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Value co-creation and perceived value: A customer perspective in the hospitality context

Konstantinos Solakis^{a,*}, Jesús Peña-Vinces^b, Jesús M. Lopez-Bonilla^c

^a Cyprus University of Technology, Department of Public Communication, 30 Arch. Kyprianos Str. 3036, Limassol, Cyprus

^b Universidad de Sevilla, College of Economics and Business, Department of Business Management and Marketing, Avenida Ramón y Cajal, s/n Sevilla, 41018, Spain

^c Universidad de Sevilla, College of Economics and Business, Department of Business Management and Marketing, Avenida Ramón y Cajal n° 1, s/n Sevilla, 41018, Spain

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ABSTRACT

Using the DART (dialogue, access, risk, and transparency) model as a core framework of value co-creation (VCC), and in the context of hospitality services, this study explores the role VCC might have in customers' perceived value (PV). The study delineates two characteristics of PV—perceived quality and price—as sources for competitive strategy. It attempts to establish the existence of an effect of VCC implementation on these sources of strategy, as well as the intensity of the effect.

The study's data were collected via self-administered questionnaires from 484 tourists on their return home. Through structural equation modelling, we tested our research hypotheses. The research results indicate that transparency and risk affect a hotel guest's perceptions of price and quality, while access only determines the quality. Contrary to what we expected, dialogue did not have a positive influence on the perceived price or perceived quality. Finally, the results support the notion that perceived quality affects the perceived price.

As a firm-orientated model, the DART model was applied to the customer context for the first time in this study, which contributes to the marketing literature.

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1. Introduction

Prahalad and Ramaswamy (2000) were amongst the first to recognize customers as a source of competence as they noted the impact of the internet on the customer-firm relationship, presenting the idea of value co-creation (VCC). VCC is the active engagement of consumers, with their skills and knowledge, in the process of service (Prahalad & Ramaswamy, 2000; a) and juxtaposes value creation (VC), as VC models are focused on the firm's output and price (Vargo, Maglio & Akaka, 2008). The output of VCC is a value that can only be defined and experienced by the recipient (Vargo & Lusch, 2008). Consequently, the value created has personal characteristics according to every involved customer, while each customer develops a unique perception of that value.

Zeithaml (1988, p. 14) defined perceived value (PV) as “the consumer's overall assessment of the utility of a product based on perceptions on what is received and what is given.” There are two

approaches concerning the dimensionality of the PV. The first approach outlines PV as a set of benefits and sacrifices the consumer receives and gives, and typically the most prevalent ratio is the one of quality to price (Sweeney & Soutar, 2001). The second approach is a multidimensional one, where PV entails, for example, economic, social, hedonic, emotional, and altruistic components. In this paper, we adopt the traditional and more simple approach whereby PV's functional character advocates that price and quality are its primary antecedents (Arslanagic-Kalajdzic & Zabkar, 2017; Sweeney & Soutar, 2001), as there is criticism that the multidimensional PV approach can be conceptually ambiguous (Sánchez-Fernández & Iniesta-Bonillo, 2007).

Price and quality are crucial characteristics for hotels to develop a competitive strategy and differentiate, since services in the hotel industry are quite homogeneous. Yet, the hospitality service literature in the consumer context is in its first stages (Chathoth, Ungson, Harrington & Chan, 2016). There is ongoing research focused on the results of hospitality and tourism VCC (Morosan, 2015; Solakis, Peña-Vinces, Lopez-Bonilla & Aguado, 2021). However, there is little empirical evidence that relates consumer VCC to PV in the hospitality

* Corresponding author.

E-mail addresses: konstantinos.solakis@cut.ac.cy (K. Solakis), jesuspvinces@us.es (J. Peña-Vinces), lopezbon@us.es (J.M. Lopez-Bonilla).

industry (Dedeoğlu, Balıkcıoğlu & Küçükergin, 2016; Prebensen & Xie, 2017), and research is scarcer still in the specific field of hotel services (Morosan, 2015). Therefore, our research will address the following research question:

Does VCC affect customers' perception of the price and quality of services offered by a hotel?

To explore the effect of VCC in the hospitality industry, we employ the DART model approach as it is one of the most practical and interesting VCC models (Mukhtar, Ismail & Yahya, 2012; Skaržauskaitė, 2013) and has been applied by world class companies such as Nike (Ramaswamy, 2008). The DART model was introduced by Prahalad and Ramaswamy (2004c) as a roadmap for firms to engage customers in VCC. It consists of four dimensions: dialogue, access, risk, and transparency (DART), which are interchangeable in several ways for optimal results. The DART model is used to test whether customers' perceptions of price and quality are affected by VCC. Despite the fact that it is a firm-orientated model, the DART model will be explored from the perspective of the customer because the concepts of the four building blocks of interaction are equally applicable to all actors involved (Pralhalad & Ramaswamy, 2004a). Thus, the dividing line between consumers and firms is subtle (Ramaswamy, 2011). VCC entails democratized procedures for all stakeholders (Ramaswamy & Gouillart, 2010), and a consumer angle on the DART model will provide valuable insights into its effectiveness as a VCC tool.

As Solakis, Peña-Vinces and López-Bonilla (2017) affirm, there are still very few studies that have applied and evaluated the DART model. Thus, the hospitality services are encouraged to develop studies in this field due to the lack of empirical research carried out to date (Chathoth et al., 2016; Morosan, 2015).

According to Sirdeshmukh, Singh and Sabol (2002), customer PV directs the behavioural intention for loyalty to a service provider provided that superior value is inherent in such relational exchanges. More so, destination loyalty emphasizes travelers' repeated visitation behaviour and encourages positive word-of-mouth, which can provide new avenues for competitive advantage (Oppermann, 2000). Thus, it becomes necessary to understand the relationship between VCC and PV, as well as explore other competitive opportunities that could be inherent in this relationship. The readership appeal of this article therefore manifests in two ways. Firstly, the study delineates two characteristics of PV, quality and price, as sources of competitive strategy and attempts to establish the existence of an effect of VCC implementation on these sources of strategy, as well as the intensity of the effect. Secondly, the business implications of reaping the potential benefits of co-creation require that organizations re-align resources between those functions that make customer promises and those that deliver customer promises (Payne, Storbacka & Frow, 2008). This study assesses the dimensions of VCC with the use of the DART model and measures the differential impact of the four different dimensions. This can help hospitality services to understand how VCC influences PV, and in what proportions business resources can be allocated and aligned across dimensions for an optimal outcome.

The originality of the study lies in the fact that for the first time a study establishes the connection between the paradigms of VC and VCC. The application of VCC is of great importance in the hospitality services context, given its idiosyncrasy and its intrinsic nature as a potentially proactive service supplier (Chathoth et al., 2016).

2. Literature review

2.1. VCC as a new paradigm

VCC as an emerging paradigm proposes a change from a firm-centric view to a demand-centric and interactive process that engages resource-integrating participants for a mutually beneficial collaboration (Frow & Payne, 2011). The VCC paradigm seeks reciprocal value propositions amongst its stakeholders (Ballantyne & Varey, 2006),

where actors can create value in collaboration with or influenced by others (Jaakola, Helkkula & Aarika, 2015). The paradigm typifies shifting boundaries, where consumers perform the simultaneous roles of providing firms with value in the form of their co-creation activity and in the form of their purchase activity (O'Hern & Rindfleisch, 2010).

Customers are vital for every business, and the ability to consistently offer value to them can determine the profitability and survival of the business. VCC advocates that the responsibility of value creation is transferred from inside the organization to collaborative relationships outside the physical boundaries of the organization (Frow, Nenonen, Payne & Storbacka, 2015). According to Matthing, Sandén and Edvardsson (2004), continuous involvement and communication with customers will enable an organization to learn from customers and position its offering within the scope of customers' PV.

The process of VCC involves a combination of knowledge enhancement and exchange, skill acquisition, and organizational learning which can ascribe a sense of ownership to customers as a result of their contribution to the value development process (Pralhalad & Ramaswamy, 2000). Moreover, the unique experience that is determined by the quality of interaction can serve as a potential source of competitive advantage to the organization, because customers will be likely to build emotional attachments with product offerings when they were part of its product development process. VCC attributes to the consumer a more proactive role in product development while it offers the service provider a better understanding of the customers' needs and definition of value. Thus, the co-creation experience becomes the basis of value (Pralhalad & Ramaswamy, 2004b) and serves as a novel frontier of strategy innovation, where the interaction between the service provider and customer is a locus for value creation and extraction (Spena, Carida, Colurcio & Melia, 2012).

The service provider should initiate the process of VCC with an aim to engage customers in a purposeful dialogue and to reconfigure its resources and functions such that they are positioned within the customer's creation space (Ramaswamy & Gouillart, 2010). Payne et al. (2008) recognize the implications for service providers in their process-based co-creation framework. According to the authors, the supplier process should begin with a thorough understanding of customers' VC procedure. The supplier process combines techniques such as opportunity review; planning, testing and prototyping ideas with customers; process re-alignment; implementing solutions; developing appropriate assessment metrics; and adequately managing customer encounters. Recognizing customer processes within the supplier process will provide suppliers with a better understanding of where their offering can fit within the space of the customers' value-creation activities, as well as clarification on how to position its internal resources/capabilities for optimal utility within the VC process (Payne et al., 2008).

The proliferation of technological innovations has been a major driver for actualizing these interactive moments. Through technological platforms, customers can be engaged in the co-creation process to generate experiences with economic, functional, and cultural benefits (Cova & Dallı, 2009). Moreover, Schiavone, Metallo and Agrifoglio (2014) demonstrate that technology can be an essential and additional factor to the DART model, since technology also helps to enhance the levels of dialogue, access to information, trust, and transparency within the co-creation process.

2.2. VCC with hotel services

Owing to the predominant service context of the hospitality industry, customers' PV is formed mainly from intangible experiences and interactions. VC may thus be contingent on the ability to co-create these customer experiences, such that customers can be active

participants in building their own experiences from personalized and interactive moments with the service provider (Prahalad & Ramaswamy, 2004a).

The utility of information and communication technology (ICT) in VCC for hospitality services has become apparent in tech-enabled platforms such as online social communities, online booking, virtual tourism experiences, advertising, specialized mobile apps, etc. The online community offers the benefits of social inclusion and information sharing through information dissemination, user-generated comment, interaction, and mutual assistance from hotel and fellow community members. Online communities also help to establish valuable relationships between old and new customers (Gebauer, Johnson & Enquist, 2010). Travelers' comments and reviews on TripAdvisor typify the concept of VCC, where potential customers may even preconceive their PV based on feedback from other community members. Ayeh, Au and Law (2013) view user-generated comment as a powerful tool for influencing consumer buying behaviour because it is less partisan and has a positive effect on potential customers' likelihood to use information from these comments for their travel planning and hotel reservations.

The growing access to smartphones has also driven the utility of mobile commerce in the hospitality services context. Hotels are designing device-enabled applications to interact with their customers and design services according to personalized needs and preferences. These hotel-designed apps enable customers to actively engage and determine the services received, such as room features, concierge services, taxi services, and check in Sarmah, Kamboj and Rahman, (2017).

2.3. DART model as a framework for value creation

Prahalad and Ramaswamy (2004a) developed the DART model to challenge the traditional company-centric approach to value creation, where organizations propose value offerings to consumers with little or no insight into what their customers actually perceive as value. The model is an attempt to challenge the notion that market insight can be sufficient and suggests that organizations should also seek market foresight and learn to anticipate customer expectations. The authors propose the model on the recognition that consumers have transitioned to a state of being connected, informed, and active. These features have put consumers in a position of advantage. Hence, organizations can no longer act autonomously when developing product and service offerings.

The DART model projects that the newly assumed status of customers can provide novel avenues for competitive advantage, and companies ought to take advantage of the opportunity to facilitate value-creating interactions that empower customers to co-shape their experiences. Prahalad and Ramaswamy (2004a) emphasize that VC depends on negotiation between a company and its customers. The lack of differentiation makes customers buy smart and cheap, thus contributing to the increased commoditization of products and services. Those companies that do not want to be a part of this value-destroying process need to adopt the DART framework to comprehend co-creation with their customers and influence their perception by cultivating deep customer engagement and experiences.

Prahalad and Ramaswamy (2004a) suggested that VCC depends on the interactions of four elements amongst a firm and its consumers. These interactions are defined in Table 1.

The VCC paradigm suggests that when customers assume a proactive role in the VCC process, they assign value to the experience and are likely to have positive feelings about the product offering (Prahalad & Ramaswamy, 2004b). Thus, it becomes imperative to assess the validity of this notion and the extent to which co-creation affects customer PV. The study adopts the DART framework as a proxy for the VCC process and two characteristics of PV—perceived price and perceived quality—to test this relationship.

Table 1
DART definition.

D	Dialogue. Implies interactions, deep engagement, and the ability and willingness to act on both sides
A	Access. Refers to the full provision of information to customers from the company.
R	Risk. Refers to some risk associated with the products or services provided by companies
T	Transparency. Implies management of the information flows between the company and its customers in a transparent manner.

To date, to our knowledge, no attempts have been made to study the influence of the DART model on hotel guests' perception of price and service quality. This trend is surprising, because Prahalad & Ramaswamy, 2004, 2004ba, C. K. 2004c) have directly pointed to this fundamental relationship, mainly highlighting on the impact of the DART model on the customer's perception of price and, consequently, quality. As pointed out by Arslanagic-Kalajdzic and Zabkar (2017) and Kotler and Keller (2012), customers perceive higher-priced products as more high-quality, which is an essential part of a premium pricing strategy. DART elements can be used to communicate information about the quality and price of hotel services, thus influencing customers' perceptions of them.

3. RESEARCH model and hypothesis formulation

Taking into consideration all of the above, our research objective is to cover the literature gap in understanding how these strategies can be actualized by focusing on the impact of each particular building block of the DART model on the price and quality of hospitality services (Fig. 1).

3.1. Dialogue

The hypothesis that the dialogue element of the DART model has a direct influence on the price and quality of services stems directly from the definition of this element by Prahalad & Ramaswamy, 2004, 2004b), as well as the nature of today's information-intensive marketplace. However, companies can influence customers' perception of the place of accommodation and its price by cultivating a productive dialogue with customers. Dialogue is a deep interactive engagement where the actors involved are willing to act and change (Prahalad & Ramaswamy, 2004c), while Ballantyne (2004, p. 117) states that dialogue is "an interactive process of learning together". Accordingly, dialogue as a learning process means that the involved actors have the chance to gain knowledge and create new knowledge (Grönroos, 2004). Within the perspective of service-dominant logic (SDL), marketing is a structurer of relationships, encounters, and dialogue (Payne et al., 2008).

Consequently, a sincere and active dialogue has the power to affect customers' perception of the price and quality of hotel services. Such a dialogue must occur for a hotel to have a variety of

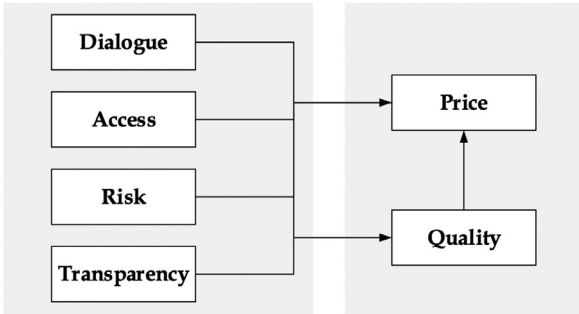


Fig. 1. Proposed conceptual framework.

communication channels that cover both synchronous-asynchronous and digital-analogue communication. Although having many channels of communication does not necessarily mean that active dialogue will take place, nonetheless the more channels and the more opportunities to communicate, the greater the chance of initiating an active dialogue (Ballantyne, 2004).

We hypothesize that the consumer's perceived price and quality can be improved with a reciprocal dialogue between a firm and consumers.

Thus,

H1a: Dialogue will have a positive impact on a hotel's price.

H1b: Dialogue will have a positive impact on a hotel's quality.

3.2. Access

The omnipresent access to information concerning competitors' prices and the type of services they provide makes the provision of such online information an industry standard. Internet platforms such as TripAdvisor, Booking.com, and many others allow customers to assess their place of stay efficiently and without any time constraints. They also allow careful planning of the trip, making it less likely for a firm to be chosen by customers if it does not readily provide full information about the services it provides. Furthermore, the modern tourism industry has become a highly information-intensive industry, heavily dependant on information and communication technologies (Buhalis & O'Connor, 2005).

Like dialogue, access impacts the way customers perceive the quality and price of touristic services. Factors such as the ability to decide how services are offered, the ability to choose between options regarding how to involve a particular service, the ability to select the most convenient time to receive specific services, and the opportunity to share customers' opinions on how specific services must be provided all cultivate customer engagement. Rather and Sharma (2017) noted that the provision of pertinent, attractive, or personal information to customers could increase the customers' attention and improve their loyalty. In this way, it becomes possible to hypothesize that by providing pertinent and personal information about their hotel, and by proposing to offer customers the option of voicing their opinions on how to improve their hotel services, firms can impact customers' perception of the quality and prices of their services.

Therefore:

H2a: Access will have a positive impact on a hotel's price.

H2b: Access will have a positive impact on a hotel's quality.

3.3. Risk

While access to all relevant information forms an essential part of customers' perception of a particular hotel, risks form a separate informational category identified by Prahalad & Ramaswamy, 2004, 2004bc). Customers must know what the possible inconveniences of visiting a particular hotel are, in addition to its benefits. Therefore, any potential risks must be communicated very clearly, and the personnel of the hotel should advise its customers on how to use its services to avoid possible problems (Oskam & Boswijk, 2016).

To trust is to accept the inherent risk in a customer-firm relationship (Sheppard & Sherman, 1998); hence, trust can relieve perceived risk and customer uncertainty (Ponnareddy, Priskin, Ohnmacht, Vinzenz & Wirth, 2017). However, should the hotel fail to communicate information about possible risks to its customers, the result may be compromised trust, thus forcing customers to switch to a different hotel provider or even to choose a different destination. Yang and Peterson (2004) showed that switching costs might be a restraining factor in this situation. However, hospitality services are characterized by few switching costs, which is why a loss of trust can easily deter customers and make them choose a different service provider

that provides full information about possible downsides of its services.

Also, it is necessary to add that, as pointed out by Prahalad and Ramaswamy (2004c), today's global business environment is characterized by networking and increased customer communications. Therefore, customers may discuss fully any possible risks associated with a particular service provider in a dedicated community, such as TripAdvisor or Booking.com. The absence of official information about risks, in this case, is likely to present the company as dishonest and unscrupulous. A failure to communicate information about such risks can significantly compromise the trust of numerous customers, as well as customer value (Ponnareddy et al., 2017).

Thus,

H3a: Risk will have a positive impact on a hotel's price.

H3b: Risk will have a positive impact on a hotel's quality.

3.4. Transparency

Although Prahalad & Ramaswamy, 2004; 2004bc underlined the company's role in sharing transparent information with customers, the truth is that this idea is not new and is an integral part of the value-based strategy. Kotler and Keller (2012) noted that when suppliers provide transparent value to the customers, this means that customers can "easily understand how the supplier calculates the differential value between its offering and next best alternative" (p. 400). Transparency of information has an enormous impact on PP, since the provision of such information can increase price pressure for undifferentiated products and provide a correct image of the true value of highly differentiated services/products (Rothenberger, 2015).

Transparency plays a leading role in the decision to purchase a vacation package (Tanford, Erdem & Baloglu, 2011) and in the hotel booking process (Miao & Mattila, 2007). Since the hotel industry provides highly differentiated services, it is no wonder that transparent prices can improve the perception of a particular hotel's services. Rothenberger (2015) found that when customers have more information on the price, their price fairness perception increases. Transparency thus becomes a direct function of ready informational access and is consequently represented in product quality. Consequently, this allows customers not only to understand better how to use products, but also to propose suggestions about how the products and services can be improved. We hypothesize that this is useful in the hotel industry because it allows customers to fine-tune the services they receive until their perceptions of a particular hotel improve.

H4a: Transparency will have a positive impact on a hotel's price.

H4b: Transparency will have a positive impact on a hotel's quality.

3.5. Perceived price and quality

Perceived price (PP) and perceived quality (PQ) are often used as interchangeable indicators, where a high price may serve as an indicator of high quality, and high quality can indicate a correspondingly high price. According to Johansson and Erickson (1985), two alternative views underlie the formation of a perceived price-quality linkage: learning theory and cognitive theory. Under learning theory (Monroe, 1973), quality and price are linked through customer experience. As the customer accumulates more experience, a gradual realization, termed 'learning', will become apparent to enable the customer to establish a connection between the constructs. In the context of hospitality services, the initial experience of the service quality often happens at specific touchpoints such as websites, customer care/reservation units, and virtual tour guides (Stickdorn & Zehrer, 2009). Customers assess the quality of the experience at these touchpoints, which helps to signal a PP level of the hotel's service offerings.

On the other hand, cognitive theory posits that information is the linking factor between quality and price (Olson, 1977). Customers will be able to infer price levels rationally from the available information about a product/service attribute. In a market with fewer imperfections and less information asymmetry, it is likely that customers will assume that the costs involved in creating high quality will be reflected in the price. Furthermore, both theories acknowledge the indicator roles of quality and price, and suggest two intermediary variables in the form of accumulated experience and availability of information as factors that link PQ to PP.

Since the current research is centred on the effect of DART building blocks on customers' perception of price and quality, it is vital to take into account the notion of customer value. As noted by Dovaliene, Masiulyte and Piligrimiene (2015), customer value is the ratio of consumer value received to cost experienced when customers acquire a particular product/service. When referring to customer value directly, without taking into account the social and emotional values discussed in the previous sections, it is possible to adopt Naumann's (1995) creation of value triangle, formed by quality, service, and price. The author affirms that without these two factors (quality and pricing), it would be impossible to sustain a pricing marketing strategy base. We assume that superior quality should result in a higher price, and this is linked to a premium pricing strategy. Premium pricing is used to signal to customers that a particular hotel provides superior quality. Companies that offer more services often charge a premium price, which is why such a strategy would be a logical choice for companies that adopt a value co-creation strategy (Yang, Mueller & Croes, 2016). Yacouel and Fleischer (2012) concluded that guests take into consideration travel agents' ratings of a hotel's service quality and pay a premium for highly-rated hotels, while the findings of Yang et al. (2016) suggest that hotel guests are willing to designate more funds for quality hotel features such as comfort, atmosphere, and additional services.

Coupled with transparent information about the high quality of services and full access to fine-tuning such services, along with their risks, signalling the superior quality of services will directly influence customers' price perception, positively affecting their willingness to pay. In the hospitality context, higher service quality coincides with the highest room price—that is, higher quality incurs elevated costs in operation and administration, and consequently the hotels charge the highest prices (Chiu And Chen, 2014). Therefore, we pose the following hypothesis:

H5: A hotel's quality will have a positive impact on a hotel's price.

These nine hypotheses are represented graphically in the proposed research model (Fig. 2).

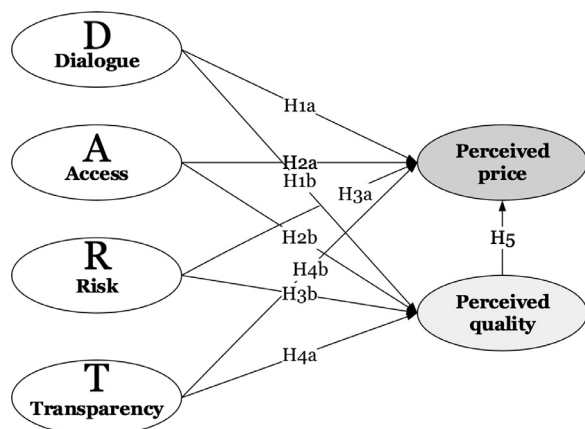


Fig. 2. The proposed model to be evaluated.

4. METHODOLOGY

The structural equation modelling (SEM) technique was utilized to assess the research hypothesis. This model has a distinct advantage in that it enables work with unobserved conceptual variables (latent constructs) as well as constructs that are made up of a large number of indicators (observed variables) (Lowry & Gaskin, 2014). In this study, the research model is composed of six latent variables. Consequently, various items were developed for each of the research model constructs. To evaluate dialogue and access, the scales proposed by Albinsson, Perera and Sautter (2016) and Taghizadeh, Jayaraman, Ismail and Rahman (2016) were adapted to hospitality services. To measure the risk dimension, the scales constructed by Albinsson et al. (2016) and Mazur and Zaborek (2014) were adjusted to the customer context. Moreover, for the transparency construct, the Albinsson et al. (2016) scale was used. The DART scales were adjusted to the customer perspective, as the DART model was conceived to evaluate VCC in a business context. Finally, for PQ and PP, the items were drawn from both Al-Dmour, Al-Zu'bi and Kakeesh (2013) and Yoo, Donthu and Lee (2000). A five-point Likert scale (1 = totally disagree and 5 = totally agree) was implemented to evaluate the research model's scales (see Appendix for the full survey).

4.1. Data collection and sampling

The sample comprised international tourists, and we proceeded to collect data only after acquiring the required permission from airport authorities to conduct the survey. The survey took place at Greek airports while holidaymakers were waiting for their return flights. Staying at a hotel the night before the flight and understanding English were prerequisites for clients to take part in the survey. A non-probability sampling technique was utilized to survey the readily available part of the population (Bhattacharjee, 2012) inside the waiting lounges. There, the questionnaires were physically distributed along with pens and gathered by two persons.

To avoid exposing some minor errors in the process of data collection, a pilot study (40 surveys) was conducted at the international airport of Thessaloniki. The pilot study did not present any trouble and the survey proceeded at the international airports of Athens and Corfu, collecting 158 and 326 questionnaires respectively.

Concerning statistical analysis of the data, SEM necessitates a considerable sample size, a common sample size being 200 cases (Crockett, 2012; Kline, 2011). Hence, the aggregate of 484 questionnaires from the surveys was adequate for performing SEM analysis with AMOS 22.0 software.

4.2. Sample characteristics

In Table 2, the principal features of the sample are presented. Specifically, the survey collected 484 questionnaires. The majority of the sample (53.31%) was female customers and the surveyed primarily belonged to the age group of 50 to 64 (25.10%), followed by the 25 to 34 age group (24.69%). Most of the sample (42%) held a postgraduate degree, and UK citizens comprised almost half of the sample (49.59%). The main motive for travel was holiday for 74 percent of the respondents, while most (44.51%) stayed at four-star hotels.

5. RESULTS

Before analysing the SEM measurement model in detail, it is critical to confirm that the study's data do not have common bias (CB). Gaskin and Lim's (2017) specific bias tests (SBT) were utilized in this paper to validate biased responses and examine whether the research model is affected by CB. We tested SBT using the price and quality variables. In Table 3, the results indicate that CB was not detected. Thus, it is possible to continue with the SEM analysis.

Table 2
Demographic profile.

Gender	N	%	Trip features	N	%
Masculine	226	46.69	Single	49	10.3
Feminine	258	53.31	Family	225	47.67
Age in years			Other	198	41.95
14–24	82	17.01	Trip purpose		
25–34	119	24.69	Commercial	33	6.99
35–49	118	24.48	Vacations	356	75.42
50–64	121	25.10	Health	20	4.24
≥65	42	8.71	Other	63	13.35
Level of education			Country		
Primary	23	4.78	Germany	48	9.92
Secondary	116	24.12	England	240	49.59
Tertiary	137	28.48	Greece	26	5.37
Postgraduate degree	205	42.62	Poland	26	5.37
Hotel class			Others	144	29.75
3 ***	135	27.95			
4 ****	215	44.51			
5 *****	133	27.54			

Proceeding to SEM analysis, the measurement model (MM) and the structural model (SM) are primarily evaluated (Hair, Anderson & Tatham, 2010). Convergent validity (CV) and discriminant validity (DV) for the MM model were assessed through confirmatory factor analysis (CFA). CFA was tested utilizing AMOS ver. 22.0 and IBM SPSS. CFA examined the individual item reliability. CFA indicates that each item's scale must go beyond a limit of 0.70. However, values lower than that limit could be accepted if both CV and degrees of freedom (DF) are fulfilled (Hair et al., 2010). Therefore, to avoid losing critical information on the conclusions, we decided not to eliminate item D3 ($\lambda = 0.674$) that does not fit this criterion (see Table 4).

The reliabilities of the DART dimensions and price and quality constructs ranged in value from 0.718 to 0.941, and all surpassed the suggested level of 0.7. A high Cronbach's alpha (≥ 0.70) and composite reliability signify that all scale items are estimating the same concept.

In terms of average variance extracted (AVE), all our constructs had values over 0.62, while the suggested limit is 0.50 (Fornell & Larcker, 1981). Therefore, the above-mentioned results determine the presence of CV and DV for the MM. At the same time, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity (χ^2) presented fair values of acceptance for this assessment (see Table 4).

In Table 5, analysis of AVE's square root provides the discriminant validity (DV) (Fornell & Larcker, 1981). This table presents the results of the correlations amongst constructs and demonstrates that no pair of relationships was above 0.85, implying that there is no multi-collinearity and DV is confirmed (Kline, 2011). Furthermore, we utilized the heterotrait-monotrait (HTMT) ratio of correlation criterion to measure DV (Henseler, Ringle & Sarstedt, 2014). The results in Table 6 show that DV is established, as the correlation values are all under 0.85 and 0.90 (Henseler et al., 2014).

Demonstration of the validity and reliability of the SEM-MM allows us to proceed to evaluation of the SM (Kline, 2011).

Table 3
Specific Bias Tests.

Specific Bias Tests: Price				
	X2	DF	Delta	p-value
Unconstrained Model	663,000	929	X2=0,000	1000
			DF=0	
Zero Constrained Model	663,000	929		
Specific Bias Tests: Quality				
	X2	DF	Delta	p-value
Unconstrained Model	364,000	951	X2=0,000	1000
Zero Constrained Model	364,000	951	DF=0	

Table 4
SEM-Measurement Model.

Constructs	Codes	λ	α	AVE	CR	KMO	χ^2
Price	PR1	0.918	0.980	0.854	0.959	0.861***	1801,427
	PR2	0.920					
	PR3	0.941					
	PR4	0.918					
Dialogue	D1	0.821	0.934	0.615	0.864	0.754***	596,018
	D2	0.865					
	D3	0.674					
	D4	0.765					
Access	A1	0.894	0.958	0.732	0.916	0.817***	1116,833
	A2	0.905					
	A3	0.892					
	A4	0.718					
Risk	R1	0.857	0.961	0.743	0.920	0.807***	10,800.192
	R2	0.894					
	R3	0.878					
	R4	0.816					
Transparency	T1	0.894	0.950	0.746	0.898	0.699***	5750.843
	T2	0.881					
	T3	0.814					
Quality	PD1	0.847	0.958	0.781	0.914	0.719***	689,944
	PD2	0.903					
	PD3	0.900					
<i>Model fits</i>	$\chi^2(df)$		GFI	AGFI	CFI	IFI	RMSEA
<i>Results</i>	416.054*** (186)		0.929	0.903	0.972	0.972	0.051
<i>Recommended</i>	$p < 0.05$		0–1	0–1	0–1	0–1	< 0.8

Notes: 0 (not fit) to 1 (perfect fit) λ : Factor Loadings; α : Cronbach's Alpha; CR: Composite reliability; AVE: Average variance extracted; KMO: Kaiser–Meyer–Olkin; χ^2 : Bartlett's test of sphericity.

Path coefficients estimation and R^2 of the dependant constructs (the relationship between the DART dimension and price and quality), were used to determine the SM in Fig. 2. In Table 7, the results of the SEM indicate acceptable fits (e.g., GFI = 0.940, CFI = 0.973, RMSEA = 0.049). Thus, t-values were used to measure the significance of the parameter estimates.

First of all, the results indicate that the dialogue variable does not positively influence the constructs PQ ($\beta = -0.06$, $p > 0.05_{H1b}$) and PP ($\beta = -0.08$, $p > 0.05_{H1b}$). This means dialogue has no impact on hotel marketing strategies with regard to quality or price and there is no support for hypotheses H1a and H1b. These results should lead to future research on why dialogue has a negative impact in the context of the accommodation industry, which contradicts the values we expected.

Concerning hypothesis 2, the results support the positive effect that access has on PQ ($\beta = 0.29$, $p < 0.001_{H2b}$). Consequently, we can confirm our hypothesis. On the other hand, access does not have a positive impact on the PP of hotels ($\beta = -0.08$, $p > 0.05_{H2b}$), leading to this hypothesis being rejected. Therefore, why this relationship is negative in the hotel industry context is a question for future research.

The third hypothesis is supported as we confirm that risk positively affects both PP ($\beta = 0.10$, $p < 0.05_{H3a}$) and PQ ($\beta = 0.17$, $p < 0.01_{H3b}$). At the same time, the fourth hypothesis is supported as

Table 5
SEM-DV and Correlations.

Constructs	1	2	3	4	5	6
Risk	(0.861)					
Access	0.668**	(0.855)				
Dialogue	0.595**	0.657**	(0.784)			
Transparency	0.819**	0.676**	0.637**	(0.863)		
Quality	0.597**	0.640**	0.428**	0.639**	(0.883)	
Price	0.567**	0.490**	0.346**	0.580**	0.792**	(0.924)

Note:.

** . Significance at the 0.01 level; The diagonal values in parentheses are the square root of AVE.

Table 6
SEM-DV and HTMT.

	Price	Dialogue	Access	Risk	Transp	Quality
Price						
Dialogue	0.345					
Access	0.475	0.745				
Risk	0.561	0.629	0.720			
Transp	0.631	0.673	0.734	0.824		
Quality	0.815	0.425	0.623	0.602	0.694	

transparency affects both price ($\beta = 0.16$, $p < 0.01_H4a$) and quality ($\beta = 0.27$, $p < 0.01_H4b$). Lastly, there is robust support for the fifth hypothesis ($\beta = 0.73$, $p < 0.001_H5$).

In conclusion, the amount of variance explained by the dimensions of the DART model on the strategic variables of hotel marketing is moderately high, with price explained by 62 percent and quality by 45 percent.

6. DISCUSSION and CONCLUSION

This research has investigated the impact of VCC on the PP and PQ of hospitality services. The study is supported by the fact that the unique value that consumers co-create is mainly affected by the PP and PQ. The DART model was used as the VCC framework, with the exception that it was used from the customers' point of view. This exception provided us with better support to evaluate the effect of VCC procedures on customers' perceptions of price and quality in the hospitality services context.

Our results indicate that VCC through the DART model partially affects customers' perceptions of price and quality of service. More specifically, dialogue does not seem to have any effect on either PP or PQ, while access does not affect price. An explanation for the dialogue construct may be that the dialogue was a superficial communication that did not reach the understanding which is vital for VCC (Ballantyne, 2004) and subsequently did not affect customers' price and quality perceptions. In line with the literature review, not all forms of dialogue may affect the customer's perception (Grönroos, 2004) regardless of the variety of communication channels offered by hotels (Ballantyne, 2004).

The results suggest that PQ was affected by the access provided by the hotel. However, that access did not affect the guests' PP. A possible explanation is that most of the hotel's clients bought a travel package including accommodation, transport, and probably other services. A customer study by Tanford et al. (2011) revealed that vacation packages influence clients' perceptions of price and value. Consequently, it would be complicated for the customers to assess

the price of accommodation separately. However, the quality of hotel services is more naturally evaluated by guests using the hotel's star category, in line with Piri and Lotfizadeh (2016), as access to hotel information on services facilitates guests comparing this with actual performance.

Furthermore, this research has confirmed that risk and transparency affect customers' perceptions of price and quality, which is in line with the theory (Piri & Lotfizadeh, 2016; Rothenberger, 2015). Internet and communication technologies make it very difficult for hotels to conceal information on possible risks of their service offerings. Such information is used by clients to assess the risk involved in the services they receive, which consequently enhances trust between actors. Moreover, the results are coherent with the theory that transparency of information has the most significant impact on PP (Miao & Mattila, 2007; Rothenberger, 2015). That is also in line with the work of Rothenberger (2015), in which transparency in price causes positive PP. Concerning PQ, the results are coherent with previous studies (Zanfardini, Simó & Alcañiz, 2013) which indicate that transparent business practices enhance tourists' PQ level.

On the other hand, concerning the relationship between price and quality, our results provide excellent empirical support which is consistent with prior research (Chiu And & Chen, 2014; Liu & Lee, 2016; Schamel, 2012; Yacouel & Fleischer, 2012).

The paper has also exposed the existence of a relationship between two marketing models based on the paradigms of VC and VCC. Following Chathoth, Altinay, Harrington, Okumus and Chan (2013), these two paradigms can be understood as a continuum rather than a dichotomy. Furthermore, we can understand that VCC is produced within the exchange value (Wiltshier & Clarke, 2017). Companies and clients have well-adjusted and interdependent roles in service production and VC. However, this reciprocally advantageous relationship is complicated to accomplish (Chathoth et al., 2013). This difficulty has been verified in our DART model, especially with the null influence exerted by the dimension of dialogue on perceptions of price and quality. From this perspective, Vargo and Lusch (2004) indicate the goods-dominant approach is applicable in the hotel environment, given that customers have minimal capacity to choose with regard to the definition of hotel products and services. In order to communicate with customers successfully, hotels must first establish the concrete and intangible features of their various products and services before involving their clients (Chathoth et al., 2013).

6.1. Managerial implications

The findings of this study have some unique implications for hotel managers for managing co-creation activities with clients and enhancing their service offering. To begin with, the study has

Table 7
Structural model results.

Hypotheses	Effect	Estimate	S.E	C.R	Support	R ²
Dialogue→ Quality	+	−0.06	0.056	−1.224	No	0.45
Access→ Quality	+	0.29***	0.054	5.420	Yes	
Risk→ Quality	+	0.17**	0.065	2.650	Yes	
Transparency→ Quality	+	0.27**	0.089	3.007	Yes	
Dialogue→ Price	+	−0.08	0.046	−1.709	No	0.62
Access→ Price	+	−0.08	0.043	−1.972	No	
Risk→ Price	+	0.10*	0.053	1.972	Yes	
Transparency → Price	+	0.16*	0.074	2.197	Yes	
Quality→ Price	+	0.73***	0.052	14.156	Yes	
Model fits	$\chi^2(df)$	GFI	NFI	CFI	IFI	RMSEA
Results	405.226***(194)	0.940	0.951	0.973	0.973	0.049
Recommended	$p < 0.05$	0–1	0–1	0–1	0–1	< 0.8

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$

Notes: 0 (not fit) to 1 (perfect fit).

demonstrated that customers' PP and PQ are related to some dimensions of the DART model for value co-creation, particularly risk and transparency. The significant relationship of these two components with PP and PQ indicates that a customer considers these factors important enough to influence their perception of value. Hence, we envisage that recognition of this relationship can be utilized to strengthen competitive positioning and increase revenue opportunities for hotels.

The significance of the risk dimension can be discerned from the safety and security concerns of tourists, who will likely be less familiar with the immediate environment of the given destination. On the premise that tourists have little knowledge of a destination, hotels can provide advice to tourists on how to avoid negative experiences while touring the city, such as avoiding neighborhoods with high rates of crime, pickpockets, muggings, and scams; avoiding certain groups of traders who target tourists specifically to rip them off with expensive souvenirs; and reliable transport routes and times for night travel, etc. Tourist safety concerns can also present unique avenues for revenue generation for hotels when the opportunity is taken to offer tourists special packages to visit attractions around the city. Such tour packages will be conducted and led by a tour guide who is conversant with the city and knowledgeable on how to avoid potential risks. The findings from this study suggest that such efforts will be significantly correlated to quality and price perceptions, and can help confer a unique position of safety and assurance in the minds of customers.

The DART framework proposes that customers can perceive transparency from the degree of openness with which a firm shares information about its service offerings and prices. Many producers are able to charge non-competitive prices because consumers are frequently poorly informed about the market (Steenkamp, 1988).

The information imbalance between firms and customers has conventionally been to the advantage of the firm (Prahalad & Ramaswamy, 2004a). The results of this study underscore the need for openness and transparency in information sharing, because such openness can be perceived as a unique gesture by customers; it can improve their perceptions of fairness and quality, and their confidence in the hotel's service offerings. This is in line with Prahalad and Ramaswamy (2004a), who suggest that the combination of the risk and transparency dimensions can build customer trust. Prahalad and Ramaswamy (2004a) explored the effect of external information sharing and confirmed that information sharing can improve customers' responsiveness and purchase intentions toward product offerings. Given the positive impact of openness in information sharing on perceptions of trust, quality, and fairness, the onus is on the hotel's management to take advantage of customers' responsiveness as a means to engage them with more offerings that ultimately increase revenue for the hotel.

The findings from this study also indicate that tourists' PQ positively affects PP, along with three dimensions of the DART framework (access, risk and, transparency) being positively related to PQ. This intermediary role of PQ implies the existence of a quality-price inference, where customers can gauge the price of a service based on the quality perceptions of the three dimensions. Hotel managers must then recognize the importance of customers' quality perception, not just for the indicator role it plays but also as a strategic tool for targeting and positioning. As VCC increases customers' value and quality perception, they will anticipate a fitting price for the value received.

6.2. Limitations and new research directions

An overwhelming number of studies have limitations and our research is no exception. We therefore point out some constraints of our study and present avenues for future research.

The study's limitations are especially concentrated in the convenience sample and the approach of the research model. In terms of

the study's sample, the hotel clients surveyed were guests located mostly in a holiday resort, such as the island of Corfu. Also, many of them were leisure tourists who had booked their trips through tour operators. This kind of client tends to be more conventional in their way of organizing and enjoying their vacations. Therefore, it would be beneficial to study a wider variety of tourist destinations which include greater diversity of hotels. Also, new research could investigate consumer segments according to how they organized their trip, whether autonomously contracting with the hotels or through a package organized by a travel agency or other intermediary agents. Perhaps tourists who organize their trip by themselves are postmodern tourists (López-Bonilla & López-Bonilla, 2009), and they may be more willing to contribute to VCC than tourists who buy a tour package. Likewise, in line with Ye, Li, Wang and Law (2014), it is possible to explore the moderating impact of the type of trip (leisure tourists vs business tourists) and the hotel category (number of stars) on VCC and marketing strategies based on quality and price.

A second limitation derives from the research model and the connection proposed between the two marketing approaches (VC and VCC), where PV is only tested on its two distinctive utilitarian factors, PQ and PP. It may be necessary to include other components of PV.

Prior literature in hospitality studies has explored PV in terms of hedonic and utilitarian values (Dedeoğlu et al., 2016; Hlee, Lee, Yang & Koo, 2019; Hyun & Park, 2016; Wu, Chen, Chen & Cheng, 2014), while this study has explored just the utilitarian context of PV. Hedonic value is the conscious feeling of value derived from the reputational, aesthetic, social, and emotional aspects of a product or service offering. Teng, Wu, Teng and Wu (2019) describe hedonic values as being associated with customers' desire to experience fun, entertainment, novelty, and excitement. Given that these experiences are also embedded in a hotel's service offerings, it would be useful for further research to include in the VC model additional variables that measure values such as social, emotional, and reputational values.

Finally, it should be mentioned that marketing strategy studies regarding price and quality have focused mainly on monetary price. Hence, it could be interesting to extend the analysis to include the non-monetary aspects of price. Iglesias and Guillen (2002) described the non-monetary aspects of price as including temporal, physical, sensorial, and psychological costs. Temporal cost refers to the time dedicated to evaluating a product before purchase; physical cost refers to the physical activities required to obtain information about the product; sensorial cost captures the stimuli and sensations induced by a product before its purchase; while psychological cost connotes the mental exercise dedicated to assessing a product's features and comparing them with competing products. Non-monetary costs can convey the level of sacrifice which a customer makes before making a purchase decision. Thus, it would be interesting to investigate how the interplay of the value co-creation dimensions facilitates or hampers clients' non-monetary sacrifices.

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