



Exploring Circular economy in the hospitality industry: empirical evidence from Scandinavian hotel operators

Fabrice Sorin & Uthayasankar Sivarajah

To cite this article: Fabrice Sorin & Uthayasankar Sivarajah (2021) Exploring Circular economy in the hospitality industry: empirical evidence from Scandinavian hotel operators, *Scandinavian Journal of Hospitality and Tourism*, 21:3, 265-285, DOI: [10.1080/15022250.2021.1921021](https://doi.org/10.1080/15022250.2021.1921021)

To link to this article: <https://doi.org/10.1080/15022250.2021.1921021>



Published online: 28 Apr 2021.



Submit your article to this journal [↗](#)



Article views: 2218



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)



Exploring Circular economy in the hospitality industry: empirical evidence from Scandinavian hotel operators

Fabrice Sorin  and Uthayasankar Sivarajah 

Faculty of Management, Law and Social Science, School of Management, University of Bradford, Bradford, UK

ABSTRACT

The circular economy is gaining momentum in corporate circles and European economic policies. However, its relevance and applicability to service dominated industries, such as tourism and hospitality, is poorly researched. This study investigates Scandinavian hotel operators' understanding of the circular economy, its drivers, enablers, barriers, and value creation potential. This exploratory study gathers feedback from ten Scandinavian hotel chains managers and proposes a circular economy applicability framework to test the concept's relevance to hotel operators. The research findings highlight respondents' interest and expose introductory to intermediate level of understanding of the circular economy. Conditional to specific enabling levers, the research confirms the applicability and value creation potential of the circular economy to hotel operators. The research provides hotel operators with recommendations on circular economy value creation opportunities, deployment pathways and suggests future research directions.

ARTICLE HISTORY

Received 31 March 2020
Accepted 20 April 2021

KEYWORDS

Circular economy;
hospitality; hotel operators;
supply chain; business
models; value creation

Prior to the COVID-19 pandemic, the tourism industry employed a tenth of the global workforce and accounted for a fifth of the global net job creation in the past decade (WTTC, 2018). Whilst the industry's sustained growth, benefited destinations and source markets economic actors, it is only recently that tourism impacts on destinations' social and environmental fabric are seriously acknowledged as key risk factors (Wood, 2017). Contrasting with these emerging macro-level concerns, tourism private actors overwhelmingly focus on growth-centric business models with limited attention paid to tourism production and consumption impacts and destinations' natural and social carrying capacity issues (Wood, 2017). The accommodation sector itself consumes 5% of global water use, emits 1% of global carbon emissions accounting for 20% of the tourism industry total carbon emissions (UNWTO, 2018; Wood, 2017, Chapter 4, p. 105). The tourism industry growth-centric model appears increasingly unsustainable in its current form and trajectory. This situation pressures private and public stakeholders to acknowledge the industry's actual ecosystem weight and assess its economic, social, and environmental impacts (WTTC, 2018). This study investigates a possible alternative development

CONTACT Fabrice Sorin  fabrice@fsoconsulting.com

This article has been republished with minor changes. These changes do not impact the academic content of the article.

© 2021 Informa UK Limited, trading as Taylor & Francis Group

pathway by exploring the circular economy understanding and perceived applicability by hotel operators.

The circular economy challenges the established linear production and consumption economic model. It proposes an economic system intentionally restorative of natural and social capital in which resources and materials circulate in regenerative production and consumption cycles (Blomsma & Brennan, 2017; Webster et al., 2013). A growing number of circular economy case studies are available on tangible goods production, supply-side resource use, and demand-side consumption patterns. Fast-moving consumer goods, construction, food and beverage industries circular economy deployment pathways are increasingly well researched and documented (Kirchherr et al., 2017; The Ellen MacArthur Foundation, 2012). However, service dominated industries, such as tourism and hospitality, are almost absent from circular economy academic and practical research.

Whilst ecosystem services pricing and operations negative externalities are increasingly being integrated as business risks, hotel operators are primarily focusing on operational efficiencies to develop and maintain their competitive advantage (Amado dos Santos et al., 2020; Hallin & Marnburg, 2007; O'Neill & McGinley, 2014; UNWTO, 2018). Labour, utilities, waste management, food procurement, property upkeep, renovation, and maintenance costs represent the main production and operational costs. Each of these costs weighting vary depending on the hotel product, its market segment position, location, climate, local infrastructure, and regulatory environment (Wood, 2017, Chapter 4, p. 105; UNWTO, 2018). The competitive pressure and shareholders' returns expectations render such operational costs reduction and efficiencies focus crucial, especially for small and medium-size actors (Hodari, Balla, & Aroul, 2017; Wood, 2017, Chapter 4, p. 105). This research investigates if the deployment of the circular economy can create economic value for hotel operators by reducing these core production costs while addressing the negative externalities generated by their operations.

This research aims to evaluate hotel operators' awareness of the circular economy, to identify its drivers, enablers, and value creation potential. This study also assesses the circular economy applicability to hotel operators as well as its deployment barriers.

The research question asks what the drivers, enablers, and barriers to a circular economy deployment in hotel operators' supply chain are, and to what extent can it create value for hotel operators. This study focuses on Scandinavian hotel chain operators covering Denmark, Finland, Norway, and Sweden, defined as the Scandinavian hotel market. Targeting hotel chain operators allows the exploration of a representative part of the total Scandinavian hotel market.

Prior to the COVID-19 pandemic, the Scandinavian hotel market was a healthy market with a prevailing domestic demand on both leisure and corporate segments. Mid-scale, full-service hotel products from local and regional hotel brands dominate the supply mix (Pedersen et al., 2017). Hotels' bedroom occupancy ratio, ADR (average daily rates), and RevPAR (revenue per available room) metrics show solid performances in the past five years. Business forecasts were attractive, underlined by an enduring supply and demand imbalance and increasing Asian markets demand (Christie&Co., 2017; Pedersen et al., 2017).

Denmark, Finland, and Sweden have set countrywide circular economy deployment strategies while Norway set a resource efficiency approach to its waste management,

energy, and mining sectors (European Environment Agency, 2016; Ministry of Finance Sweden, 2016; Sitra, 2017; State of Green, 2016; Wijkman & Skanberg, 2015). Such macro and meso-economic, regulatory, and political environments, provide favourable contexts in which to explore, develop and implement a circular economy.

Sustainability and circular economy share numerous similarities. To properly frame the research objectives, it is important to elaborate on both concepts' similarities and differences. Both are umbrella concepts with evolving definitions sharing a similar end goal as the organisation of production and consumption models operating within the planetary boundaries (Pforr, 2001; Webster et al., 2013). The circular economy differs from the sustainability concept in the systemic nature of the concept. The circular economy is a system-level production and consumption economic model, operating within the planetary boundaries and aiming at regenerating natural and social capital (Blomsma & Brennan, 2017; Manniche et al., 2017; Schröder et al., 2020). Sustainability, in the tourism context, can be defined as a negative externalities reduction framework (Bramwell & Lane, 1993; Pforr, 2001). The concept core aim is to reduce GHG emissions, minimise environmental impacts, mitigate natural resources consumption to reach sustainable production and consumption of travel and tourism activities. Increasingly, sustainable tourism also accounts for the social and economic impacts of tourism activities, with the intent to maximise the positive economic and social contributions of tourism activities to local communities (Higham & Miller, 2018).

Although the circular economy correlates with sustainability on the objectives part, a notable difference between the two concepts is that sustainability is a concept without system-level implementation schemes (Pforr, 2001). Importantly, and different to the sustainability concept, the circular economy is both an end goal and a heuristic toolkit. Key circular value creation loops and business models offer flexible and scalable business strategies to implement business concepts and activities regenerative of natural and social capital (Blomsma & Brennan, 2017; Raworth, 2017). This is the taxonomic difference that this research aims to evaluate. Do hotel operators see circular economy and sustainability as two of the same concepts? Do they differentiate these? Do they perceive circular economy practices as value-creating business strategies deployable in their operations and supply chains?

Existing research review

Sustainable tourism definitions evolved since its first iterations in the 1990s. Originally focusing on environmental preservation (Bramwell & Lane, 1993; Pforr, 2001), the taxonomy advanced to include climate change mitigation and adaptation strategies (Weaver, 2011). More recently, the sustainable tourism concept took a more holistic approach adding social and economic development to the environmental conservation objective (Espiner & Becken, 2014; Helgadóttir et al., 2019; Mai & Smith, 2015; Wood, 2017).

The hospitality sector sustainability approach follows a similar evolution. From an environmental protection concept, focusing on natural resources consumption reduction and waste management, to a more holistic approach accounting for the social and economic impacts of hospitality actors and activities (Cozzio, 2019; Helgadóttir et al., 2019; Sandve & Øgaard, 2013). The inclusion of corporate social responsibility (CSR) into sustainability strategies by hotel operators illustrate this evolution. The maturing demand-side

acceptance of premium pricing for sustainability credentials points toward a more financially central role of sustainability for hotel operators profitability and competitive advantage (Bohdanowicz & Zientara, 2008; Lissner & Mayer, 2020; Merli et al., 2019; Margaryan & Stensland, 2017; Ng & Tavitiyaman, 2020). Although the existing research review demonstrates a recent and growing trend towards a more holistic definition of sustainability in the tourism industry and hospitality sector, the sustainability concept is still predominantly looked at from the resource use, efficiency angle and through operational costs savings objectives (Guix et al., 2019; Jones et al., 2014; Jovicic, 2014). In line with this resource use framing, hospitality actors are increasingly using certifications schemes to elaborate, monitor and communicate on their sustainability actions. The certifications take a dominant resource use and emission reduction angles, particularly on water use, waste management and more recently on plastics consumption reduction within hotel operations (Bilbao-Terol & Bilbao-Terol, 2020; Mzembe et al., 2020). The use of local and global ecolabel and sustainability certifications such as Nordic Swan, EU Ecolabel, ISO, Greenkey and more generic sustainability framework, such as the United Nations Sustainable development goals framework (SDG), illustrate the evolution of sustainability as becoming a more central part of operators value proposition, competitive advantage and market positioning (Font & Harris, 2004; Haaland & Aas, 2010; Higham & Miller, 2018; UNWTO, 2018).

Circular economy drivers

The circular economy terminology originates in the 1960s when economic systems inspired by nature were first theorised (Boulding, 1966). Building on this early proposition, the concept of an industrial ecosystem as a metabolism with negative feedback loops at its core was formulated as the industrial ecology concept by Ayres and Kneese (1969). The circular economy concept evolved from the industrial ecology semantics to integrate the proposition of consumption loops closure as highlighted by Pearce and Turner (1990).

Private and public economic stakeholders acknowledgement of natural resources finite nature, increasing waste management costs and rising GHG emissions are core circular economy drivers. These drivers are developed in the key circular economy school of thoughts. Biomimicry translates natural living systems complex adaptive behaviours and strategies into industrial, economic and design application (Benuys, 2002). Regenerative design proposes that natural, industrial, economic systems can be designed to be intentionally regenerative of their capital and stocks (Lyle, 1999). Cradle to cradle emphasises products and materials intentionally designed to safely cycle in separate technological and biological loops (McDonough & Braungart, 2009). Performance economy focuses on the prevalence of products' services over tangible goods and assets ownership (Stahel, 2013). Blue economy suggests innovative business models with multiple transactions flows intentionally creating financial, social and natural benefits at the macro, meso, microeconomic levels (Pauli, 2011).

Circular economy enablers

The Ellen Mac Arthur foundation (EMF) neatly integrate these core schools of thoughts into the most known circular economy framework to date (The Ellen MacArthur

Foundation, 2012; Webster et al., 2013). The Ellen MacArthur foundation describes a circular economy as an economic model composed of two distinct biological and technological cycles. The proposed model is articulated around four core system principles of whole system optimisation (De Rosnay, 1979), waste is food principle (McDonough & Braungart, 2009; Webster et al., 2013), renewable energy as the main energy source (Lovins, 2013) and innovative and profitable business models as new sources of value creation (Stahel, 2013). The model main value creation loops are shorter products and materials loops; longer-lasting loops through extended assets life cycle; cascaded materials use across industries; the cycling of pure, non-toxic materials designed for disassembly and reassembly (The Ellen MacArthur Foundation, 2012; Webster et al., 2013). The EMF framework also creates value by regenerating social capital through the creation of meaningful jobs and fair distribution of resources and financial capital (Schröder et al., 2020). Figure 1 is an adaptation of the EMF circular economy diagram, known as the butterfly diagram, to the hotel operator context. The revised diagram articulates key circular value creation loops, purpose-driven market positioning and circular business models around the hotel asset build and operation phases.

The circular economy posits eco-innovations and digitalisation, servitization of tangible goods consumption as sustainable development strategies and tools enabling the resource use reduction and restorative functions of the concept (Hofstra & Huisingh, 2014). New business models are aggregating the circular economy principles into profitable value creation, value capture and value distribution activities. Five core innovative business models act as key enablers for the circular economy deployment at scale (Bocken et al., 2014; Geissdoerfer et al., 2018; Lewandowski, 2016; Urbanati et al., 2017). These are circular supply chains (Freitag: compostable clothes; Toopi Organics: urine

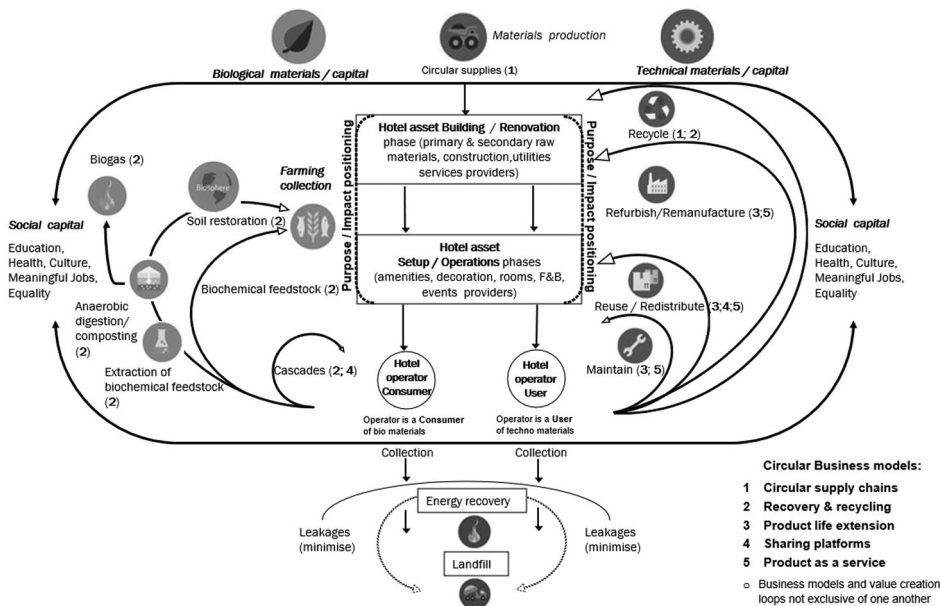


Figure 1. Circular hotel operator diagram. Source: Author based on The Ellen MacArthur Foundation (2012).

transformation into agricultural fertiliser); recovery and recycling (Patagonia: clothes collection and repair); product life extension (Backmarket: used electronic goods retail; iFixit: repair guides); sharing platforms (AirBnB; BlaBlaCar: personal car sharing; Flow2: professional equipment sharing); product service agreements (Philipp: lighting as a service under a subscription model).

Circular economy barriers

The current mainstream linear economic system presents potent lock-in barriers preventing its fair questioning. Amongst such lock-ins are natural resources, waste streams and ecosystem services incomplete pricing, skewing the arbitrage between sustainable and non-sustainable resources choices as articulated by Jackson and Senker (2011) and Webster et al. (2013). As interest in the circular economy grows in business, public and academic areas, so do challenges to the terminology, concept and its positive economic and environmental contribution potential. Primary resources substitution through extended products and materials lifecycle via closed-loop production system, servitization of assets does not systematically reduce resource extraction and can lead to potent production and consumption rebound effects (Korhonen et al., 2018; Zink & Geyer, 2017). The circular economy as an economic system regenerative of natural and social capital also raises questions on its social capital restoration potential as highlighted by Zink, Geyer and Moreau (Moreau et al., 2017; Zink & Geyer, 2017). The existing research review highlights tangible goods production circular economy deployment pathways but does not offer meaningful inputs on service dominated industries circular economy rationale and deployment potential.

Circular economy and tourism

The diversity and volume of available research on sustainable tourism contrast with the very limited academic contributions on circular economy and tourism applications. One relevant academic publication focuses on the United Nations Sustainable Development Goals (SDG) application to the travel industry (Girard & Nocca, 2017). The paper by Girard and Nocca takes an introductory, explorative approach to the framework possible deployment in destination markets highlighting the local travel value chain stakeholders' collaboration potential in Sicily. This research scarcity is highlighted in a publication found to offer extensive insights on circular economy assessment and deployment within the travel industry by Manniche et al. (2017). This report identifies potential circular economy drivers and barriers for hotel, spa and restaurant operators in the South Baltic area. The importance of supply chain management through multi-stakeholder collaboration as an enabler of a circular economy transition in a travel ecosystem is a key finding of the study. A growing number of publications are evaluating sustainability within the tourism ecosystem through a holistic approach mentioning the circular economy terminology. Recent publications focusing on tourism destinations by Bigwood et al. (2019), Smith (2018), UNWTO (2019) and Wood et al. (2019) explicitly frame sustainable tourism development through a system thinking approach. Destinations are framed as natural, social and economic assets to maintain in optimal conditions to guarantee their long term viability. This emerging framing of destinations as

assets is closing the taxonomy gap between sustainable tourism development framing and the circular economy definition as a complex, dynamic socio-economic system. Building on this trend, the circular economy is increasingly mentioned in tourism research as a toolkit to implement sustainable tourism development strategies under a system thinking approach (Jones & Wynn, 2019; UNWTO, 2019).

The existing research review highlights the contemporary and heuristic nature of the circular economy. It also shows academic, business and regulatory circles focusing on primary resource use mitigation, waste management and digitalisation of otherwise physical activities or products. The existing research review points to a recent convergence of tourism sustainability, and sustainable hospitality, framing towards a holistic approach considering natural, social and economic impacts.

Conceptual framework

In this study, the circular economy is defined as an economic model inspired by natural systems, intentionally restorative of natural and social capital (Webster et al., 2013). Flows of biological and technological non-toxic resources and materials are optimised in multiple regenerative cycles. Value is created through resources and materials tight looping, longer-lasting use cycles and cascaded use in multiple industries. Full pricing of social capital, ecosystem services and innovative, profitable business models act as core enablers.

From the existing research review, this study proposes a conceptual framework named the circular applicability framework. This conceptual framework suggests key circular economy drivers, enablers, barriers to assess their potency and subsequent value creation opportunities for hotel operators. This research posits that a circular economy is deployable in hotel operators' supply chain. Conditional to appropriate enablers, the circular economy can be a source of value creation for hotel operators. This study's conceptual framework is built around three drivers, enablers and barriers variables allowing or impeding value creation opportunities within hotel operators supply chain.

The circular applicability framework highlights waste management costs, water and energy consumption costs as key drivers' variables. Waste management costs and regulations act as central drivers of costs mitigation solutions. Increasing demand-side pressure for sustainability credentials from operators acts as another key driver. The constant need for hotels to keep up with design trends, standards, consumers expectations within their market segments, drives the need for property upkeep, refurbishment and redesign expenditures and represent the last important driver.

The current study proposes innovative business models and supply chain innovations as necessary enablers to realise the framework's value creation opportunities and its natural and social capital restoration potential. Secondly, environmental, fiscal, and labour regulatory conditions are key levers allowing the framework's value creation opportunities to emerge and scale. Thirdly, awareness and understanding of the framework by all employees are essential to its deployment.

The circular applicability framework suggests that the fragmented hotel ownership structure, under asset-light models separating the real estate from the operational part, dilutes owners and operators environmental responsibilities. The understanding of circular value creation opportunities in the hotel supply chain is also a potent framework

deployment barrier. Finally, waste management regulations play an impending role as do the labour, fiscal and environmental regulatory landscapes.

On the downstream supply chain part, value can be created, captured and distributed in natural capital restoration through food waste reduction and recirculation as input. Value is also created by operational costs reduction through energy consumption reduction and waste management costs mitigation. A circular, beyond sustainability hotel branding towards customers, can be a source of competitive advantage, allowing for efficient market differentiation, commanding premium pricing.

On the upstream supply chain part, the framework proposes that multiple revenue streams generation, through the mutualisation of hotels assets with low utilisation ratios, can create value for the network participants. The framework also posits that upstream supply chain servitization through product-service system (PSS) agreements with suppliers, based on usage versus products ownership, can reduce hotel operators' capital and operational expenditures while providing similar or higher quality products and services. Additionally, the framework creates value through social capital restoration by developing local sourcing with upstream supply chain suppliers through the procurement of locally sourced goods. Finally, natural capital restoration is encouraged by implementing local food sourcing, reducing food and beverages transport, waste and greenhouse gas emissions.

The purpose of the conceptual framework is to explore, validate or decline the stated propositions. Is the circular economy applicable to hotel operators supply chains? Do hotel operators understand it? Does the circular economy offer value creation opportunities to hotel operators? The circular applicability framework provides an accessible tool for hotel operators to assess the drivers, enablers, barriers of the circular economy and to help identify circular value creation levers actionable within their operations. [Figure 2](#) below details this study conceptual framework.

This research is an exploratory study based on a qualitative approach. It uses a cross-sectional time horizon and applies a mono-method qualitative research choice by collecting primary data through semi-structured interviews (Saunders et al., 2016). This research methodology choice enables deep, cross-functional, contextual insights into the exploratory study proposition (Saunders et al., 2016). Telephone interviews were conducted with hotel operators' managers in middle-level and top-level management roles. 10 respondents from 6 different hotel chains accepted to formally participate in the research. The respondents area of responsibilities covered the main hotel departments: operations (2 respondents), commercial (3 respondents), corporate management (3 respondents) and sustainability (2 respondents). The research also gathered primary data from additional informal interviews with 4 operators' executives (2 board members, 1 chief operating officer, 1 chief executive officer) and with 3 respondents from a leading international hotel sustainability certification provider covering Norway, Denmark and Finland. The interview questions list consisted of fourteen questions each addressing one or more conceptual framework variables as detailed on Appendix A. The interviews took place between July 2018 and January 2019 through telephone conversations and were recorded for transcription purposes. The average interviews duration was 40 min with the shortest lasting 18 min and the longest extending to 65 min. The respondents' datasets were anonymized for publication purposes. The respondents' combined market share accounts for around 50% of the 2019 Scandinavian hotel market total room inventory.

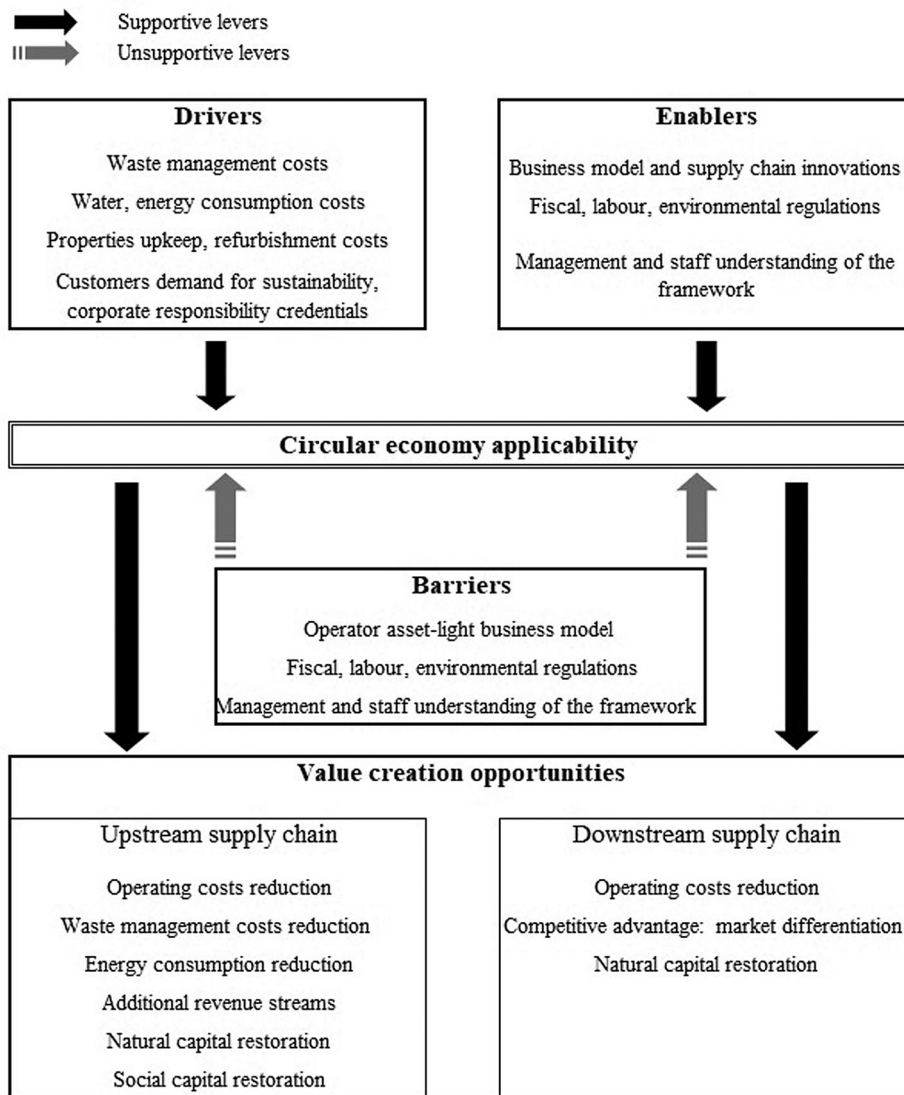


Figure 2. Circular applicability framework. Source: Author.

Research strategy and direction

Given the highly contemporary nature and contextual variables characterising the circular economy, using an exploratory study research strategy to question a specific topic, phenomenon in its actual context was considered adequate (Yin, 2014). This research conducted a multiple and embedded dimension exploratory study highlighting the multiple units of analysis constituted by the respondents various commercial, operations, corporate management and sustainability roles (Saunders et al., 2016; Yin, 2014).

This study direction is exploratory with a deductive approach to theory development aiming at testing a set of propositions with qualitative procedures (Saunders et al., 2016). This exploratory direction accounts for the contemporary, iterative, heuristic nature of the

circular economy. Although the circular economy is now an established field of research, the concept's applicability has not been extensively explored and tested in service industries, even less in the hospitality sector as highlighted in the existing research review.

Data analysis

The research chose a pattern matching data analysis approach, a variant of thematic data analysis enabling the research to deductively test, validate or amend the conceptual framework variables and stated propositions (Saunders et al., 2016). The interviews were transcribed and analysed, along with the corresponding handwritten notes, using qualitative data analysis software. A set of "a priori" codes, matching the conceptual framework variables, was set and completed by additional "in vivo" codes when prompted by the data analysis. This data coding technique allows the mapping of each interview and the identification of expected and emergent themes in the various respondents' datasets (Saunders et al., 2016).

Research findings

Circular economy awareness

All respondents, except for one, were familiar with the circular economy terminology. The respondents understand the circular economy as part of the sustainability umbrella concept. The circular economy is mostly understood as a resource use reduction, waste management toolbox with all respondents expressing personal interest in the concept, mentioning environmental, social impacts as key concerns. Notably, the system level, regenerative intent of the circular economy framework is mentioned only by one respondent. To varying degrees, the unsustainability of the current hotel operator throughput business model is acknowledged by all respondents.

Circular economy drivers

The research results validate and amend the proposed conceptual framework drivers. Respondents highlight business customers' and end consumers' demand for sustainability credentials to be an integral part of a hotel product concept as a core driver. The results confirm water and energy consumption costs pressure as key drivers, with electricity as the main operating cost to mitigate, after labour costs. Respondents confirm waste management costs, especially food waste, as an important driver. Properties' maintenance costs are also acknowledged as a potent driver. The majority of respondents highlight the good recycling systems and relative affordability of waste streams and waste management systems, with a notable exception in Finland for biowaste collection.

Circular economy enablers

The study findings confirm and update the suggested conceptual framework enablers. Supply chain innovations through deeper supply chain cooperation emerge as core enabler. Respondents emphasise the regulatory and fiscal environment as a level

playing field guarantor while highlighting the already stringent environmental regulations, especially on the waste management part. No respondents point to the fiscal challenges implied by the deployment of circular business models such as product-service system agreements (PSS). The financial impacts of PSS agreements on tangible assets depreciation and valuation, as well as the taxation of revenue streams potentially generated by hotel assets through asset sharing platforms, are not mentioned by any respondents. This highlights respondents' lack of knowledge of such circular economy business models as well as their understanding of the circular economy as a predominantly waste and resource management toolkit. This finding also suggests that the holistic, whole system approach to the procurement, operations and revenue generation activities are not understood by respondents. The circular economy understanding and buy-in from staff at all levels of the organisation, as well as with suppliers, flash as key circular economy deployment enablers. Interviewees also mentioned external advice on circular economy training, deployment pathways as helpful.

Value creation opportunities

The results substantiate the conceptual framework value creation potential. Respondents do not explicitly state natural and social capital restoration as value creation opportunities but as positive externalities of localised food and goods procurement. Respondents acknowledge under-utilised hotel assets sharing between hotel operators as an interesting area to explore. Surprisingly, no respondents conduct assessments of tangible assets productivity based on usage ratios. Additional revenue streams through assets sharing within a hotel chain are investigated by some respondents, it is however done anecdotally. Respondents validate the value creation opportunities of low utilisation assets through asset mutualisation and circulation. However, such innovation is mentioned as potentially deployable within a single hotel chain organisation but less likely with competing operators, unless they operate on completely different market segments. Feedbacks on product-service system agreements are mixed. Half of the respondents making a point of owning all tangible assets while others consider such upstream supply chain agreements as limited to back-office assets, such as IT equipment. Given the right pricing, service levels and service quality guarantee, PSS agreements are of interest to respondents. No suppliers offer high expenditure items such as bedding, kitchen equipment on PSS terms enticing respondents to contract such commercial agreements. Respondents corroborate energy costs reduction as a value creation opportunity. Interviewees mostly validate the market differentiation potential through a positioning of circular economy, sustainability leader. Circular economy initiatives must be aligned with the hotel product market segment for such market positioning to work. Respondents deemed this value creation potential deliverable with upscale, luxury hotel products but mentioned that it would be much more difficult to deploy in budget and limited-service hotels.

Barriers to the circular economy deployment

The research results validate and amend the conceptual framework barriers. Interviewees mention the regulatory environment again as a required default level playing field for all

operators. Respondents also stress the need for supportive regulations going towards the certification path, such as ISO (international organisation for standardisation) standards, as opposed to a punitive regulatory approach. Environmental, waste management regulations are highlighted, however, no respondents stressed the fiscal or labour regulations as regulatory barriers. Even though Scandinavian countries enjoy a high level of sustainability awareness in Scandinavian populations, respondents emphasise the need for education and training on circular economy to their workforce. Like the enabler variable, the framework understanding by staff, suppliers and consumers emerge as a key barrier to overcome. Respondents have split opinions on the separation between operators and asset owners as barrier emphasising the need for alignment of interests and goals between parties. Respondents highlight cross-party alignment as potentially benefiting operators and assets owners if circular value creation objectives are embedded as business objectives in the contractual relationship. The need for accurate circular economy value creation measurements and metrics emerge as an additional barrier variable. As pointed by some respondents, if the value created through the deployment of circular economy initiatives is not accurately measured, it will not be visible and therefore discounted in favour of more financially explicit operational initiatives.

Research findings summary

The research results validate and update the proposed conceptual framework drivers, enablers, barriers, and value creation opportunities. [Figure 3](#) provides an updated version of the proposed conceptual framework accounting for the research findings.

Operators want to be part of the circular economy even more as their customer base and employees are increasingly demanding accountability on their business model purpose and its ecosystem impacts. The circular economy social and natural capital restorative intentions are not stated as key objectives, demonstrating a lack of understanding of the concept as an optimised system working for all its actors as stated in the existing research results (Webster et al., [2013](#)). This siloed understanding helps explain respondents' interpretation of the circular economy as a waste and resource management toolkit.

Knowledge and education of the circular economy surface as a key lever to counter this reductive understanding, framing of the circular economy. External expertise is recognised as useful to address this knowledge gap within operators' organisations and their supply chain partners. The circular economy deployment is influenced by waste management costs, operational costs and demand-side sustainability credentials pressure. Food waste best illustrates the circular economy deployment and value creation potential in hotel operators supply chain. The food and beverage input price volatility are concrete examples of the circular economy natural resources drivers at play in hotel operations, as pointed in the existing research review section (The Ellen MacArthur Foundation, [2012](#); Webster et al., [2013](#)). Respondents do not explicitly highlight other waste streams, notably plastics used in packaging, food and beverage outlets and room amenities, as central drivers with waste management expenditures mentioned as affordable. This illustrates the potency of linear lock-ins with the mispricing of waste streams working against the circular economy arbitrage (Stahel, [2013](#); The Ellen MacArthur Foundation, [2012](#); Webster et al., [2013](#)). The waste management costs driver is therefore updated

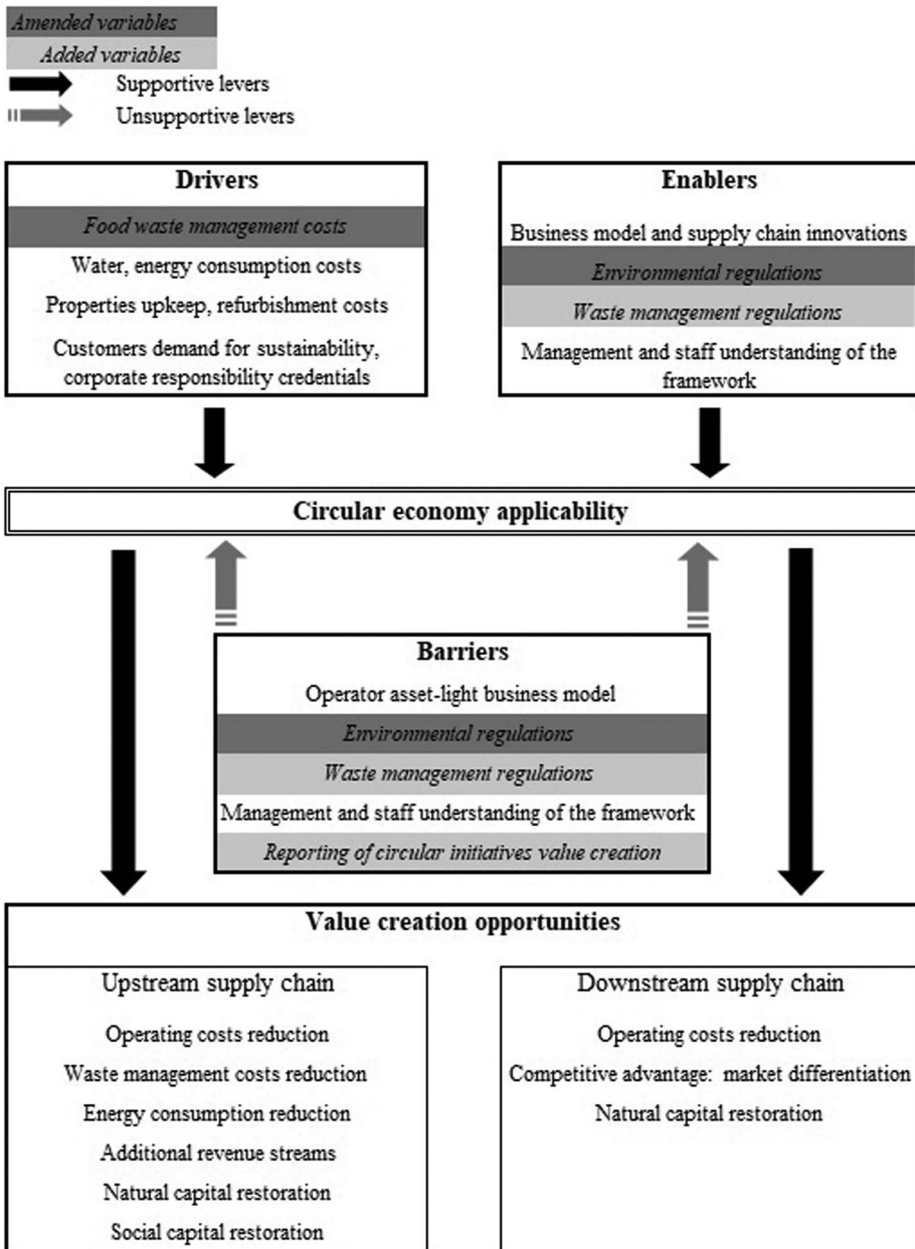


Figure 3. Amended circular applicability framework. Source: Author.

on the amended conceptual framework in Figure 3 to reflect the prevalence of food waste management costs as a key driver. Food waste came out as the strongest value creation lever for respondents. The short return on investment timescale, the scale potential and almost direct positive effect on food outlets' operating margins generated through food procurement monitoring and food waste reduction programmes were explicitly stated as core reasons to prioritise this specific lever by respondents.

Respondents express consensus on the necessity of environmental and waste management regulatory regimes as setting a fair level playing field. Independently verified circular economy certification, similar to ISO standards, would provide operators with a fair benchmark on which to base, evaluate and communicate their circular economy initiatives. As stated in the existing research review section, powerful linear lock-ins act as strong deterrents for the circular economy value proposition, its emergence and scale-up. Setting clear measurement metrics with minimum compliance threshold on emissions, resource use, product life cycles for all actors can positively contribute to the weakening of such linear lock-ins (The Ellen MacArthur Foundation, 2012; Webster et al., 2013).

The fiscal and labour regulatory environments are deleted from the amended conceptual framework in Figure 3 as not specifically mentioned as enablers, nor barriers, by respondents. As postulated in the introduction section, relationships and alignment of corporate values and vision are key for the deployment of the circular economy. The results also highlight the limited collaboration within hotel operators supply chain, especially on the upstream part.

The servitization of procurement, although already deployed to some extent by the outsourcing of maintenance, housekeeping functions, back office, IT systems leasing agreements, is not conducted under a collaborative, value co-creation approach. Respondents are not highly focused on innovation in their supply chains and remain firmly under a silo approach. This focus on processes efficiency contradicts the respondents expressed consensus on the need for more in-depth collaboration between suppliers and hotel operators. When pointed to the low usage ratio of meeting facilities assets and their value creation potential through mutualisation, network circulation with competing hotels or own-brand properties, respondents acknowledged that this is not an approach they have seriously considered so far. This highlights the lack of system-level understanding of the circular economy and the enabling power of innovative business models, product and service design innovations (Lewandowski, 2016). PSS agreements can provide operators with high-quality products at competitive market prices while reducing primary resources use, capital expenditure and end of life disposal costs. Noticeably, the study results show the limited understanding of PSS agreements by hotel operators and the lack of providers of such contractual agreements within their existing supplier base (Stahel, 2013).

The need for hotels' circular economy actions and related return on investments measurements emerge as an additional variable. Hotel operators face acute distribution costs pressure driven by customers price-based buy-in triggers (Wood, 2017, Chapter 2, p. 45). Consequently, any investments in circular economy procurement, operational processes need visibility on costs and value creation potential. As with the resource and ecosystem services mispricing barriers identified earlier, the need for fair, accurate measurements is central to the circular economy value creation evaluation and arbitrage (The Ex/Tax project et al., 2016; Webster et al., 2013).

Research synthesis and discussions

Respondents' understanding of the circular economy under a dominant silo approach limits its value creation opportunities to departmental and functional efficiency improvements in procurement, waste reduction, and utilities consumption reduction. This study

finds that the asset-light business model, bearing alignment of interests, values and objectives between core stakeholders, is not the expected central obstacle to the circular economy deployment. A circular economy approach incentivizes deep, long-term partnerships, focusing on value co-creation through resources and materials use optimisation but also push for business model innovations as a key business transformation lever.

Real estate developers, construction firms and assets owners' engagement in the circular economy deployment appear essential in enabling system-level circular value co-creation between the construction, real estate and hospitality industries stakeholders. This situation presents opportunities for real estate actors and assets owners to move into new business models, such as building as material banks (BAMB) and vertically integrated, modular building as a service models (BAAS) designed from the outset to recoup materials and embedded energy through multiple lifecycles (Lacy et al., 2014; Rose & Stegemann, 2019).

The research findings validate the proposition of key importance of a collaborative, cooperative value co-creation approach within operators' supply chain, especially on the upstream part. However, this study solely explores hotel operators without direct feedback from the suppliers, customers and assets owners parts of the supply and value chains. Wider research is therefore recommended with hotel operators' suppliers, customers and real estate stakeholders. Extending the research to these parts of the hospitality value chain could provide a fuller picture of the circular economy applicability and its drivers, enablers and barriers. The research proposed an exploration of the circular economy through value creation, competitiveness and resource circularity angles. This approach limits the exploration of the social capital regeneration potency in hotels operators supply chain. Additional research focusing on this circular economy core objective is therefore advisable. The limited scope of the research and the specific geographic, economic and regulatory landscape cover does not allow for results generalisation and literal replicability. The Scandinavian hotel market specificities, as described in the introduction section, represent important contextual variables influencing the research results. Further limitations to the results' replicability lay in the absence of the largest Scandinavian hotel chain from the research. Having the destination hotel operator market leader, also recognised as a sustainable hospitality pioneer, would have provided the research with additional empirical weight.

The Scandinavian hotel market dominance by local hotel chains also influences the research results. It is debatable if a more consolidated hotel market, dominated by international hotel brands or if, to the contrary, a more fragmented hotel market with a large percentage of small, independent hotels would change the circular economy applicability results. Other key contextual variables to account for are the geographic and natural resources specificities of the Scandinavian destination. Good transport, utilities, waste management infrastructure as well as the natural abundance of clean water provide hotel operators with favourable operating conditions. Evaluating the circular economy applicability in destinations with limited natural resources, water stress, poor utilities and waste management infrastructure could result in different drivers, enablers and barriers and offer different applicability outcomes.

The research findings are therefore to be taken cautiously and would need to be extended to a wider hospitality network to validate replicability. Involving hotel operators' direct and non-direct supply chain partners could offer the possibility to explore the circular economy applicability to a wider array of hospitality and indirect economic stakeholders. Additionally, testing the conceptual framework on the entire Scandinavian

hotel marketplace including independent hotel operators, suppliers, key customers and assets owners would provide exhaustive empirical results.

Conclusions

By gathering empirical evidence from Scandinavian hotel chain operators, this study provides valuable insights into the circular economy applicability to hotel operators. The respondents' variety of positions, decision-making responsibility levels and representative share of the Scandinavian hotel market confer this research substantial empirical weight.

As the results show, the circular economy is implementable by hotel operators and can be a source of value creation. Respondents mostly interpret the circular economy as a resource and waste management toolbox providing value through operational efficiencies and related costs savings. Social and natural capital restoration emerge as positive externalities of the resource use mitigation actions but not as intentional, explicit objectives. The circular economy deployment is influenced by waste management costs, particularly food waste, utilities operational costs savings, and by demand-side pressure on operators' sustainability policies and positioning. Conditional to the alignment of interests and approach to sustainability and business objectives, the separation between hotel operators and assets owners is not necessarily an obstacle to the circular economy deployment.

The research shows there is a high level of interest in the circular economy value creation potential from hotel operators and that conditional to appropriate drivers and enablers, the circular economy is implementable in the Scandinavian hospitality sector. This study contributes to narrow the academic research gap on the circular economy in the tourism industry and specifically in the hospitality sector. It contributes to the growing academic and practical discussions about hotel operators' socio-economic and environmental impacts.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Fabrice Sorin  <http://orcid.org/0000-0002-7237-9967>

Uthayasankar Sivarajah  <http://orcid.org/0000-0002-6401-540X>

References

- Amado dos Santos, R., Méxas, M. P., Meiriño, M. J., Sampaio, M. C., & Costa, H. G. (2020). Criteria for assessing a sustainable hotel business. *Journal of Cleaner Production*, 262, 121347. <https://doi.org/10.1016/j.jclepro.2020.121347>
- Ayres, R., & Kneese, A. (1969). Production, consumption, and externalities. *The American Economic Review*, 59(3), 282–297. <http://www.jstor.org/stable/1808958>
- Benuys, J. (2002). *Biomimicry: Innovation inspired by nature*. Harper Perennial.
- Bigwood, G., Joubert, N., & Selem, N. (2019). *Creating better places to live, meet & thrive. Sustainable destination management trends best practices and insights* [White paper]. Global Destination Sustainability Movement. <https://www.gds.earth/reports/>

- Bilbao-Terol, A., & Bilbao-Terol, C. (2020). Measuring the economic impact of a voluntary sustainable tourism certification. *Sustainability*, 12(13), 5465. <https://doi.org/10.3390/su12135465>
- Blomsma, F., & Brennan, G. (2017). The emergence of circular economy: A new framing around prolonging resource productivity. *Journal of Industrial Ecology*, 21(3), 603–614. <https://doi.org/10.1111/jiec.12603>
- Bocken, N., Short, S., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42–56. <https://doi.org/10.1016/j.jclepro.2013.11.039>
- Bohdanowicz, P., & Zientara, P. (2008). Corporate social responsibility in hospitality: Issues and implications. A case study of Scandic. *Scandinavian Journal of Hospitality and Tourism*, 8(4), 271–293. <https://doi.org/10.1080/1502225080250481>
- Boulding, E. K. (1966). The economics of the coming spaceship earth. In H. Jarett (Ed.), *Environmental quality in a growing economy* (pp. 3–14). Earthscan.
- Bramwell, B., & Lane, B. (1993). Sustainable tourism: An evolving global approach. *Journal of Sustainable Tourism*, 1(1), 1–5. <http://doi.org/10.1080/09669589309450696>
- Christie&Co. (2017). *Nordics: A region of opportunity*. Retrieved March 10, 2019, from [https://www.christie.com/news-resources/press-releases/july-2017-\(1\)/the-nordics-a-region-of-opportunity-for-internat/](https://www.christie.com/news-resources/press-releases/july-2017-(1)/the-nordics-a-region-of-opportunity-for-internat/)
- Cozzio, C. (2019). The concept of sustainability in hotel industry: Current dominant orientations and future issues. *International Journal of Sustainable Development*, 22(1-2), 61. <https://doi.org/10.1504/IJSD.2019.104727>
- De Rosnay, J. (1979). The systemic revolution a new culture. In J. De Rosnay (Ed.), *The macroscope: A new world scientific system* (pp. 56–82). Harper Collins.
- The Ellen MacArthur Foundation. (2012). *Towards a circular economy - Economic and business rationale for an accelerated transition*. Ellen MacArthur Foundation. <https://www.ellenmacarthurfoundation.org/publications/towards-a-circular-economy-business-rationale-for-an-accelerated-transition>
- Espiner, S., & Becken, S. (2014). Tourist towns on the edge: Conceptualising vulnerability and resilience in a protected area tourism system. *Journal of Sustainable Tourism*, 22(4), 646–665. <http://doi.org/10.1080/09669582.2013.855222>
- European Environment Agency. (2016). *Country profile NORWAY 2015 review of material resource efficiency policies in Europe*. European Environment Agency. <https://www.eea.europa.eu/themes/waste/resource-efficiency/resource-efficiency>
- The ExTax project, Cambridge Econometrics, Trucost, Deloitte, EY, KPMG Meijburg, & PricewaterhouseCoopers. (2016). *New era. New plan. Europe. A fiscal strategy for an inclusive, circular economy*. The ExTax project. <http://www.neweranewplan.com/>
- Font, X., & Harris, C. (2004). Rethinking standards from green to sustainable. *Annals of Tourism Research*, 31(4), 986–1007. <https://doi.org/10.1016/j.annals.2004.04.001>
- Geissdoerfer, M., Morioka, S., de Carvalho, M., & Evans, S. (2018). Business models and supply chains for the circular economy. *Journal of Cleaner Production*, 190, 712–721. <https://doi.org/10.1016/j.jclepro.2018.04.159>
- Girard, L., & Nocca, F. (2017). From linear to circular tourism. *Aestimum*, 70. <https://doi.org/10.13128/Aestimum-21081>
- Guix, M., Font, X., & Bonilla-Priego, M. (2019). Materiality: Stakeholder accountability choices in hotels' sustainability reports. *International Journal of Contemporary Hospitality Management*, 31(6), 2321–2338. <https://doi.org/10.1108/IJCHM-05-2018-0366>
- Haaland, H., & Aas, Ø. (2010). Eco-tourism certification – does it make a difference? A comparison of systems from Australia, Costa Rica and Sweden. *Scandinavian Journal of Hospitality and Tourism*, 10(3), 375–385. <http://doi.org/10.1080/15022250.2010.486262>
- Hallin, C. A., & Marnburg, E. (2007). In times of uncertainty in the hotel industry: Hotel directors' decision-making and coping strategies for dealing with uncertainty in change activities. *Scandinavian Journal of Hospitality and Tourism*, 7(4), 364–388. <https://doi.org/10.1080/15022250701695077>

- Helgadóttir, G., Einarsdóttir, A. V., Burns, G. L., Gunnarsdóttir, Gþ, & Matthíasdóttir, J. M. E. (2019). Social sustainability of tourism in Iceland: A qualitative inquiry. *Scandinavian Journal of Hospitality and Tourism*, 19(4–5), 404–421. <https://doi.org/10.1080/15022250.2019.1696699>
- Higham, J., & Miller, G. (2018). Transforming societies and transforming tourism: Sustainable tourism in times of change. *Journal of Sustainable Tourism*, 26(1), 1–8. <https://doi.org/10.1080/09669582.2018.1407519>
- Hodari, D., Balla, P., & Aroul, R. (2017). The matter of encumbrance: How management structure affects hotel value. *Cornell Hospitality Quarterly*, 58(3). <https://doi.org/10.1177/1938965516686116>
- Hofstra, N., & Huisingh, D. (2014). Eco-innovations characterized: A taxonomic classification of relationships between humans and nature. *Journal of Cleaner Production*, 66, 459–468. <https://doi.org/10.1016/j.jclepro.2013.11.036>
- Jackson, T., & Senker, P. (2011). Prosperity without growth: Economics for a finite planet. *Energy & Environment*, 22(7). <https://doi.org/10.1260/0958-305X.22.7.1013>
- Jones, P., Hillier, D., & Comfort, D. (2014). Sustainability in the global hotel industry. *International Journal of Contemporary Hospitality Management*, 26(1), 5–17. <https://doi.org/10.1108/IJCHM-10-2012-0180>
- Jones, P., & Wynn, M. (2019). The circular economy, natural capital and resilience in tourism and hospitality. *International Journal of Contemporary Hospitality Management*, 31(6), 2544–2563. <https://doi.org/10.1108/IJCHM-05-2018-0370>
- Jovicic, D. Z. (2014). Key issues in the implementation of sustainable tourism. *Current Issues in Tourism*, 17(4), 297–302. <https://doi.org/10.1080/13683500.2013.797386>
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions resources, conservation & recycling conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- Korhonen, J., Honkasalo, A., & Seppälä, J. (2018). Circular economy: The concept and its limitations. *Ecological Economics*, 143, 37–46. <https://doi.org/10.1016/j.ecolecon.2017.06.041>
- Lacy, P., Keeble, J., McNamara, R., Rutqvist, J., Eckerle, K., Haglund, T., Buddemeier, P., Cui, M., Sharma, A., Cooper, A., Senior, T., & Pettersson, C. (2014). *Circular advantage – Innovative Business models and technologies to create value in a world without limits to growth*. Accenture. https://www.accenture.com/t20150523t053139_w_/us-en/_acnmedia/accenture/conversion-assets/dotcom/documents/global/pdf/strategy_6/accenture-circular-advantage-innovative-business-models-technologies-value-growth.pdf
- Lewandowski, M. (2016). Designing the business models for circular economy-towards the conceptual framework. *Sustainability*, 8(1), 43. <https://doi.org/10.3390/su8010043>
- Lissner, I., & Mayer, M. (2020). Tourists' willingness to pay for Blue Flag's new ecolabel for sustainable boating: The case of whale-watching in Iceland. *Scandinavian Journal of Hospitality and Tourism*, 20(4), 352–375. <http://doi.org/10.1080/15022250.2020.1779806>
- Lovins, A. (2013) Farewell to fossil fuels answering the energy challenge. In K. Webster, J. Bleriot & C. Johnson, *A new dynamic, effective business in a circular economy* (2nd ed., pp. 61–74). Ellen MacArthur Foundation.
- Lyle, J. (1999). *Design for human ecosystems: Landscape, land Use and natural resources*. Island Press.
- Mai, T., & Smith, C. (2015). Addressing the threats to tourism sustainability using systems thinking: A case study of Cat Ba Island, Vietnam. *Journal of Sustainable Tourism*, 23(10), 1504–1528. <http://doi.org/10.1080/09669582.2015.1045514>
- Manniche, J., Larsen, K., Broegaard, R., & Holland, E. (2017). *Destination: A circular tourism economy*. Centre for Regional and Tourism Research. https://www.researchgate.net/publication/320739252_Destination_A_circular_tourism_economy_A_handbook_for_transitioning_toward_a_circular_economy_within_the_tourism_and_hospitality_sectors_in_the_South_Baltic_Region
- Margaryan, L., & Stensland, S. (2017). Sustainable by nature? The case of (non)adoption of eco-certification among the nature-based tourism companies in Scandinavia. *Journal of Cleaner Production*, 162, 559–567. <https://doi.org/10.1016/j.jclepro.2017.06.060>
- McDonough, W., & Braungart, M. (2009). *Cradle to cradle: Remaking the way we make things*. Vintage.

- Merli, R., Preziosi, M., Acampora, A., & Ali, F. (2019). Why should hotels go green? Insights from guests experience in green hotels. *International Journal of Hospitality Management*, 81, 169–179. <https://doi.org/10.1016/j.ijhm.2019.04.022>
- Ministry of Finance Sweden. (2016). *Strategy for sustainable consumption*. Ministry of Finance Sweden Communications Department. <https://www.government.se/information-material/2016/10/strategy-for-sustainable-consumption/>
- Moreau, V., Sahakian, M., van Griethuysen, P., & Vuille, F. (2017). Coming full circle: Why social and institutional dimensions Matter for the circular economy. *Journal of Industrial Ecology*, 21(3), 497–506. <https://doi.org/10.1111/jiec.12598>
- Mzembe, A., Lindgreen, A., Idemudia, U., & Melissen, F. (2020). A club perspective of sustainability certification schemes in the tourism and hospitality industry. *Journal of Sustainable Tourism*, 28(9), 1332–1350. <https://doi.org/10.1080/09669582.2020.1737092>
- Ng, A. W., & Tavitiyaman, P. (2020). Corporate social responsibility and sustainability initiatives of multinational hotel corporations. In *World sustainability series* (pp. 3–15). Springer. https://doi.org/10.1007/978-3-030-26759-9_1
- O'Neill, J., & McGinley, S. (2014). Operations research from 1913 to 2013: The ford assembly line to hospitality industry innovation. *International Journal of Contemporary Hospitality Management*, 26(5), 663–678. <https://doi.org/10.1108/IJCHM-08-2013-0331>
- Pauli, G. (2011). *From deep ecology to the blue economy*. Zeri. http://www.zeri.org/ZERI/Home_files/From%20Deep%20Ecology%20to%20the%20Blue%20Economy%202011.pdf
- Pearce, D. W., & Turner, R. K. (1990). *Economics of natural resources and the environment*. Harvester Wheatsheaf.
- Pedersen, K., Westman, S., Bülte, B., & Rentsch, M. (2017). *The hospitality market in Scandinavia Overview and challenges faced by hotel operators*. Price Waterhouse Coopers. Retrieved April 3, 2019, from <https://www.pwc.ch/en/publications/2017/hospitality-market-scandinavia.pdf>
- Pförr, C. (2001). Concepts of sustainable development, sustainable tourism, and ecotourism: Definitions, principles, and linkages. *Scandinavian Journal of Hospitality and Tourism*, 1(1), 68–71. <https://doi.org/10.1080/15022250127788>
- Raworth, K. (2017). *A doughnut for the anthropocene: Humanity's compass in the 21st century*. The Lancet planetary health. Elsevier B.V. [https://doi.org/10.1016/S2542-5196\(17\)30028-1](https://doi.org/10.1016/S2542-5196(17)30028-1)
- Rose, C., & Stegemann, J. (2019). Characterising existing buildings as material banks (E-BAMB) to enable component reuse. *Proceedings of the Institution of Civil Engineers: Engineering Sustainability*, 172(3), 129–140. <https://doi.org/10.1680/jensu.17.00074>
- Sandve, A., & Øgaard, T. (2013). Understanding corporate social responsibility decisions: Testing a modified version of the theory of trying. *Scandinavian Journal of Hospitality and Tourism*, 13(3), 242–256. <https://doi.org/10.1080/15022250.2013.818188>
- Saunders, M., Lewis, P. & Thornhill, A. (Eds.). (2016). *Research methods for business students*. (7th ed.). Pearson Education Limited.
- Schröder, P., Lemille, A., & Desmond, P. (2020). Making the circular economy work for human development. *Resources, Conservation and Recycling*, 156, 104686. <https://doi.org/10.1016/j.resconrec.2020.104686>
- Sitra. (2017). *Leading the cycle, Finnish roadmap to a circular economy 2016-2025*. Sitra. <https://www.sitra.fi/en/publications/leading-cycle/>
- Smith, J. M. C. (2018). *Transforming travel: Realising the potential of sustainable tourism*. CABI.
- Stahel, W. R. (2013). The business angle of a circular economy higher competitiveness, higher resource security and material efficiency. In K. Webster, J. Bleriot, & C. Johnson (Eds.), *A new dynamic, effective business in a circular economy* (2nd ed., pp. 45–60). Ellen MacArthur Foundation.
- State of Green. (2016). *Circular economy Denmark as a circular economy solution hub*. Retrieved December 5, 2018, from <https://stateofgreen.com/files/download/10574>
- UNWTO. (2018). *Tourism and the sustainable development goals – Journey to 2030*. World Tourism Organization. <https://www.unwto.org/global/publication/tourism-and-sustainable-development-goals-journey-2030>

- UNWTO. (2019). *Baseline report on the integration of sustainable consumption and production patterns into tourism policies*. World Tourism Organization. <https://www.e-unwto.org/doi/book/10.18111/9789284420605>
- Urbinati, A., Chiaroni, D., & Chiesa, V. (2017). Towards a new taxonomy of circular economy business models. *Journal of Cleaner Production*, 168, 487–498. <https://doi.org/10.1016/j.jclepro.2017.09.047>
- Weaver, D. (2011). Can sustainable tourism survive climate change?. *Journal of Sustainable Tourism*, 19(1), 5–15. <http://doi.org/10.1080/09669582.2010.536242>
- Webster, K., Bleriot, J. and Johnson, C. (Eds.). (2013). *A new dynamic: Effective business in a circular economy*. (2nd ed.). Ellen MacArthur Foundation.
- Wijkman, A., & Skanberg, K. (2015). *The circular economy and benefits for society Swedish case study shows jobs and climate as clear winners*. The Club of Rome. <http://wijkman.se/wp-content/uploads/2015/05/The-Circular-Economy-and-Benefits-for-Society.pdf>
- Wood, M. E. (2017). *Sustainable tourism on a finite planet. Sustainable tourism on a finite planet*. Routledge.
- Wood, M. E., Milstein, M., & Ahamed-Broadhurst, K. (2019). Destinations at risk: The invisible burden of tourism. *The Travel Foundation*. <https://www.thetravelfoundation.org.uk/invisible-burden/>
- WTTC. (2018). *Travel & tourism global economic impact & issues*. World Travel & Tourism Council. <https://www.wttc.org/-/media/files/reports/economic-impact-research/documents-2018/global-economic-impact-and-issues-2018-eng.pdf>
- Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). SAGE Publications.
- Zink, T., & Geyer, R. (2017). Circular economy rebound. *Journal of Industrial Ecology*, 21(3), 593–602. <https://doi.org/10.1111/jiec.12545>

Appendix A. Interview questions list

- Q1:** What is your understanding of the circular economy and do you think its application to your operations can create value?
Probe: Do you think it is different from the sustainability terminology and concept? Probe: Are you interested in the framework personally? Professionally?
- Q2:** Do you think education is important in popularising the circular economy towards consumers, employees and suppliers?
Probe: What would be the best approach to educate consumers, employees and suppliers about the circular economy?
- Q3:** Can marketing communications position the hotel (s) circular economy initiatives as market differentiators towards suppliers and consumers?
Probe: Can this differentiation command a premium pricing from consumers?
- Q4:** Are labour, fiscal and environmental regulations important in encouraging circular economy initiatives in your operations?
Probe: Which regulations are the most impactful?
Probe: Do you think Environmental Management System and environment reporting, communication are powerful tools as well?
- Q5:** Do you think that environmental impacts reporting influences your supply chain management decisions?
Probe: Would stricter compulsory environmental reporting push you to consider more environmentally conscious operations?
- Q6:** How are waste management costs and regulations impacting the hotel operational and financial performances?
Probe: Do you see those impacts growing in the future?
Probe: Any specific waste category you can identify as the most critical to manage?
Probe: What innovative, collaborative actions are you taking to reduce these costs?
- Q7:** How important to the financial, operational and environmental performances are water and energy costs management?
Probe: What actions are you taking to reduce these costs?

Q8: Do you think that decoration, refurbishment and waste management costs can be reduced by innovative, (collaborative) commercial agreements with your suppliers?

Probe: Can you give examples?

Q9: What are the advantages and disadvantages of leasing, product as service agreements with your suppliers and how are these agreements related to circular economy initiatives?

Probe: For which goods and services are these most appropriate? AV equipment, bedroom/ public / service areas furniture, kitchen equipment?

Probe: Do you think such agreements can help your environmental and financial performance?

Probe: How can such agreements reduce your waste management costs,

Q10: Do you think that business to business tangible goods and assets sharing agreements are deployable between competing hotel operators?

Probe: How can this be beneficial for all participating actors?

Probe: What are the necessary conditions to implement such scheme successfully?

Probe: What about between properties part of the same brand, group?

Q11: Do you think that sourcing second life, locally repaired goods such as furniture, F&B equipment, IT and AV equipment can provide value for the hotel and the local economy?

Probe: Do you see such procurement approach becoming the norm in the future?

Q12: Do you think that locally sourced food items, on property food production can create value for the hotel, your customers, your suppliers and the local economy?

Probe: Can you elaborate?

Probe: Do you think that there are also environmental benefits in sourcing locally?

Q13: Do you think that the separation between hotel real estate asset owners and hotel operators dilutes hotel assets owners and operators environmental and social responsibilities?

Probe: Can you elaborate?

Probe: Is this model an obstacle in realising buildings efficiencies and energy, water consumption reduction potential?

Q14: Any other thoughts on circular economy and your hotel operations and supply chain?