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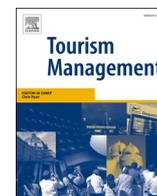Rob Law

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ABSTRACT

This study is amongst the first applications of digital business models (BMs) research to the travel industry. A systematic and comprehensive taxonomy of digital BM configurations in the travel industry is developed, supported by examples of real-world companies. Based on qualitative research, 53 digital BMs are identified and classified based on primary value drivers, including 10 novel configurations that are absent from previous studies. The paper contributes to framing digital BM configurations in the travel industry and supports establishing a common understanding among scholars. From the practical side, this study offers templates for building or transforming BMs and could serve as a guide to the current digital travel business landscape.

1. Introduction

The adoption of digital technologies has fundamentally changed the travel industry. Since the introduction of the first global distribution system (GDS), new information and communication technologies (ICTs) have continuously affected the travel industry, with several waves of fundamental transformations initiated by ICT adoptions (Buhalis & Law, 2008; Mitas, van der Ent, Peeters, & Weston, 2015). The most recent wave of technological transformation has been named as digitalization, which has generated a shift in the entire travel ecosystem (Solvoll, Alsos, & Bulanova, 2015). In their *Life in the Digital Vortex*, Shan, Wade, and Noronha (2017) show that education, hospitality and tourism, and manufacturing are the industries that are now experiencing the greatest levels of digital disruption. The nascent digital travel industry is characterized by customer-centricity and a high degree of personalization (Skift, 2018) and by a boom in online distribution (World Economic Forum, 2017), including mobile channels.

Technological changes present an array of business opportunities but also a new set of threats (Iansiti & Lakhani, 2014; Buhalis & Law, 2008). The global economy, advancement in ICTs and increasing customer expectations have created a new landscape for business (McKinsey Center for Business Technologies, 2012; Mitas et al., 2015). In this new context, digital transformation is strategically important and even critical for companies (Höttges, 2017), which must constantly innovate to avoid falling behind (Dahlman, 2007). The limited resources of

traditional business models (BMs) cannot answer the challenges of the new digital environment (Mitas et al., 2015). To meet the challenges of the new digital environment, companies must therefore foster digital transformation, including a reinvention of operating models, skills, and organizational structures (Markovitch & Willmott, 2014). In these conditions, devising and implementing innovative BMs is essential for travel companies to achieve a competitive advantage (Souto, 2015) and is therefore a critical point for success in the digital travel business.

The process of digitalization has seen the emergence of innovative travel companies with new BMs in the travel industry. Hopper provides a mobile app that supplies predictions of airline ticket price fluctuations; the accommodation search engine Trivago compares prices among online travel agencies (OTAs); the digital law agencies AirHelp and ClaimCompass help customers to claim compensation from airline companies. A number of these companies have adopted some variation of a platform BM (Viglia, Werthner, & Buhalis, 2016). For instance, JetSmarter is a service for sharing private flights and making charter flight bookings; TripTogether is a social platform for collaborative travel planning; and Viator is a worldwide marketplace of local tours and excursions. These companies would hardly exist without digital technologies, which are at the very core of their BMs.

Researchers in the tourism field have confirmed the current trend of the widespread emergence of new BMs that have a high degree of competitiveness and even pose existential risks for traditional ones (e.g., Hsu, King, Wang, & Buhalis, 2017; Mitas et al., 2015). However, no

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systematic identification of the digital BM configurations in the travel industry has been performed, and it remains unclear how these new travel businesses operate. Current literature on the digital travel industry omits meaningful typologies and classifications of BMs and their value creation and capture mechanisms (Reinhold, Zach, & Laesser, 2020). With building a new BM recognized as a critical part of the digital transformation of businesses (Berman, 2012), investigation of the digital BMs that are forming is essential for understanding the impact of digitalization on the industry. Research into digital BMs is needed to fathom the scope of the changes associated with digital disruption and major recent technological innovations. Examining new digital BM configurations in the travel industry and their core elements can also contribute to the discovery of new ways of building competitive advantages, creating value and generating revenue. Furthermore, such research supports industry–education synergy and plays a role in mapping out the modern digital tourism ecosystem.

This study therefore investigates the digital BM configurations that exist in the travel industry. The research objectives are as follows:

1. to identify and to classify digital BM configurations in the travel industry;
2. to analogize these digital BM configurations with those in the literature;
3. to describe digital BM configurations that have not been presented in the literature.

2. Literature review

2.1. Concepts of business models and digital business models

The use of the term 'BM' is now popular among managers, consultants and scholars. However, even a cursory analysis of the sources reveals that the term is used to refer to a range of phenomena. According to research by Zott, Amit, and Massa (2011), the use of the term in academic and non-academic journals began in the period of 1975–1980. DaSilva and Trkman (2014) and Novak (2014) both noted that the first academic paper to use the term *business model* was published in 1957, and the number of mentions and specific academic studies on BM has grown ever since (DaSilva & Trkman, 2014). Although it was initially perceived as a mere buzzword (Magretta, 2002; Ghaziani & Ventresca, 2005; Seddon, Lewis, Freeman, & Shanks, 2004), a significant increase in the use of the term *business model* in the text and titles of academic papers began in 1995 (Zott et al., 2011) and continued afterwards (DaSilva & Trkman, 2014; Massa, Tucci, & Afuah, 2017; Novak, 2014). Since the focus of the study is digital BMs, the literature review embraces a large segment of studies on BMs in Information Systems.

The meaning of the BM concept has evolved in the literature, with significant changes in the definition of a BM over time. Earlier studies tended to define BM in parallel with the term *strategy* (Porter, 2001; Magretta, 2002) or as a component of business strategy (Chesbrough & Rosenbloom, 2002), whilst recent studies have tended to define a BM as the logic of value creation and the coordination of business resources. In general, the term implies a way of doing business (DaSilva & Trkman, 2014). Following recommendations of George and Bock (2011) to combine theoretical frameworks for BM research, this study adopts a definition by Zott and Amit (2010): a BM is a "set of activities, as well as the resources and capabilities to perform them - either within the firm, or beyond it through cooperation with partners, suppliers or customers." (p. 217). This view on BMs includes resources and value structure as well as transactions and activities.

Scholars have pointed out that academics and practitioners frequently misuse and misunderstand what is meant by a BM. Chesbrough and Rosenbloom (2002), DaSilva and Trkman (2014), Zott and Amit (2013), Fjeldstad and Snow (2018) and Magretta (2002) reported that BM has been often confused with other terms, such as *strategy, economic model, revenue model, business concept, organizational design,*

and *business processes*. Specialists have described a BM as an intermediate layer between strategy and business processes (Morris, Schindehutte, & Allen, 2005; Veit et al., 2014). The term *revenue model* refers to the revenue sources, including their volume and distribution (Amit & Zott, 2001), and researchers consider this to be a component of BM (DaSilva & Trkman, 2014).

The concept of digital BMs is also interpreted differently by different academics. Some researchers simply equate digital BMs to BMs driven by a single technology. For instance, some studies have interpreted a digital BM as equal to an Internet-of-Things BM (e.g., Fleisch, Weinberger, & Wortmann, 2014). Katunskis and Neamtu (2016) introduced the digital BM concept from an Industry 4.0 perspective. A few researchers used the term *digital business model* as a synonym of e-business (e.g., Novak, 2014). Veit et al. (2014, p. 48) defined a BM as a digital BM 'if changes in digital technologies trigger fundamental changes in the way business is carried out and revenues are generated'. This definition was adopted for this study, because it reflects the significance and depth of the changes that the adoption of ICTs have wrought to traditional ways of doing business in the travel industry. From this perspective, the concept of digital BMs may incorporate BM configurations interpreted in various frameworks as e-BMs, IT-enabled, and Internet-based BMs.

2.2. BM configurations and value drivers approach

The description of a kind of BM is called a BM configuration or BM pattern. BM configuration is "a stripped-down characterization that captures the essence of the cause-effect relationships between customers, the organization and money" (Baden-Fuller & Mangematin, 2013, p. 419). Researchers have grouped, classified and compared BM configurations based on their characteristics, context and dimensions, both within and across industries. Several typologies and taxonomies of BMs are limited to a particular industry or by some other criteria: for example, Timmers (1998) listed 11 types of e-BMs, Fleisch et al. (2014, 2015) identified BM configurations for the Internet-of-Things, whilst Lüdeke-Freund, Carroux, Joyce, Massa, and Breuer (2018) created a taxonomy of 45 sustainable BM configurations. Other academics are primarily concerned with the development of generic taxonomies of BM configurations that can be found across industries.

Unlike BM typologies, BM taxonomies are built on empirical data (Lambert, 2006; Baden-Fuller & Morgan, 2010). Valid and reliable BM taxonomies should be based on sound underlying criteria (Taran, Nielsen, Montemari, Thomsen, & Paolone, 2016). Two theoretical frameworks for BM taxonomies have become common among scholars: Business Model Navigator (BM Navigator) by Gassmann, Frankenberger, and Csik (2014) and the 5-V framework of Taran et al. (2016). These two taxonomies partially overlap, with several BM configurations listed in both, but for the most part there is little repetition. Based on a comparison of the BM configurations listed in both taxonomies, these frameworks are complementary to some extent.

The BM Navigator (Gassmann et al., 2014) is a well-known tool for BM classification. This framework is based on four dimensions: who (the target customer segment); what (the value proposition for this target customer segment); how (the value chain used to carry the value proposition); and why (the profit mechanism, revenue model). Gassmann et al. (2014) identified and described 55 actual BM configurations based on these four dimensions, and their classification scheme has been applied in academic and practitioner studies (see Turber & Smiela, 2014; Fleisch et al., 2014, 2015).

The 5-V framework (Taran et al., 2016) was developed based on a systematic literature review and lists 71 BM configurations. Each possible BM configuration is driven by one of five value drivers: value proposition, value segment, value configuration (core resources, activities and distribution channels), value network (partners for collaboration) or value capture (revenue model). Unlike components or building blocks of BMs, value drivers show the core part that "drives" value creation in the BM configuration. They could be any factor or source (for

example, an activity or competence) that enhances the total value created and delivered by a company (Amit & Zott, 2001; Taran et al., 2016). Value drivers show a source of differentiation that provide a company's business model competitive advantages (Mishra, 2017, pp. 91–145). Different authors identify different key value drivers for BMs. Originally introduced by Amit and Zott (2001), value drivers included efficiency, complementarities, lock-in, and novelty. Sustainability, cybersecurity and improved customer experience may be examples of value drivers for Internet-of-Things BMs (Westerlund, Leminen, & Rajahonka, 2014). Mishra (2017, pp. 91–145) pointed out management logics, core resources, value opportunities, and value activities as value drivers for BMs. Five value drivers in the 5-V framework by Taran et al. (2016) are largely based on previous studies. For instance, value drivers identified by Amit and Zott (2001) are associated with value drivers in 5-V framework (lock-in is included into value segment, novelty – value proposition, and etc.). The definitions of each value driver in the 5-V framework are provided in Table 3.

Although this BM framework is relatively new, it has already proved its reliability in describing and mapping BM configurations. Thus, the five -V-framework was applied in studies by Aranha, Garcia, da Silva, and Santos (2017) and Nielsen and Dane-Nielsen (2019). In comparison, to BM Navigator and other frameworks, it shows a number of advantages for adoption. First, Taran et al. (2016) largely summarize other frameworks and lists of BM configurations including the BM Navigator by Gassmann et al. (2014). Second, its value drivers approach gives an opportunity to reveal a key factor of competitiveness in the market, the source of differentiation and to classify BM configurations.

2.3. BM configurations in the travel industry

The emergence of new BMs in the travel industry gives rise to the need to identify its particular set of BM configurations. Recent overviews of BM studies in tourism by Reinhold, Zach, and Krizaj (2017, 2019) show that the vast majority of papers have investigated some topic related to BMs, rather than being focused on identifying BM configurations. Nonetheless, a few attempts have been made to identify and classify BM configurations in tourism. Among these studies, airline companies have attracted the most research attention: for instance, Papatheodorou and Lei (2006), Frank (2011) and Diaconu (2012), Magdalina and Bouzaima (2021) investigated BM configurations and their effectiveness among airports and airlines, and Reinhold, Beritelli, and Grünig (2019) and Linton and Öberg (2020) developed typologies of destination management organizations, Freytag and Hjalager (2021) analyzed food tourism BM configurations. However, these classification efforts have been very narrow in their focus on a single sector of the industry.

Digital BM configurations in the travel industry have been even less well investigated than other BM-related topics. Kreinberger, Thinnes, and Timmermans (2014) have suggested a taxonomy of BMs for the re-use of digital public content for tourism. This taxonomy has an applied character and includes eight BM configurations. Daniele and Frew (2006) specified five BM configurations in an article focused on online travel intermediaries: agency (the online intermediary deducts a commission from each sale); merchant (marking up the price negotiated with suppliers); distressed inventory (focusing only on last minute bookings); demand collection (accepting trade-offs between suppliers and customers); and comparison shopping (offering price comparison across suppliers). Based on an overview of the general architecture of a tourism enterprise, Schmidt et al. (2017) suggested four models of tourism enterprises that were being enabled by the application of ICTs: omnichannel businesses, ecosystem drivers, suppliers and modular producers. However, as the authors themselves admitted, this classification does not represent underlying digital capabilities, nor is it of a conceptual nature. The recent study by Reinhold et al. (2020) presents a historical overview of the e-BM development of B2C online travel service providers. E-BMs evolved from the predominance of commerce-type models to the emergence of content-type and context-type models and to the current diversity of e-BMs, their hybridization and the growth of platform-based BMs.

2.4. Taxonomy as scientific knowledge

Taxonomy development is one of the classic means of organizing and acquiring scientific knowledge. Scholars highlight multiple sides of the importance and significance of taxonomy as scientific knowledge.

First of all, a taxonomy as a classification meets the need to frame. The importance of a taxonomy is to demarcate a kind (one group of entities) from all other entities (Hodgson, 2018). Similar to taxonomies in other fields such as biology where animals are organized into kinds, taxonomies in the management field and, for instance, in the BM research, help to organize into kinds based on similarities and differences (Baden-Fuller & Morgan, 2010). It reduces the complexity of a domain by structuring of domain's objects. (Ko & Gillani, 2020). Secondly, taxonomy development serves to unify language among scientists. Thus, a taxonomy supports communication and establishing common understandings (Hodgson, 2018). Thirdly, taxonomies provide a base for further theory generation. Unlike deductive methods, an empirically-developed taxonomy permits the development of a testable and rigorous theory (Hodgson, 2018). For instance, Lambert (2006) stresses the need for inductively-developed taxonomies of BMs through grounded theory for subsequent generalization and theory development in this field. Fourthly, the demarcative quality of taxonomies can be used for various research applications. Thus, entities may be further investigated within kinds as well as among kinds (Lambert, 2006). Fifthly, the nature of taxonomies gives them the ability to be updated over time. Regardless of a field of study, whether biology or management, a taxonomy has no fixed number of kinds and may grow and incorporate new entities (Baden-Fuller & Morgan, 2010; Lambert, 2006).

Taxonomy development as theory building requires necessary criteria for evaluation. Since taxonomies help to explain similarities and differences among objects, a taxonomy should have certain qualities and sufficiently describes and classifies objects in a specific domain of interest. Nickerson, Varshney, and Muntermann (2013) proposed the following taxonomy evaluation criteria: conciseness, robustness, comprehensiveness, extensibility, explanatory power. Although this framework is relatively new and criteria are subjective, it widely accepted framework (Szopinski, Schoormann, & Kundisch, 2019). Recently, Szopinski, Schoormann, and Kundisch (2020, pp. 5056–5065) have recommended supplementing this framework with usefulness and applicability. Combining these two frameworks, the study adopts seven evaluation criteria for the taxonomy.

3. Methodology

3.1. Research approach

This study adopted pragmatic grounded theory as research approach. The choice of scientific paradigm for research should be led by a research question (Saunders, Lewis, & Thornhill, 2009). Because the research question that guides this study entailed uncovering the various models that are effective in the given context, it was critical to accept the possibility of multiple points of view and at the same time condense these views into a single reality. Therefore, a pragmatic research paradigm was considered particularly well-suited to this study. Pragmatism states that no theory or perspective can explain reality fully, and thus endorses pluralism (Tashakkori & Teddlie, 2010), a critical mode of thought and an orientation toward the applicability of findings (Maxcy, 2003). In addition, filling the research gap identified in the literature review demanded a theory-building approach, therefore the grounded theory method was adopted. Grounded theory is a common research method in the social sciences that was first introduced by Glaser & Strauss, 1967 as an alternative to classical grand theory approaches. In

contrast with other approaches, grounded theory is not required to choose a certain theoretical framework before data collection (Corbin & Strauss, 2008; Strauss & Corbin, 1998). As a specific type of grounded theory, the pragmatic approach combines both inductive and deductive methods. Strübing (2007) described the research process of pragmatic grounded theory in terms of a continuous movement from data to hypothesis and back to data.

3.2. Data Collection

This study took a qualitative approach. The preliminary step was the collection of secondary data to draft a pool of possible participants. This secondary data was sourced from freely accessible documents, including news items from professional media outlets, market analytics reports, business research reports and reports from international non-governmental and intergovernmental tourism organizations. Based on the analysis at the preliminary step, sampling technique and selection criteria were settled and possible participants were selected and invited for the interview.

A stratified purposive sampling technique was used to select interview participants. Given the diversity of stakeholders in the digital travel space, it was decided that as large a range of possible opinions should be collected from representatives of various groups of experts and practitioners. The stratification technique was thus seen as the most suitable because of its capacity to attain a full picture of a research phenomenon (Orcher, 2016). The selection criteria and sub-groups (strata) were chosen to maximize the representation of various points of view from across the travel industry. The criteria for stratification was occupation, with three groups of participants: (a) leaders of digital travel businesses (CEOs, COOs, managing directors, presidents, executive vice presidents and founders of digital travel companies with at least 2 years of experience in the digital travel business); (b) leaders of digital travel

accelerators and incubators (managing directors, CEOs and COOs with at least 2 years of experience in the digital travel business); and (c) tourism market experts (business researchers, journalists and consultants in the digital travel business with at least 7 years of experience).

3.3. Sample

The interviewees had diverse sociodemographic characteristics. Details of the age, gender, level of education and location of the participants are shown in Table 1. The participants' ages ranged from 24 to 63 years, although some participants preferred to state an age range rather than give their exact age. Most participants were male, which represents the current gender balance among leaders in the digital travel industry. The level of education varied from high school to doctoral degree, although most had completed a postgraduate or higher degree. The participants had a mean of 14.4 years of experience in the travel industry.

Thirty-five participants were interviewed for the study; each was the sole representative of his or her company. Twenty-seven participants were digital travel business leaders, three were leaders of travel accelerators and incubators, and five were market experts. The uneven distribution of participants across these three occupational groups was reflective of the target population: for instance, the group of digital travel business leaders was significantly larger than the others due to the predominance of digital travel businesses in the tourism ecosystem. From a geographical perspective, the participants and their companies are based in multiple countries that represent diverse regions and cultures. This study had no regional perspective, so the representation of participants from various parts of the world was crucial.

Table 1
Profiles of participants.

ID	Location	Age	Gender	Education level	Industry exp. (yrs)	Occupation strata	Interview language
P1	Melbourne	40	F	MBA	2	Business	English
P2	Sydney	63	M	MBA	43	Market Expert	English
P3	Sydney	30–40	M	MBA	5	Business	English
P4	Sydney	36–45	M	MBA	7	Business	Russian
P5	Tallinn	31	M	Postgraduate	14	Business	Russian
P6	Hong Kong	36–45	M	Master's	10	Business	English
P7	Melbourne	49	F	Postgraduate	9	Business	English
P8	Hong Kong	36–45	M	Doctoral	20	Expert	English
P9	Assam	29	F	Bachelor's	2	Business	English
P10	New Delhi	31	M	Bachelor's	5	Business	English
P11	Istanbul	24	M	Bachelor's (incomplete)	3	Business	English
P12	Almaty	51	M	Higher	3	Business	Russian
P13	Gdansk	37	M	Master's	15	Business	English
P14	Breda	57	M	Master's	38	Market Expert	English
P15	Ljubljana	31	M	Master's	16	Business	English
P16	Jerusalem	37	M	MBA	30	Business	English
P17	Dornbirn	41	M	Bachelor's	19	Business	English
P18	Singapore	36–45	M	College	7	Business	English
P19	London	45	M	Undergraduate (incomplete)	11	Business	English
P20	Munich	58	M	University (higher)	34	Business	English
P21	Toronto	53	M	Bachelor's	30	Business	English
P22	Johannesburg	32	M	Postgraduate	9	Business	English
P23	Barcelona	45	M	Bachelor's	20	Business	English
P24	Tel Aviv-Yafo	38	M	Bachelor's	11	Business	Russian
P25	Jacksonville, Florida	44	F	Bachelor's	15	Business	English
P26	São Paulo	36–45	M	Doctoral	13	Business	English
P27	Moscow	33	M	Higher (incomplete)	7	Market Expert	Russian
P28	Phuket	25	M	Higher	7	Business	Russian
P29	San Francisco	62	M	Bachelor's	36	Expert	English
P30	San Francisco	44	M	High school	20	Business	English
P31	New York	49	M	MBA	18	Business	English
P32	Mexico	32	M	MBA	4½	Business	English
P33	Shannon	39	M	MBA	5	Accelerator	English
P34	Tel Aviv	48	M	MBA	15	Accelerator	English
P35	New York	26–35	M	College degree	2	Accelerator	English

3.4. Interviews

This study had an exploratory character, for which semi-structured interviews were adopted as the most suitable research method. In general, interviews give opportunities for a detailed investigation and in-depth understanding of the context through the perspective of individual participants (Ritchie, Lewis, Nicholls, & Ormston, 2013). Semi-structured interviews feature an overall topic, general themes, selected issues and specific questions (Lee, 1999); they are more flexible than structured interviews, but more focused on a subject than unstructured interviews. For example, semi-structured interviews allow for the use of clarifying questions and for verification of the correctness of the interviewer's understanding by summarizing explanations back to the participant (Saunders et al., 2009).

Followed the recommendations of Hennink, Hutter, and Bailey (2011), the interviews were structured into four sections: terminology reconfirmation, opening questions, key questions and closing questions. The first section - terminology reconfirmation - ensured that the interviewer and interviewee agreed on the meaning of key terms. Definitions of three terms (*Digitalization, BM configuration, Digital BM*) were presented to each participant in a written or oral way. In response, interviewees could agree, correct the given definitions or suggest their own definitions. The second section of the interview - opening questions – aimed to establish a rapport with the interviewee and provided support to the narrowing of the interview to the key questions posed in the remaining sections. Opening questions were broadly related to the topic of the interview, for example, "*How would you describe the influence of digitalization on BMs in the travel industry?*" The third and main section of the interview asked key questions to collect data to examine digital BMs in the travel industry:

- (*for Digital Travel Business Leaders*) What is a BM of your current company? Previous companies? BMs of your competitors?
- (*for Travel Accelerators & Incubators Leaders*) What BMs did you face in your experience? What are the BMs of companies in your accelerator/incubator?
- (*for Market Experts*) What BMs did you face in your experience?
- Could you describe each digital BM configuration in the travel industry you are familiar with?
- What are the primary value drivers of each digital BM in the travel industry that you have described?
- Could you please provide examples of companies for each digital BM configuration from the real world?

The first question from this section had a narrative perspective and was adapted to each stratum of the sample due to the different experiences and qualifications of the groups of participants. The use of questions with a narrative perspective gives advantages to clarify different facets of research issues through personal stories and reveal complementary perspectives for researchers (Flick, 2004). In addition to the abovelisted questions, the procedure for conducting interviews included clarifying questions and tests of the correctness of understanding by summarizing explanations provided by the participant (Saunders et al., 2009) as it is allowed by the format of a semi-structured interview. The test of understanding gives an opportunity for the interviewee to evaluate the sufficiency and accuracy of the interpretation and correct if necessary (Healey & Rawlinson, 1994). The closing section of the interview collected personal information about the participant, including their demographic details and professional background.

The data collection process was considered complete at the moment of data saturation. Saturation means the collection of sufficient and redundant data that include information about all investigated aspects (Morse, Barrett, Mayan, Olson, & Spiers, 2002). In the grounded theory approach, a theory might be developed to the point when no new themes and categories emerge (Corbin & Strauss, 2008; Glaser & Strauss, 1967). When the interviews were no longer providing new observations, it was decided that data saturation had been reached and data collection considered complete (see Dingwall, Murphy, Watson, Greatbatch, & Parker, 1998). The data analysis process began immediately after collecting the records of the interviews. The details of the data analysis process are provided in the following section.

3.5. Data analysis

The study adopted a qualitative method of content analysis. Unlike the basic and interpretive approaches to content analysis, the qualitative (thematic) content analysis uses systematic techniques for the analysis of texts, focused not only on manifest content but also latent content (themes and core ideas) (Drisko & Maschi, 2015). The qualitative content analysis does not employ any statistical methods.

The data analysis process combined inductive and deductive methods of analysis. Combining inductive and deductive techniques provides the benefits of both and increases the validity and reliability of the findings. The inductive part involved the derivation of codes, categories and themes from the data, whilst the codes and categories for the deductive analysis were elaborated from the literature. The development of the categorization matrixes followed Mayring's (2014) systematic framework. Although this framework is relatively new, its reliability has already been proved in academic studies by Moradi and Vagnoni (2018), Szűcs (2018), and Yanes, Zielinski, Diaz Cano, and Kim (2019) and others. No software was used for the inductive part of the analysis; the deductive part was undertaken with the assistance of NVivo 11.

Text coding started from highlighting and labelling key segments, following by their summarization into themes. For example, highlights about a primary value driver regarding the Metasearch Platform configuration included 'shows you [client] the lowest price' (P8), 'offers a lot of transparency in terms of information' (P32), 'it's easy to use, you have a better user experience' (P9) and others. They were organized into themes of easy-to-use, transparency, usability and economy. Since all these themes are product-related, value proposition is assigned as the primary value driver of the Metasearch Platform configuration. To check the reliability of encoding, two researchers independently encoded randomly selected interview transcripts. After the discussion of inconsistencies, coding rules were adjusted to derive reliable consistent coding results. The process of comparison and analogization with findings in previous literature started after the end of data analysis when all 53 BM configurations were identified and described.

4. Findings

4.1. BM configurations in the travel industry

The identification of digital BMs in the travel industry revealed 53 configurations. Table 2 lists these BM configurations with examples of companies that operate under each BM and the number of participants that described each of the models during the interviews. The interviewees noted that the BM configurations are flexible and could be adjusted to fit a given context and business idea. At the same time, all revealed configurations fit the adopted definition of digital BMs and the criteria of fundamental changes caused by adoption of ICTs. It is also important to note that BM configurations could be implemented for both the B2B and B2C sectors and that they are also applicable for non-profit organizations. Examples are not provided for the Customer Data Monetization configuration because it might be considered unethical. In cases of multiple BM within one company, BM configurations are presented separated and specific business units are provided as their examples.

The BM configuration to which the participants most commonly referred was the OTA; 14 interviewees mentioned this particular configuration. They confirmed that OTA is the most popular BM configuration in the digital travel ecosystem: '*OTA is very dominant in*

Table 2

Taxonomy of digital business model configurations in the travel industry.

Business model configuration	n	Example companies	In existing literature
Online Travel Agency (OTA) (Sub-types: Merchant/Agent)	14	Expedia; Booking.com; Yatra; MakeMyTrip; Travelata; Level Travel; CTrip; ROOMKEY	E-shop (T)
Affiliate (Lead generator)	9	Travel Noire; OneDollarTrips; Y Travel Blog; Local Adventurer	Brokerage (T)
Online Travel Marketplace (OTM)	7	WeTravel; Get Your Guide; Viator; TourRadar; KLOOK; KKday; withlocals.com; Isratourist	Shop in Shop (G), E-mall (T)
Facilitator (Solution Provider)	7	YouLi; TripHero	Value Chain Service Provider (T), Layer Player (G)
Metasearch Platform	7	Skyscanner; Trivago; Momondo; GDX; Rome2Rio; Kiwi.com; Kayak	Comparison shopping (Daniele & Frew, 2006)
Display Advertising	6	Conde Nast Traveler	Advertising (Rappa, 2004)
SaaS (Software-as-a-Service)	6	Hotailors; Bókun; FareHarbor; Sift Science; Peakwork; Traveltainment; BoxEver; BD4Travel	Ojala (2012)
E-commerce	6	Melbourne Observation Wheel; Lake Constance DMO	Digitization & E-commerce (G)
Sharing Platform (Peer to Peer/P2P Platform)	6	BlaBlaCar; Grab; AirBnB; GetMyBoat; JetSmarter; Uber; Stasher; Bounce	Peer-to-Peer (G, T)
Mass Customization (Dynamic Packaging)	5	X-TUI; Hotelplan; Holidays.ch; Lufthansa Holidays; Vacations by Marriott; RoutePerfect	Mass Customization (G), Mass-customized Commodity (T)
Subscription (Membership)	4	SkyHi; Bidroom; FinalPrice	Subscription (T,G)
White Label	4	TRAVELfusion	White Label (G, T)
Cross-selling (Cross bundling)	4	Frontier Airlines	Cross-selling (G)
Expertise Monetization	4	AirHelp; Trivago	Inside-out (T)
Infomediary (Content aggregator)	4	Trip101; Mezi; National Geographic	Infomediary (T)
'Turn-key' Solution	4	CarTrawler; Habashwe Africa	Full Service Provider (T)
Meta-booking Platform	3	TripFactory; Rentalcars.com; GoEuro; Reservamos	–
Modular Solution	3	Autobooker; DESTYGO; Cangooroo (Juniper)	Modular Producer (Weill & Woerner, 2018)
Customer Data Monetization	3	–	Leverage Customer Data (G)
Disintermediation	3	Marriott; Qantas; Lufthansa	Disintermediation (T), Direct Selling (G)
First Discoverer	3	Trivago	Breakthrough Markets (T)
Club (Small Niche)	3	Russian Expeditions; Eclipse Traveling; VAWAA; ALTOURISM	–
Custom Content	3	The View South; TravIndi	–
On-the-go (Mobile First)	3	HotelTonight	–
Affiliate Network	3	Travelpayouts	–
Travel Commerce Platform	3	go global; instant travel; Travelfusion; Travolutionary; Travelport; HotelBeds	–
Unsold (distressed) Inventory	3	Daycation; HotelsByDay; SeatFrog	Distressed Inventory (Daniele & Frew, 2006)
Crowd Sourcing	2	Atlas Obscura; Google Maps; TripAdvisor	Crowd Sourcing (T,G)
Analytics & Connections	2	PhocusWright; Skift; Arival	–
Virtual Community	2	TripTogether; TravelMassive	Virtual Community (Weill & Vitale, 2001)
Expense Management	2	Deem; SAP Concur; GetThere by Sabre; Lola; Rocketrip	–
Ecosystem Creator	2	LeezAir	Adaptive (T), Open Business (G)
Crowd Investing/Crowdfunding Platform	2	we4tourism; TravelStarter	Two-sided Market (G), Multi-sided platforms (T)
Trusted Service Leader ('big players')	2	TUI	Customer Loyalty (G), Trusted Product/Service Leader (T)
No Win, No Fee	2	AirHelp; Compensair; RefundMyTicket; Pruvo; DreamCheaper	–
Edufication	2	Center Smart Tourism	–
Accelerators/Incubators	2	Chan Brothers; Booking Booster; Propeller Shannon	Business Incubators (Grimaldi & Grandi, 2005)
Independent Consultant	2	TravIndi; Travel Tech Consulting Inc.	Trusted Advisor (T)
Barter	2	The Travel Leaf; That Travel Blog	Barter (T, G)
Rent Instead of Buy	2	Mytriphoto	Rent Instead of Buy (G)
License	1	Wcities	Licensing (G)
Low-coster	1	Oyo Rooms; CheapTrip	No Frills (G, T)
Freemium	1	Free Walking Tours Melbourne	Freemium (T, G)
Ultimate Outsourcing	1	G Adventures	Core Focused (T)
Affinity Club	1	Rocketmiles; LTM group; Travel Pool	Affinity Club (T), Customer Loyalty (G)
Deal of the Day (Daily Deal)	1	TravelBird; Secret Escapes; Travelzoo	Revenue Sharing (G)
Open Access/Open Source	1	Flio	Open Source (G)
Self-service	1	Keesy	Self-service (T, G)
Gamification	1	Adventure Junky; Stray Boots, Questo	Gamification (Celaya, Vázquez, Rojas, Yuste, & Riaza, 2016)
Hidden Advertising	1	Maps.me	Embedded Advertising (Celaya et al., 2016)
Auction	1	Room Auction	E-auction/Auction (T), Auction (G)
Venture Capitalists	1	Thayer Ventures	Venture Capital Firms (Breznitz, Forman, & Wen, 2018)
Ultimate Luxury	1	Quintessentially Travel; Luxury Link; Virtuoso	Ultimate Luxury (T)

Note. (G) = BM patterns in Gassmann et al. (2014); (T) = BM configurations in Taran et al. (2016).

kind of online distribution' (P29). There are two sub-types of OTA BMs: Merchant and Agent, with the difference lying in the payment stream: under the Merchant model, the OTA takes online payments on the website; under the Agent model, the OTA takes payment at check-in and the hotel and OTA then share the revenue. An OTA may also combine these two sub-types. Well-known examples of OTAs are Expedia, Booking.com, Yatra, MakeMyTrip, Travelata and CTrip.

The list of digital BM configurations includes the BMs of pure tourism companies that provide mainly offline travel services and the BMs of companies that intersect with other industries. On the one hand, the BM configurations of E-commerce (e.g., Melbourne Observation Wheel and Lake Constance DMO) and Disintermediation (e.g., Qantas and Lufthansa airlines) involve the core travel services of offline experiences, accommodation and transportation. On the other hand, the SaaS BM configuration is linked to *'pure tech players' (P1).* Companies that operate under this BM offer software (e.g., FareHarbor), data storage and analysis (e.g., Boxever), fraud protection for payments (e.g., Sift Science) and other technological solutions for travel companies. An intersection was also found between the finance and tourism industries in the configurations of Accelerators-Incubators (e.g., Propeller Shannon) and Venture Capitalists (e.g., Thayer Ventures). These are not directly linked to travel services and tourists but are focused on travel companies. Crowdsourcing/Crowdinvesting platforms (e.g., we4tourism) support travel companies in obtaining funding from the general public. These companies operating at the intersection of finance and tourism are all engaged in helping travel companies start and grow. Although these companies are at the intersections of the industries and do not offer travel products, they are a critical part of the digital travel ecosystem (market).

Although a few configurations might look similar, they have been distinguished based on particular criteria. For example, the complexity of the digital travel ecosystem demands a large number of Facilitators (Solution Providers) and 'Turn-key' Solutions, which are apparently similar. Companies that operate under these BMs facilitate payments for and management of group tours (YouLi), localization (Habashwe Africa) and marketing across cultures (China Digital). The main difference between Facilitators (Solution Providers) and 'Turn-key' Solutions lies in the value configuration: facilitators offer a single solution whilst 'Turn-key' Solutions eliminate the need for whole units of in-house operations (marketing, finance or others). The Modular Solution configuration sits in between the 'Turn-key' Solution (or Full Service Provider) and Facilitator (Solution Provider) BMs. Travel companies will outsource certain functions to companies that offer Modular Solutions, with the solution implemented as a module: for example, Autobooker provides website modules with car rental solutions to other companies.

Digital BMs have various sources of profit-making. Even pure tourism players do not merely profit from selling travel services but also gain revenue from data (Customer Data Monetization), their knowledge in a certain narrow area (Expertise Monetization), advertising space (Display Advertising and Hidden Advertising) and their reputation as independent reliable experts (Independent Consultant). Apart from the production of travel services or tourism-related content, a number of digital BM configurations focus on the aggregation and/or comparison of the value propositions of other companies. Meta-search Platforms and Meta-booking Platforms aggregate the offers of various OTAs and compare prices across suppliers; Travel Commerce Platforms aggregate suppliers on one site; and Infomediaries (for example, travel magazines) collect content from various content-creators. Companies that operate under an Unsold (distressed) Inventory BM market and sell the unused inventory of other businesses, such as plane seats (SeatFrog) and accommodations (HotelsByDay, Daycation). In summary, digital travel companies are competing successfully with a range of innovative and creative BMs.

Several digital BMs are based on connecting various stakeholders. OTMs and Sharing (P2P) Platforms work as intermediaries to connect service providers and end users; Affiliate Networks organize effective interactions between Affiliates (for example, travel bloggers), who generate leads (consumer interest, clicks on websites and further purchases), and OTAs, which pay commissions to the Affiliates for each booking. Companies that follow an Analytics and Connection BM, such as Skift, Phocuswright and Arival, have tourism professionals as customers. They organize events for tourism professionals, offer business research reports and provide news from the industry.

The findings indicate that digital travel companies are not limited to the application of a single BM configuration. They might combine and create multiple BMs even within one company: 'By the way, these can be used in combination, of course' (P31). Some combinations have been tested over time and become typical: *'There are others that have kind of a mixed model where they can transact that they also can lead to other providers' (P32).* As a result, there is no restriction on the number of actual BMs that can be created and implemented in the digital travel industry.

4.2. Classification of digital BM configurations

The revealed BM configurations in the travel industry were classified by the primary value driver. A primary value driver refers to a key part and the core strengths of each BM configuration. Following the 5-V framework by Taran et al. (2016), the developed classification includes five groups: primarily driven by value proposition, value segment, value configuration, value network, or value capture. Table 3 presents the classification.

Interviewers specified a primary value driver for each BM configuration separately. For BM configurations primarily driven by value proposition, participants of the study referred to such features of products/services as uniqueness, easy-to-use, transparency, customization, reliability, durability and others. The group of BMs primarily driven by value segment is mainly associated with customer loyalty, trust and communication. The drivers of BM configurations driven by value configuration mostly include intangible resources (for example, clients base), distribution features and techniques for cost reduction (for example, disintermediation). The key drivers of the group driven by value network are building partnerships and expanding networks. Each configuration in the group of value capture is driven by a specific revenue model.

In terms of numbers, the classification of 53 BM configurations in the travel industry includes:

- 24 BM configurations - primarily driven by value proposition
- 5 BM configurations - primarily driven by value segment
- 9 BM configurations - primarily driven by value configuration
- 8 BM configurations - primarily driven by value network
- 7 BM configurations - primarily driven by value capture.

5. Discussion

5.1. Revealed digital BM configurations and previous literature

The list of the digital BM configurations revealed in this study provided in Table 2 also includes references to the alternative names used for the same BM configurations in the literature. In many cases, these make reference to the BM Navigator of Gassmann et al. (2014) and the 5-V classification list provided by Taran et al. (2016). References to other literature are provided in cases with no analogues in either of these sources.

The names used for BM configurations in Table 2 sometimes differ from the names used for analogous BM configurations in the literature. Some configurations are given two names. The variety of names used for BM configurations reflects the usage of practitioners in the travel industry, some of whom use more specific names for particular models and others who use the name that is most common in the travel industry. It should be noted that references to previous studies have been chosen based on full compliance of the definitions with the descriptions by

Table 3
Digital BM configurations in the travel industry grouped by primary value drivers.

Primary value driver	Digital BM configurations	Definition of value driver
Value Proposition	Affiliates Custom Content Cross-selling (Cross bundling) Crowd Sourcing Edufication Expense Management Expertise Monetization Facilitator (Solution Provider) Gamification Independent Consultant Infomediary (Content aggregator) License Low-coster Mass Customization (Dynamic Packaging) Meta-booking Platform Metasearch Platform Modular Solution On-the-go (Mobile First) Rent instead of Buy SaaS Sharing Platform Travel Commerce Platform Trusted Service Leader ("big players") Turn-key Solution	"a company's offering of products and services that customers are willing to pay for. It identifies the values that a company brings to its customers, and the features of this offering (e.g. high performance, reliability, durability, design, availability of a wide range of products and services, customization, etc.) that are able to satisfy its customers' needs" (Taran et al., 2016, p. 501).
Value Segment	Analytics & Connections Club (Small Niche) First Discoverer Ultimate Luxury Virtual Community	"the customer segments a company aims to serve. It also includes the actual interactions or relationships established with these customer segments, in terms of trust, loyalty, lock-in, co-creation, personal assistance, or self-service" (Taran et al., 2016, p. 501).
Value Configuration	Customer Data Monetization Disintermediation E-commerce OTM OTA Self-service Ultimate Outsourcing Unsold (distressed) inventory White Label	"the efficient mix of key resources (e.g. tangible, financial, human, intellectual), key activities (e.g. production, service delivery, logistics) and distribution channels needed to create and deliver the Value Proposition to the selected Value Segment in a cost effective manner …, and the cost structure needed to make the BM work" (Taran et al., 2016, p. 501).
Value Network	Accelerators/Incubators Affiliate Network Affinity Club Crowd investing/crowdfunding platform Deal of the Day (Daily Deal) Ecosystem Creator Open Access/Open Source Venture Capitalists	"identifies the network of partners who engage in different kinds of cooperation with a company, with the goal of achieving economies of scale, risk reduction and/or tapping into new knowledge or resources" (Taran et al., 2016, p. 501).
Value Capture	Auction Barter Display Advertising Freemium Hidden Advertising No win, no fee Subscription (Membership)	"describes how, and how much, the customers pay for the delivered products/services offered" (Taran et al., 2016, p. 501).

interviewees. These definitions in the references may differ from other sources as well as from everyday use of the associated names of the BM configurations.

Most of the listed digital travel industry BM configurations have been described in the general stream of BM literature. Gassmann et al. (2014) and Taran et al. (2016) have already presented a number of these BM configurations, including Sharing Platform, Freemium, White Label and Mass Customization. There were, however, a number of BM configurations identified that have been presented in specialized literature but not listed in the BM Navigator or 5-V framework. For instance, the SaaS BM has been previously investigated by Ojala (2012), and the Gamification BM was described by Celaya et al. (2016). Furthermore, a few identified BM configurations have been introduced only in the tourism literature: for example, Distressed Inventory and Metasearch Platforms

(Comparison Shopping) were both presented as travel intermediaries by Daniele and Frew (2006). Another group of the BM configurations identified in this study have not been described in the literature, either in the general stream of BM literature or in tourism studies.

The findings of this study correspond with the results of recent studies on the digital travel industry. Thus, the list of identified BM configurations includes different types of platforms, aggregators and other multi-sided models. These results are also supported by Reinhold et al. (2020). The highest frequency of references to the OTA configurations around the interviewees corresponds with the strong position of OTAs in the market (Mitas et al., 2015). The existing body of literature about OTAs is also substantial and includes investigations of differences between merchant model and agent model, details of their revenue models and value proposition, and other topics (i.e. Liao, Ye, & Wu,

2019; Zhang, Denizci Guillet & Kucukusta, 2015; Toh, Raven, & DeKay, 2011).

The list of digital BMs overlaps with the findings of previous studies in the tourism field. Three of the five configurations listed by Henne (2014) were supported by the study findings, and the remaining two BMs in Henne's typology are traditional BMs that were not in the digital scope of this study. All four models of tourism enterprises enabled by ICTs provided by Schmidt et al. (2017) were reflected in the findings of this study, in essence if not in name. For example, Schmidt et al. (2017) identified the Ecosystem Driver BM, whilst their Supplies type equates to the E-commerce BM configuration. The findings also support five of the eight BM patterns in Kreinberger et al. (2014): Freemium, White Labeling, Crowdfunding, Advertising and Customization. Furthermore, all five configurations presented in Daniele and Frew (2006) were found in our study. At the same time, the number of BM configurations in the travel industry revealed in this study differs significantly from that in previous studies. Whilst previous studies in the tourism field included between four and eight BMs, this study identified 53 BM configurations.

In summary, the findings of this study are a list of digital BM configurations found in the travel industry. To a large extent, the list of revealed digital BM configurations incorporates the BM configurations explored in earlier tourism literature. Most BM configurations that have been identified in previous research are reflected in the study findings. The following section presents the exceptions and describes the novel digital BM configurations identified in this study.

5.2. Novel BM configurations

In addition to the BM configurations noted in the previous literature, this study revealed 10 novel digital BM configurations. Based on the data collected from interviews, the names and descriptions of these configurations are provided below, along with examples of companies that operate under them.

1. *Meta-booking Platform.* This BM has grown on the basis of the Metasearch Platform configuration. Like Metasearch Platforms, Meta-booking Platforms help consumers to search for the cheapest price for the same products or services. Both BMs involve comparing across the databases of various suppliers to show a range of possible options in one place. However, in contrast to a Metasearch Platform, a Meta-booking Platform owns the full cycle of a travel consumer's purchasing experience, without redirecting users to a third-party website. For example, the Meta-booking Platforms Omio (formerly GoEuro) and Reservamos offer and sell tickets from multiple transportation suppliers.
2. *Club (small niche).* The Club companies focus on a very narrow segment or set of products. New digital ICTs allow people in different corners of the world to find each other based on shared narrow interests. Thus, Eclipse Traveling organizes tours specifically to observe eclipses. The main drivers of this configuration are the interests of customers in a certain type of tourism and their loyalty to the 'club'. This BM configuration should be distinguished from the Membership configuration: Membership implies a subscription and regular payments, whereas under the club, BM customers pay per purchase. In this case, therefore, a consumer's affiliation to a 'club' has more of an emotional and psychological meaning.
3. *Custom Content.* This BM configuration has been created in response to the growing need for digital content. These companies offer exclusive digital content (text, photo, video, AR and VR solutions, etc.): for example, The View South produces tailor-made films for travel companies.
4. *On-the-go (Mobile First).* Companies that operate under this configuration make their offerings available only in a certain digital channel, usually through a mobile application. This

approach provides an opportunity to enter the market faster than competitors. Other potential benefits of this BM are real-time updates, dynamic pricing and constant connection with travellers. Constant access to customers' locations also provides good opportunities for personalization. HotelTonight is therefore an example of the application of the On-the-go BM.

5. *Affiliate Network.* Companies that operate with this BM aim to organize effective communication and collaboration between Affiliates (Lead Generators), such as travel bloggers and key opinion leaders, and suppliers. Suppliers pay commissions to Affiliate Networks and Affiliates. This BM may also be interpreted as a particular case of the Two-Sided Market (Gassmann et al., 2014) or of Multi-sided Platforms (Taran et al., 2016) because it involves various companies. One of the most well-known Affiliate Networks in the travel market is Travelpayouts.
6. *Travel Commerce Platform.* This is another particular case of the Two-Sided Market (Gassmann et al., 2014) or Multi-sided Platform (Taran et al., 2016). Travel Commerce Platforms, such as Travelport, connect several stakeholders, generally by aggregating various suppliers and their offers into a single search engine. Working with a Travel Commerce Platform, travel distributors and OTAs need only sign one contract instead of many. Travel Commerce Platforms aggregate a large number of offers, so their customers have no need to compare offers across suppliers.
7. *Analytics & Connections.* Companies with this BM configuration in the travel industry earn money through various channels, by reporting news, selling research and organizing events for professionals in the industry. They work within the travel industry, although their work is connected with travel services only indirectly. Among others, Phocuswright, Arival and Skift apply the Analytics & Connections BM configuration.
8. *Expense Management.* This BM configuration has grown out of the business travel market. Companies with this BM configuration motivate business travellers to spend less, so that their employers can reduce business travel budgets. Well-known companies that apply this BM configuration are Deem and Rocketrip.
9. *No Win, No Fee.* Companies that operate under thus configuration earn revenue only when their customers win or benefit from their services. This BM configuration has roots in legal agencies. After a customer request, these companies work to obtain money to which the customer is entitled. If they succeed in having the money granted to the customer, they receive a commission. AirHelp and Compensair are famous for operating with this BM configuration. The main driver of this BM is the value capture revenue model. Companies receive a commission or a flat fee only from winning cases; customers lose nothing if the case is not resolved in their favour. This BM has recently been expanded by the emergence of rebooking services that try to rebook tickets or accommodation for a cheaper price. Customers pay a commission from their rebooking cost savings, but only when the price for tickets or accommodation is reduced.
10. *Edufication.* This name was created via analogy with the Gamification BM. Edufication travel companies aim not only to offer a particular value proposition but also to educate their customers. For instance, travel companies educate customers on sustainable behaviour (Center Smart Tourism) or legal literacy (AirHelp).

These ten BM configurations have not been presented in the academic literature. They feature in neither the general BM literature nor in that on tourism studies. Oliveira and Martins (2010) noted that BM configurations tend to be adopted across industries, so it is to be expected that these new digital BM configurations can already be found in other industries or will be adopted in the near future.

5.3. Taxonomy evaluation

The developed taxonomy of digital business model configurations in the travel industry (Table 2) requires evaluation of quality regarding taxonomical modelling. The evaluation follows the adopted approach of the combination of taxonomy evaluation criteria by Nickerson et al. (2013) and Szopinski et al. (2020). It includes seven criteria: usefulness, comprehensiveness, applicability, robustness, conciseness, extensibility, and explanatory power. The evaluation was conducted after the end of data analysis and taxonomy development. This section presents the evaluation by each criterion.

For the first and the fourth criteria, usefulness and robustness, long-term view and reevaluation of a taxonomy's application over time are essential (Szopinski et al., 2020). After use and feedback, future works and publications should fully evaluate the taxonomy's usefulness and robustness. At the same time, usefulness from the short-term perspective might be estimated by compliance with the goals and objectives of the taxonomy development (Szopinski et al., 2020). Since the initial objective was identification and classification of digital BM configurations in the travel industry, the developed taxonomy satisfies this criterion as being applicable for researchers and practitioners.

In terms of the second criterion, the proposed taxonomy is comprehensive to classify all revealed BM configurations; no BM configurations fall out of the classification. At the same time, new digital BMs configurations are growing extensively driven by rapid digitalization of the industry. New entities are likely to be added to the taxonomy soon. In this case, this specific does not affect taxonomy's comprehensiveness because incorporation of new species or models over time is an inherent quality of any taxonomy (Lambert, 2006). Moreover, the possibility for future inclusions of new entities says about good extendibility of the taxonomy (sixth criterion).

Regarding other criteria, the taxonomy demonstrates strong applicability providing examples of existing real-world companies for each BM configuration. Since the taxonomy applies a parsimonious number of dimensions, it could be evaluated as concise. Moreover, extra dimensions may be added to the taxonomy as it shows the proposed classification of digital BM configurations in the travel industry by primary value drivers. Future discussions may rise regarding the explanatory power (seventh criterion) of the developed taxonomy. Although this study provides the theoretical foundation for the BM taxonomy, clear distinctions between configurations may be hampered by various reasons. For example, the same BM configuration may be implemented in different ways. Thus, *SaaS* may include a broad range of services and products implemented with various revenue models, although the BM is the same across companies. Further complications may be caused by combinations of a few BMs within one company. These specifics of BM taxonomies are described in previous literature and considered natural due to specifics of taxonomies in the management field (Baden-Fuller & Morgan, 2010).

5.4. Value drivers of digital BM configurations

The proposed classification of digital BM configurations by the primary value driver (Table 3) shows the variety of value drivers in the digital travel ecosystem. These findings correspond with the results by Reinhold et al. (2020): BMs in the current digital travel ecosystem combine different variants of value creation activities and diverse revenue streams. At the same time, there is a relative predominance of the BM configurations driven by value proposition among five groups. Value proposition is a primary driver for almost half of the identified BM configurations. In general, this predominance of BM configurations driven by value proposition in the developed classification corresponds to the adopted 5-V framework (Taran et al., 2016) even although a significant part of the identified digital BMs in the travel industry is without parallel in this framework.

All primary value drivers of the revealed BM configurations match the primary value drivers in the original classification by Taran et al. (2016) with a single exclusion. The Barter BM configuration in the 5-V framework is linked to value network while findings of this study link Barter to value capture. Both participants who have described this BM stated that it is primarily driven by the revenue model, i.e. value capture. At the same time, it should be noted that the comparison of the findings of this study and the classification by Taran et al. (2016) is fair only in cases when the revealed BM configurations have analogues in the original classification.

Elements of BMs might be similar across multiple configurations, however only being a core element of a BM configuration make it a primary value driver. For example, educational components or gamifications element might be founded in different travel businesses with different BM configurations. However, these components will define the BM configurations (Edufication and Gamification respectively) only if they are primary value drivers. Another example is the revenue model (value capture). The same revenue model (for example, advertising) might be just one of the components of a BM or the primary value driver. Thus, Advertising BM configuration is built around this revenue stream.

6. Conclusions

Under the impact of digitalization, a range of new BMs based on new technologies is developing in today's global travel industry. This study investigated the digital BM configurations in the travel industry. The data analysis was conducted in two ways: inductive (data-driven) and deductive (theory-driven). 53 digital BM configurations were identified in the travel industry and compared to those introduced in the literature. Ten BM configurations were found to be absent from the literature and are therefore described in detail. The classification of digital BM configurations includes 5 groups distinguished by primary value drivers. This study offers both theoretical and practical contributions.

The main significance of this study is its detailed examination of the digital travel business from the perspective of BMs. First, this study aims to make a shift in the theorization of the BMs in the travel industry. Digital technologies create a huge range of opportunities for travel companies to build an innovative BM: to create a value proposition, build a network, approach a customer segment, develop and distribute products and services and make profit. Digital travel companies apply BMs from other industries and build completely new BMs. Previous studies have had a fragmented character and tended to oversimplify the diversity of players in the digital travel ecosystem. The proposed taxonomy and classification of aim to frame digital BM configurations and support establishing common understandings among scholars in the tourism field. The list of digital BM configurations in the travel industry provided here can form a basis for future studies and further theory generation. When discussing players in the digital travel ecosystem, scholars might refer to this practicable and feasible framework. The use of the taxonomy and the classification of digital BMs in the travel industry makes the digital travel ecosystem more tangible. Moreover, the real-world examples given for the various configurations allows for a comprehensive understanding of 'who is who' in the current travel ecosystem. Furthermore, the application of the findings of this study is not limited to a single region or country due to its international approach.

Second, the study contributes to the understanding of the architecture of BM configurations in the travel industry. While the common approach interprets a BM as a sum of blocks (elements), the applied 5-V framework (Taran et al., 2016) allowed revealing a primary value driver of each identified BM configuration. The value driver approach helped to prioritise elements that 'drive' each BM configuration, and, as the result, to explore the architecture of value creation.

Third, the study integrates the digital travel industry into the field of BM research. With digital BMs recognized as one of the key issues of the modern digital economy, the literature in the BM field has grown. However, the travel industry was excluded from this general increase in

attention. The identification of digital BMs in the industry provides a bridge between tourism research and BM studies.

This study also contributes to the BM field through its exploration of novel BM configurations. The results include 10 newly explored digital BM configurations that had not been previously presented in the tourism or BM literature. The description of these novel BM configurations enlarges the already great variety of BM configurations described in the literature. Although they have been identified in the travel industry, these new BM configurations are likely to appear in other industries. Therefore, the study contributes to the general BM literature by augmenting the variety of BM configurations.

For practitioners, the systematic and comprehensive list of digital BM configurations in the travel industry and their classification by primary value drivers provided here is of great value. As a comprehensive tool, the list of digital BMs might be useful for traditional travel companies beginning their digital transformation and for digital players in the travel industry. The compiled taxonomy of BM configurations can be used by managers to evaluate the current operations of their company and its competitors. For instance, the managers of a travel company might wish to analyse the effectiveness and competitiveness of a current BM when they seek to use existing digital opportunities for value creation. Meanwhile, travel start-ups looking for new business ideas could use the classification of digital BM configurations to identify possible but underused opportunities to develop new digital travel businesses. The compiled list of BM configurations is also created for managers to draw inspiration from for BM design and innovation.

7. Limitations and future directions

Given the limitations of the exploratory approach, this study lacks the statistical generalization of quantitative studies. The investigation aimed to develop a model rather than to prove it. The applied pragmatic grounded theory approach has great advantages for model creation and hypothesis development, but quantitative methods are recommended for future research in this field. Another significant limitation is caused by the rapid changes occurring in BMs around the travel ecosystem. This study gives a snapshot of the digital travel industry at the moment of data collection. However, digital travel is one of the most rapidly developing industries. Given that the building of an innovative BM is one of the key components of competitiveness in the digital era, new digital BMs will continue to appear in the travel industry. Therefore, the list of digital BMs in the travel industry derived in this study is highly likely to be supplemented rapidly by new innovative BMs. The developed taxonomy of digital business model configurations in the travel industry has limited explanatory power and robustness due to the specifics of taxonomy development in the BM field. Also, future evaluations are required to explore the usefulness of the proposed taxonomy because this quality implies analysis of the application of a taxonomy over time.

A number of research directions deserve the further consideration of scholars. First, cases of multiple BMs within one company require further investigation. Combinations of two, three or more BMs within a single company require analysis from different perspectives. Second, researchers might pay attention to the key factors of successful BM configurations in the travel industry. Certain BM configurations have proven to be more popular and sustainable than others. BM innovation processes and stakeholders' attitudes to BM configurations are promising topics in this regard. Third, future studies might investigate connections between BM configurations and revenue model configurations. For instance, digital BM configurations in the travel industry tend to have typical revenue models. Four, the connection between BM configurations and their value drivers is another promising topic. Especially, future works might be interested in investigating why and how a primary value driver works as a source of value for a BM configuration.

Impact statement

This study is one of the first attempts to contribute to the digital business models (BMs) research in the tourism field. The findings of the study potentially would make a shift in the understanding of the great variety of BM configurations grown in the industry due to the digital transformation. Also, the study contributes to classifying BM configurations in the travel industry by revealing primary value drivers. In addition, this study supports the development of industry-education synergy and provides a bridge between tourism research and BM studies.

Moreover, the recent pandemic is forcing travel companies to instant digital transformation. The competitiveness of travel services will further increase in the post-pandemic era. Scholars and practitioners predict that the most digitally advanced tourism places will get the leading positions after reopening. In these conditions, the knowledge about digital business model configurations in the travel industry becomes of critical importance for both academics and practitioners.

Author contributions

Mariia Perelygina: Conceptualization, Methodology, Investigation, Writing - Original Draft, **Deniz Kucukusta:** Supervision, Validation, Writing - Review & Editing, **Rob Law:** Supervision.

Declaration of competing interest

None.

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