.L., & Maquieira-Palmer, J.R. (2015). Drivers of environmental innovation in Majorcan hotels. *Journal of Sustainable Tourism*, 23(10), 1529-1549. <https://doi.org/10.1080/09669582.2015.1062016>
- Reijn, G. (2017, November 28). Met het vliegtuig gaan we 'Parijs' zeker niet halen [With the airplane we will not achieve 'Paris' for sure]. *Volkskrant*, p. 27.
- Reiswerk. (2015a). *Onderzoeks agenda Reiswerk*. [Research agenda Reiswerk]. <https://www.reiswerk.nl/over-reiswerk/reiswerk-inspiratielab/trends-en-ontwikkelingen/onderzoek-naar-de-toekomst/promotieonderzoek>
- Reiswerk. (2015b, November 19). Employability Event. Soest
- Ren, C., Jóhannesson, G.T., & Van der Duim, V.R. (2012). How ANT works. In R. Van der Duim, C. Ren, & G. T. Jóhannesson (Eds.), *Actor network theory and tourism. Ordering, materiality and multiplicity* (pp. 13–25). Routledge. <https://doi.org/10.4324/9780203122976>
- Ren, C. (2011). NON-human agency, radical ontology and tourism realities. *Annals of Tourism Research*, 38(3), 858–881. <https://doi.org/10.1016/j.annals.2010.12.007>
- Rli. (2016). *Beyond mainports*. The Hague, Netherlands: Council for the Environment and Infrastructure (Rli).
- Rodriguez-Sanchez, I., Williams, A.M., & Brotons, M. (2019). The innovation journey of new-to-tourism entrepreneurs. *Current Issues in Tourism*, 22(8), 877-904. <https://doi.org/10.1080/13683500.2017.1334763>
- RSG. (2019). *Royal Schiphol Group 2018 Annual Report*. Royal Schiphol Group. <https://2018.annualreportschiphol.com/>
- Sampaio, A.R., Thomas, R., & Font, X. (2012). Small business management and environmental engagement. *Journal of Sustainable Tourism*, 20(2), 179-193. <https://doi.org/10.1080/09669582.2011.602193>
- Scherer, A.G., & Palazzo, G. (2011). The New Political Role of Business in a Globalized World: A Review of a New Perspective on CSR and its Implications for the Firm, Governance, and Democracy. *Journal of Management Studies*, 48(4), 899-931. <https://doi.org/10.1111/j.1467-6486.2010.00950.x>
- Schreurs, W. (2020). *50 x Nederlandse Reisbranche. Een kleine geschiedenis*. (50 x Dutch travel industry. A little history). https://www.anvr.nl/publicatie/50x_Ned_reiswereld_Een_kleine_geschiedenis.pdf

- Scott, D., Gössling, S., Hall, M., & Peeters, P. (2016a). Can tourism be part of the decarbonized global economy? The costs and risks of alternate carbon reduction pathways. *Journal of Sustainable Tourism*, 24(1), 52-72. <https://doi.org/10.1080/09669582.2015.1107080>
- Scott, D., Hall, M., & Gössling, S. (2016b). A review of the IPCC Fifth Assessment and implications for tourism sector climate resilience and decarbonization. *Journal of Sustainable Tourism*, 24(1), 8-30. <https://doi.org/10.1080/09669582.2015.1062021>
- Scott, D., Hall, C. M., & Gössling, S. (2016c). A report on the Paris Climate Change Agreement and its implications for tourism: why we will always have Paris. *Journal of Sustainable Tourism*, 24(7), 933-948. <https://doi.org/10.1080/09669582.2016.1187623>
- Shani, A., & Arad, B. (2015). There is always time for rational skepticism: reply to Hall et al. *Tourism Management*, 47, 348-351. <http://dx.doi.org/10.1016/j.tourman.2014.09.013>
- Shani, A., & Arad, B. (2014). Climate change and tourism: time for environmental skepticism. *Tourism Management*, 44, 82-85. <https://doi.org/10.1016/j.tourman.2014.02.014>
- Sharpley, R. (2020). Tourism, sustainable development and the theoretical divide: 20 years on. *Journal of Sustainable Tourism*, 29(11), 1932-1946. <https://doi.org/10.1080/09669582.2020.1779732>
- SIA. (2017, November 28). Over SIA [About SIA] <http://www.regieorgaan-sia.nl?Over+SIA>
- Smerecnik, K.R., & Andersen, P.A. (2011). The diffusion of environmental sustainability in North American hotels and ski resorts. *Journal of Sustainable Tourism*, 19(2), 171-196. <https://doi.org/10.1080/09669582.2010.517316>
- Smith, L., Rees, P., & Murray, N. (2016). Turning entrepreneurs into intrapreneurs: Thomas Cook, a case study. *Tourism Management*, 56, 191-204. <http://dx.doi.org/10.1016/j.tourman.2016.04.005>
- Smith, A., Voß J., & Grin, J. (2010). Innovation studies and sustainability transitions: The allure of the multi-level perspective and its challenges. *Research Policy*, 39, 435-448. <https://doi.org/10.1016/j.respol.2010.01.023>
- Soete, L. (2013). Is innovation always good? In J. Fagerberg, B. R. Martin, & E. S. Andersen (Eds.), *Innovation studies—Evolution and future challenges* (pp. 134-144). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199686346.001.0001>
- Steffen, W., Persson, A., Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K., Crumley, C., Crutzen, P., Folke, C., Gordon, L., Molina, M., Ramanathan, V., Rockström, J., Scheffer, M.,

-
- Schnellhuber, H.J., & Svedin, U. (2011). The Anthropocene: From Global Change to Planetary Stewardship. *AMBIO*, 40, 739-761. <https://doi.org/10.1007/s13280-011-0185-x>
- Stil, H. (2017, 16-11-2017). Alleen rem op vliegen helpt milieu [Only break on flying helps environment]. *Parool*, p. 2.
- Strand, R., Saltelli, A., Giampietro, M., Rommetveit, K., & Funtowicz, S. (2016). New narratives for innovation. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2016.10.194>
- Tajeddini, K. (2010). Effect of customer orientation and entrepreneurial orientation on innovativeness: Evidence from the hotel industry in Switzerland. *Tourism Management*, 31, 221-231. <https://doi.org/10.1016/j.tourman.2009.02.013>
- Tasci, A.D.A. Wei, W., & Mildman, A. (2020). Uses and misuses of the case study method. *Annals of Tourism Research*, 82. <https://doi.org/10.1016/j.annals.2019.102815>
- Teixeira, S.J. & de Matos Ferreira, J.J. (2018). A bibliometric study of regional competitiveness and tourism innovation. *International Journal of Tourism Policy*, 8(3), 214-243. <https://doi.org/10.1504/IJTP.2018.10015677>
- Tjolle, V. (2016, April 26). Carbon calculator big news in the Netherlands. *Travelmole*. http://www.travelmole.com/news_feature.php?news_id=2021856
- Tortella, B.D., & Tirado, D. (2011). Hotel water consumption at a seasonal mass tourist destination. The case of the island of Mallorca. *Journal of Environmental Management*, 92, 2568-2579. <https://doi.org/10.1016/j.jenvman.2011.05.024>
- TU Delft. (2017). Tourism and travel make Paris targets unachievable. <https://www.tudelft.nl/en/2017/tu-delft/tourism-and-travel-make-paris-targets-unachievable/>
- TUI Group (2020). *Press release*. <https://www.tuigroup.com/en-en/media/press-releases/2020/2020-09-30-further-prerequisite-for-second-stabilisation-package--tui-ag-german-federal-government-additional-stabilisation-package>
- TUI Group. (2019). *Annual report 2019*. <https://www.tuigroup.com/en-en/investors/annual-reports/special-annual-report-19> Accessed 27.11.20.
- TUI Group (2018). *TUI Group strategy*. <http://annualreport2018.tuigroup.com/business-model-and-strategy> Accessed 27.11.20.

-
- UNWTO, UNEP, & WMO (2008). *Climate change and tourism: Responding to global challenges*. UNWTO. <https://www.e-unwto.org/doi/epdf/10.18111/9789284412341>
- Van Assche, K., Beunen, R., Duineveld, M., & Grubbacher, M. (2020). Rethinking strategy in environmental planning. *Journal of Environmental Policy & Planning*, 22(5), 695-708. <https://doi.org/10.1080/1523908X.2020.1768834>
- Van Assche, K., Beunen, R., Duineveld, M. (2014). *Evolutionary Governance Theory. An Introduction*. Springer. <https://doi.org/10.1007/978-3-319-00984-1>
- van Dale. (2019). Schiphol. In *Van Dale online dictionary*. <https://www.vandale.nl>
- Van der Duim, V.R., Ren, C., & Jóhannesson, G.T. (2017). ANT: A decade of interfering with tourism. *Annals of Tourism Research*, 64, 139–149. <https://doi.org/10.1016/j.annals.2017.03.006>
- Van der Duim, V.R., Ren, C., & Jóhannesson, G. T. (2013). Ordering, materiality, and multiplicity: Enacting actor-net- work theory in tourism. *Tourist Studies*, 13(1), 3–20. <https://doi.org/10.1177/1468797613476397>
- Van der Duim, V.R. (2007). TOURISMSCAPES. An Actor-Network Perspective. *Annals of Tourism Research*, 34(4), 961-976. <https://doi.org/10.1016/j.annals.2007.05.008>
- van Nieuwenhuizen-Wijbenga, C. (2019). *Klimaatbeleid voor luchtvaart. #31936-585 [Climate policy for aviation]*. House of Representatives of the Netherlands
- van Raan, L. (2017). *Onderzoek waaruit blijkt dat de groeiende luchtvaart het halen van klimaatdoelstellingen onmogelijk maakt. #2017Z15536 [Research that demonstrates aviation growth to obstruct achievement of climate goals]*. House of Representatives of the Netherlands
- Verbong, G.P.J., Schot, J., & Kanger, L. (2016). The roles of users in shaping transitions to new energy systems. *Nature Energy*, 1(5), 1-7. <https://doi.org/10.1038/nenergy.2016.54>
- Vogelij, J. C. (2015). *Effective strategy making: Co-designing scenarios as a tool for effective strategic planning*. [Unpublished doctoral dissertation]. TU Delft.
- Van Wijk, J. (2009). *Moving beyond heroes and winners. Institutional entrepreneurship in the outbound tour operations field in the Netherlands, 1980-2005*. [Unpublished doctoral dissertation]. VU Amsterdam.
- VVD, CDA, D66, & CU. (2017). *Confidence in the Future. 2017–2021 Coalition Agreement*. Government of the Netherlands.

-
- Weingart, P. (1999). Scientific expertise and political accountability: paradoxes of science in politics. *Science and Public Policy*, 26(3), 151-161. <https://doi.org/10.3152/147154399781782437>
- Weingart, P., Engels, A., & Pansegrau, P. (2000). Risks of communication: discourses on climate change in science, politics, and the mass media. *Public understanding of science*, 9(3), 261-283. <https://doi.org/10.1088/0963-6625/9/3/304>
- Whittlesea, E.R., & Owen, A. (2012). Towards a low carbon future – the development and application of REAP Tourism, a destination footprint and scenario tool. *Journal of Sustainable Tourism*, 20(6), 845-865. <https://doi.org/10.1080/09669582.2012.680699>
- World Tourism Organization (2004). *The Travel Industry's business model is broken: what's next?* Discussion paper. WTO. <https://www.e-unwto.org/doi/epdf/10.18111/9789284407040>
- Xiao, H., & Smith, L.J. (2006). Case studies in tourism research: A state-of-the-art analysis. *Tourism Management*, 27, 738-749. <https://doi.org/10.1016/j.tourman.2005.11.002>
- Yin, R. K. (2018). *Case study research. Design and methods*. Sage.
- Yin, R. K. (2009). *Case study research. Design and methods*. Sage.
- Zhang, C.X., Kimbu, A.N., Lin, P., & Ngoasong, M.Z. (2020). Guanxi influences on women intrapreneurship. *Tourism Management*, 81, <https://doi.org/10.1016/j.tourman.2020.104137>

Summary

This thesis examines the propriety of innovation as a concept for the coordination of novelty and change. Innovation is generally framed positively and often narrowed down to commercialised invention. This interpretation is largely taken for granted: explanations for this optimism are rarely offered. This unquestioned belief in innovation made me curious. I decided to examine the concept and its representations from up close and turned to an industry that has always been very receptive to external shocks: the Dutch travel industry. Prior to the current pandemic, this industry has showed an increased fascination with its own (lack of) innovation as it faced two main challenges: increased competition from outsiders and its own growing contribution to climate change. In this industry I encountered somewhat narrow innovation discourses that centred on e-commerce enterprise as the fashion of the day. To find out how these discourses relate to the academic literature on innovation, I analysed technological innovation literature and research on innovation in tourism studies. In these literatures, innovation is generally interpreted as commercialised technology. While literatures propagating alternative forms of innovation did scrutinise this current economic-technological purpose of innovation, they did not question the concept of innovation itself.

In this PhD thesis I therefore studied the use and effects of the discourse on innovation in tourism. To this end, I turned to different theories premised on post-structuralist thought: Actor-Network Theory; Discourse Theory; and Evolutionary Governance Theory. Using these theories, I conducted three case studies that traced particular manifestations of innovation in the Dutch travel industry: the development of a carbon management calculator for tour operators (chapter 2); the impact of a PhD thesis on aviation-induced climate change on Dutch aviation policy (chapter 3); and the development of an innovation unit in a large tourism organisation (chapter 4). Two notions of Evolutionary Governance Theory – *material events* and *reality effects* – functioned as an overarching analytical framework that enabled an integrated analysis of the case studies. Material events explain innovation as a construct that emerges when different actors coordinate responses to a perceived change of some kind. Reality effects illustrate that innovation produces contingent effects that result from continuously evolving interpretations of material and social environments. With the help of this analytical framework, I addressed the following research question: what are reality effects of innovation in the Dutch travel industry?

Chapter 2-4 present the case studies. Chapter 2 investigates the potential of eco-innovation to contribute to sustainability transitions in tourism, using a case study that traced the development of a carbon management calculator (CARMACAL) for small to medium-sized tour operators. The chapter illustrates the evolving ideas and practices of tour operators who had typically relied on paths of action and corresponding arguments that justified inertia when it comes to climate change mitigation. These conventions started to change when the idea of carbon labelling was introduced at an industry event. This triggered a joint interest in carbon measurement, at least so it seemed at first. A joint innovation initiative was started: the tour operators participated in a subsidised project that created CARMACAL, a piece of software that made uniform carbon measurement possible. CARMACAL, however, was based on different and contradicting ideas about carbon management. Disputes about these ideas and their representatives soon arose, and CARMACAL – envisioned as a way to address the carbon footprint of tour packages – remained a passive tool, subjugated to the established business routines it was supposed to transform.

Chapter 3 evaluates the impact of a PhD thesis on aviation-induced climate change on Dutch aviation policy. This policy domain – shaped by the heavily institutionalised expansion politics of national airport Schiphol and KLM Royal Dutch Airlines – had historically treated aviation-induced climate change as an international policy issue. Opposing actors, such as the environmental movement, had never found a realistic or impactful way to exert influence until the PhD thesis helped to reintroduce the object of aviation-induced climate change to this decades-old national policy pathway. New actors – citizen action groups, environmental NGOs – subsequently entered the debate. Innovation comprised the environmental policy struggle that subsequently unfolded and the additional knowledge objects that were drawn into the discussion, notably the object of ‘technological innovation’. So far, the promise of future technologies has proved particularly effective in blocking alternative policy options and this environmental policy struggle continues until today with no change of the status quo in sight.

Chapter 4 investigates the productive role of innovation in organisations by tracing the development of an innovation unit in TUI, a large tour operator. The chapter illustrates how TUI’s efficiency-driven corporate environment typically compels managers and staff to focus on operations and short-term results, rather than probing their implicit knowledge about the

company's ageing clientele and the limitations of its integrated tourism concept. The collective attempt to develop the aforementioned innovation unit changed this situation. It made people discuss innovation, accentuating TUI's structural weaknesses that, until that moment, had been 'known unknowns' – blind spots that managers and staff were generally aware of but could not directly address. The chapter shows how the concept of innovation itself, through its use in organisational practices, can trigger novelties. Different forms of organisational discontent that questioned the organisation's concurrent strategy and its future became more explicit and functioned as a reservoir of productive arguments that enabled strategising actors to mobilise support for their agendas and actions. In the end, this resulted in a version of the innovation unit that bolstered TUI's concurrent strategy and with that the position of its proponents: the TUI management.

Chapter 5 presents the conclusions, discussion, and implications of this research. Addressing the research question, I first illustrate the reality effects of innovation as collections of emergent, conflicting practices and communications that generate their own support and resistance. As the conclusion highlights the political dimension of innovation, I then discuss innovation as politics vis-à-vis the reviewed literature. In this discussion I shed light on two important elements of innovation's political dimension: the paradox of innovation and the role of technology innovation as a discursive object. The paradox of innovation highlights that attempts to create novelty can end up reinforcing the status quo. Promises of new technologies can provide temporary certainties in the face of uncertainty and reinforce the positions of those in power. In discussing the implications, I therefore introduce the notion of 'chameleonism'. Chameleonism manifests whenever hegemonic strategising actors – like their reptilian equivalent – change colour but do not their shape. They proclaim commitment to transformations but - wittingly or unwittingly – act or communicate in ways that contribute to the rigidities that limit the kind of change deemed necessary. I conclude with proposing directions that can help researchers and practitioners in better understanding and dealing with these tricky creatures.

Samenvatting

Is het concept innovatie wel geschikt voor het organiseren van nieuwigheid en verandering? Innovatie – doorgaans geïnterpreteerd als het succesvol vermarkten van uitvindingen – wordt over het algemeen gezien als iets positiefs. Verklaringen voor dit optimisme zijn echter schaars. Dit maakte mij nieuwsgierig. Ik besloot daarom het gebruik van het concept innovatie van dichtbij te bestuderen. Ik richtte me hierbij op een sector die altijd zeer vatbaar is geweest voor schokken van buitenaf: de Nederlandse reisbranche. Voorafgaand aan de coronapandemie stond deze sector voor twee belangrijke uitdagingen: toenemende concurrentie van buitenstaanders en de groeiende bijdrage van toerisme aan klimaatverandering. Tegelijkertijd was men binnen deze sector in toenemende mate gefascineerd geraakt door (het eigen gebrek aan) innovatie. In het innovatiediscours dat ik in deze sector aantrof werd innovatie min of meer gelijkgesteld aan e-commerce. Een vergelijkbaar technisch-economisch frame is ook terug te vinden in de gangbare technologische innovatieliteratuur en in de toerismeliteratuur over innovatie. In diverse spin-off literatuur wordt dit dominante economisch doel van innovatie wel bekritiseerd. Vervolgens worden echter alternatieve vormen van innovatie gepromoot. Het concept innovatie zelf wordt in deze literatuur niet ter discussie gesteld.

In dit proefschrift onderzoek ik daarom het gebruik en de effecten van het innovatiediscours binnen toerisme. Met behulp van verschillende theorieën gebaseerd op poststructuralistisch gedachtegoed – actor-netwerktheorie; discours Theorie; en evolutionaire governance theorie – bestudeerde ik een drietal specifieke innovatie-casussen in de Nederlandse reisbranche: de ontwikkeling van een CO₂-voetafdruk calculator voor touroperators (hoofdstuk 2); de impact van een proefschrift over de klimaateffecten van luchtvaart op het Nederlandse luchtvaartbeleid (hoofdstuk 3); en de ontwikkeling van een innovatieafdeling binnen een grote toerismeorganisatie (hoofdstuk 4). Twee begrippen uit evolutionaire governance theorie – *materiële voorvallen* en *werkelijkheidseffecten* – vormden het theoretische kader voor de analyse van deze casestudies. Materiële voorvallen verklaren innovatie als uitingen en praktijken die opduiken zodra verschillende actoren proberen gecoördineerd te reageren op veranderingen die zij waarnemen in hun omgeving. Werkelijkheidseffecten laten de betrekkelijkheid van dit proces zien: ‘innovatie’ omvat en veroorzaakt materiële en discursieve effecten die voortkomen uit voortdurend evoluerende interpretaties van de materiële en

sociale omgeving van actoren. Deze effecten zijn dus moeilijk te voorzien. De effecten van innovatie en innovatie zelf zijn daarom vaak ongrijpbaar en moeilijk te voorspellen. Met behulp van dit kader richtte ik mij op de volgende onderzoeksvraag: wat zijn realiteitseffecten van innovatie in de Nederlandse uitgaande reisbranche?

Hoofdstuk 2-4 presenteren de casestudies. Hoofdstuk 2 onderzoekt het potentieel van eco-innovatie om bij te dragen aan duurzaamheidstransities in toerisme, met behulp van een casestudie die de ontwikkeling van een CO₂-voetafdrukcalculator (CARMACAL) voor kleine en middelgrote touroperators volgt. Het hoofdstuk illustreert de veranderende opvattingen en praktijken van touroperators die gewend zijn om paden te bewandelen en argumenten te gebruiken die passiviteit op het gebied van klimaatmitigatie rechtvaardigen. Aan deze passiviteit leek een eind te komen toen een spreker tijdens een vakbeurs het idee van carboncertificatie introduceerde. Dit leidde tot een gedeelde interesse in het meten van de CO₂-voetafdruk van pakketreizen. Een samenwerking ontstond: de touroperators namen deel aan een gesubsidieerd project voor de ontwikkeling van CARMACAL: software die het uniform meten van de CO₂-voetafdruk mogelijk maakt. CARMACAL was echter gebaseerd op tegenstrijdige opvattingen over CO₂-management. Na afloop van het project staken meningsverschillen over deze opvattingen de kop op en CARMACAL bleef een passief stuk technologie, ondergeschikt aan bedrijfsroutines die het eigenlijk had moeten veranderen.

Hoofdstuk 3 evalueert de impact van een proefschrift over de klimaateffecten van de luchtvaart op het Nederlandse luchtvaartbeleid. Binnen dit nationale beleidsdomein – gedomineerd door de geïnstitutionaliseerde uitbreidingspolitiek van nationale luchthaven Schiphol en KLM Royal Dutch Airlines – werden de klimaateffecten van de luchtvaart altijd gezien als een internationale aangelegenheid. Tegenstanders van groei, zoals de milieubeweging, misten altijd een realistische of effectieve manier om invloed uit te oefenen totdat het proefschrift klimaatverandering herintroduceerde in het nationale beleidsdomein en hiermee de uitbreidingspolitiek van Schiphol en KLM ter discussie stelde. Nieuwe actoren, waaronder actievoerende burgers en milieuorganisaties, mengden zich vervolgens in het debat. Innovatie was onderdeel van de politieke clash die volgde en de nieuwe kennisobjecten die hier vervolgens bij betrokken werden, met name het object ‘technologische innovatie’. De belofte van toekomstige luchtvaarttechnologieën blijkt tot op de dag van vandaag een effectieve

manier om alternatieve beleidsopties voor de luchtvaart, waaronder strategische krimp, van tafel te houden.

Hoofdstuk 4 onderzoekt de productieve rol van innovatie in organisaties. Het volgt de ontwikkeling van een innovatieafdeling binnen TUI, een grote touroperator. Het beschrijft hoe de efficiency-gedreven werkomgeving van deze multinational managers en medewerkers voortbrengt die zich vooral richten op operationele zaken en korte-termijn succes. Kansen om gebruik te maken van de impliciete kennis in de organisatie over TUI's vergrijzende klantenkring en de beperkingen van het geïntegreerde verdienmodel gaan zo verloren. De gezamenlijke poging om deze innovatieafdeling te ontwikkelen veranderde dit. Er kwamen open discussies over innovatie waarin TUI's structurele zwaktes werden benoemd. Deze zwaktes waren tot op dat moment slechts blinde vlekken. Men was zich van hun bestaan bewust, maar had er geen directe invloed op. Het hoofdstuk laat daarmee zien hoe het concept innovatie zelf, simpelweg door gebruikt te worden in organisatiepraktijken, kan leiden tot verandering. Innovatiediscussies maakten verschillende vormen van ontevredenheid expliciet en zo ontstond een reservoir van productieve argumenten. Actoren uit op meer invloed binnen de organisatie gebruikten deze argumenten om steun te winnen voor hun agenda's en acties. Uiteindelijk leidde dit tot een versie van de innovatieafdeling die TUI's huidige strategie versterkte en daarmee de positie van haar voorstanders: het TUI-management.

Hoofdstuk 5 presenteert de conclusie, discussie en consequenties van dit onderzoek. Antwoord gevend op de onderzoeksvraag, illustreer ik in dit hoofdstuk eerst de werkelijkheidseffecten van innovatie als ontluikende, onderling tegenstrijdige, uitingen en praktijken die met elkaar verbonden zijn en die hun eigen steun en weerstand genereren. Omdat deze conclusie de politieke dimensie van innovatie benadrukt, ga ik in de discussie in op innovatie als politiek en vergelijk ik dit perspectief met de besproken literatuur. Twee aspecten komen in deze discussie aan bod: de paradox van innovatie en de rol van technologische innovatie als discursief object. De paradox van innovatie benadrukt dat pogingen om iets nieuws te creëren kunnen leiden tot het tegenovergestelde: een versterking van de status quo. De beloftes van nieuwe (toekomstige) technologieën kunnen tijdelijke zekerheden bieden in situaties waarin men geconfronteerd wordt met onzekerheid. Dit versterkt de posities van de gevestigde orde.

Ingaand op de consequenties van dit onderzoek, introduceer ik daarom tenslotte het begrip *kameleonisme*. Er is sprake van kameleonisme wanneer actoren behorend tot de gevestigde orde net als een kameleon wel van kleur maar niet van vorm veranderen. Zij beweren voor verandering te zijn en transformaties te ondersteunen. Echter – bewust dan wel onbewust – handelen en communiceren zij op manieren die de status quo versterken. De gewenste verandering raakt zo verder uit zicht. Ik sluit af met een aantal aanbevelingen die onderzoekers en mensen uit de praktijk kunnen helpen om kameleonisme beter te begrijpen en deze lastige wezens het hoofd te bieden.

Acknowledgements

This road has come to an end. The album is out. But I am yet to disconnect from the process of its creation. Hence first the disclaimer: the list of people thanked here is almost certainly incomplete. But here we go.

Thank you Kitty Knipscheer, Maarten Klunder, Carine Homan, Thérèse Pol, Benjamin Koster, Inger van Til, Niek de Boer, Inge de Weerd, Cees Verburg, and Suzanna Boon for creating the space for me to hide and write and accepting my absence on scores of social occasions. Thank you Harmke Klunder for enabling my escapism. I am immensely grateful for those hermetic writing retreats in your forest cabin: the bulk of this thesis has been imagined and written there. Thank you Daan Buijtendijk, Ilse Buijtendijk, and Rik de Bloois for your love and support. And thank you Seija Aalto; Miguel Bravo Madrid; Rob van Breemen; Marcel Brokken; Eke Eijgelaar; Kees Koper; Menno Lens; Michael Marchman; Ferry van de Mosse-laer; Jeroen Nawijn; and Michiel Siebelink, for keeping me sane. The hanging out, the bullshit, the laughs, and the beers have always helped. So that's the thank you note. But there is more to say and there are more people to thank.

Looking back at the whole process, five episodes seem to have shaped this thesis. As I reflect on these episodes, my mind drifts to distinct albums and songs that more or less functioned as their soundtracks. Albums and songs that – in the spirit of Hunter S. Thompson – provided the fuel that drove my writing at the time.

Episode I: *The Knife* (2014-2015)

Spring and summer 2014, for some odd reason, I was constantly playing old *The Knife* records (*Deep Cuts* and *Silent Shout*). I have always appreciated the atmosphere of their sound and vocals and the artistic qualities of their concepts (songs; videos; and live shows). A possibility to do a PhD studying the Dutch travel industry circulated. Ondrej Mitas and Sebastian Straatman (unwittingly?) convinced me to give it a shot. Lilya Terzieva and Rico Lie endorsed me. An idea that has since disappeared completely ended up in a PhD proposal that got approved later that year. I would like to thank René van der Duim for bringing a stubborn character like me on board as a PhD student, and for his kind and patient supervision over the years. I am grateful to REISWERK, CELTH, and Jos van der Sterren and Corné Dijkmans at BUAs for the support that they have offered me. And I would like to thank Jean Tee

for proofreading all chapters and for helping me write straightforward texts that accommodate the reader. Any shortcomings in this respect are my responsibility.

Episode II: *Come On Die Young* (2016-2018)

I appreciate the dark, dreamy and reserved vibe of *Mogwai's* second album. Its minimalist, drum-driven tracks build a certain tension as the album progresses. And then CODY just slips away, but the sound and atmosphere of the music somehow linger on, like the spirit of my mum who passed away in 2018. She is like a deep-rooted truth that has a quiet presence in my soul, sparking love and imagination. I wrote chapter 2 during those difficult times. I would like to thank Jorine Vermeer and Juultje Blom for the pleasant collaboration throughout this project. I am grateful to Reiswerk for supporting Jorine's work with a research grant. And I would like to thank the Building Excellence in Sustainable Tourism Education Network for offering us a platform during their 2016 conference in Germany, and Xavier Font for his very useful feedback throughout 2017. I am also grateful to Jeroen Nawijn for reviewing the revised manuscript prior to resubmission. Finally, I would like to thank René van der Duim for his unquestioned support and contributions throughout; from the moment we discussed the rough idea of his chapter in March 2016 to the resubmission of the manuscript in January 2018.

Episode III: *Legendary Freaks in the Trash of Time* (2018-2020)

Legowelt's 2017 release came in handy during this episode. Writing chapter 3 entailed encounters with power and its many guises that I found fascinating and depressing at the same time. The twisted and aspiring electro-punk house of LFToT provided the mental parallel universe necessary to navigate these contradictions. I played that album more or less on a continuous basis while writing, particularly during multiple-day retreats in Harmke's forest cabin. I would like to thank Eke Eijgelaar for the very pleasant, effective, and complementary collaboration during the entire process (research design, data collection, paper writing, submission, and revision). I really hope that we can do more of this sort of stuff in the future. I want to thank Xavier Font again here for pointing out the possibility to contribute to the Journal of Sustainable Tourism special issue on research impact and Raymond Boland for proofreading an early version of the manuscript. And I am particularly grateful to Paul Peeters, who was willing to offer his PhD thesis as study object. The two lengthy 'Paul

Peeters Tapes' interview sessions in Ede early 2019 kick-started this project and were of tremendous help in identifying subsequent respondents.

Episode IV: *Goo* (2016-2021)

When Kim Gordon sings of liberation from male, white corporate oppression on *Goo* – probably my favourite *Sonic Youth* album – she nailed the vibe that gradually emerged as my work on chapter 4 progressed and I encountered different people who all worked hard in their pursuit of different forms of liberation. I would like to thank Susanne Goossens and Arjan Kers for opening up this world to me. Thank you Joost van Heiningen for joining me on this project and for all those entertaining days and reflections on the road. And I would like to thank Martijn Duineveld for the intuitive cooperation on this project and for his inventive contributions that helped to strengthen the chapter.

Episode V: *You Won't Get What You Want* (2020-2021)

I really needed this powerful 2018 release of the American rock band *Daughters*. Its relentlessly hypnotic dissonance drove this whole thing home. Somehow, I hope, the soul of this record found its way into the first and last chapter of this thesis; the chapters that are supposed to bring a PhD thesis together and that show – in the words of *Daughter's* vocalist Alexis Marshall – that there are oceans beyond the waves. I would like to thank the following people here: Rob Van Breemen and Michiel Siebelink for jointly reinvigorating our *qrio* project over the summer and spring of 20/21 and create our own brand of dissonant noise. Edward Huijbens for offering me a monastic work environment on the Wageningen campus during semi-lockdown times. Gwendolyn van den Berg for the pleasant collaboration back in 2016 and 2017. Unfortunately, that study did not evolve into a paper, but parts of the desk research I conducted at the time informed the introduction. Erdinç Çakmak for sharing a pretty useful document about how to write a good introduction and synthesis of a PhD thesis. And René van der Duim and Martijn Duineveld for their valuable advice and eye for detail throughout the 'final' process.

So thank all of you. You have collectively constructed a creative space for me that I could use to write the thesis that I wanted to write. This road has come to an end. But no idea, thought or line would have advanced from one state to another without Renske and Doris. Your endurance, humour, and patience made this possible, particularly during tough times. Without your love, there would have been no story to tell; no book to put on that shelf.

So that's it. With all of this said and done, it is time to look ahead. Endings, after all, are artificial constructs of writers. Minds don't stop at the last page. New stories are always in the making. And I am looking forward to telling them.

Acknowledgements of financial support

The research was financially supported by the Centre of Expertise Leisure, Tourism & Hospitality (CELTH), Reiswerk, and Breda University of Applied Sciences.

