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Journal of Global Hospitality and Tourism

Volume 4 | Issue 2 Article 3

September 2025

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Recommended Citation

Demydyuk, G., & Carlbäck, M. (2025). Applying the synergy of experience accounting and service dominant logic to rank customer experiences in the mainstream cruising. *Journal of Global Hospitality and Tourism, 4*(2), 136-161. https://www.doi.org/10.5038/2771-5957.4.2.1067

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Applying the Synergy of Experience Accounting and Service Dominant Logic to rank Customer Experiences in the Mainstream Cruising

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Abstract

This study analyzes how service-related experiences influence customer satisfaction and perceived value for money in the cruise industry. By integrating Service-Dominant Logic (S-D-L) and Experience Accounting (EA), it aims to support the development of customer-centric performance systems for managerial decision making in the all-inclusive hospitality sector. This is the first empirical study to merge data from three perspectives in service-for-service exchanges: customer review ratings from online platforms, ship-level operational characteristics, and financial metrics from corporate reports. This integrated approach allows for a holistic evaluation of the service ecosystem and cocreation of value onboard cruise ships. A quantitative analysis was conducted using a series of multivariate regressions, including a hybrid mediation model, to examine how service ratings influence other experience categories, and ultimately, customer satisfaction and value perceptions. The analysis is based on 9,753 online cruise reviews combined with data on ship characteristics and corporate financials. Service and dining emerged as the most important predictors of overall cruise satisfaction across all ship classes. Mediation analysis revealed that service not only directly and indirectly affects satisfaction positively but also shapes perceptions of ambiance, dining, and value for money. While the ship's physical environment (operand resources) contributed to customer experiences, its impact varied depending on the combination of experiences driven by service and staff (operant resources). These findings highlight the dynamic interplay between the tangible and intangible elements of customer experience and position service as the central drivers of cocreated value within the cruise experience.

Keywords: cruise lines, experience accounting, cocreation of service experience, big data analysis, customer satisfaction, customer metrics, service dominant logic

Introduction

People travel to search for memorable experiences. However, creating such experiences requires a fundamentally different approach than producing traditional goods and services (Pine & Gilmore, 2011). In experience-based offerings, customer value becomes a primary source of competitive advantage and profit (Carlbäck, 2010; Ingenbleek, 2014; McNair-Connolly et al., 2013). Simultaneously, service providers must retain control over profit targets while developing value propositions and configurations from which customers can derive value (Gupta & Vajic, 2000). This dual imperative calls for an understanding of both the value delivered to customers and the cost of resources, which determine the price floor (Ingenbleek, 2014).

From a Service-Dominant Logic (S-D-L) perspective, value is not created through the isolated efforts of a firm or its customers, but through their joint actions and processes (Vargo et al., 2017). The art of experience management lies in selecting the right aspects of the customer journey for cocreation, thus enabling more productive resource allocation (Andersson, 2007; Vargo & Lusch, 2017). Achieving competitive advantage in experience-based businesses requires reliable insights, captivating metrics, and analytical creativity. Better performance indicators help capture the processes and contexts that shape customer satisfaction (Gupta & Vajic, 2000; Ingenbleek, 2014).

Nevertheless, managers in tourism, hospitality, and leisure often receive limited customer-centric guidance from their accounting systems (Andersson & Carlbäck, 2009; McManus & Guilding, 2008). Traditional accounting and revenue management systems in hospitality often treat customer satisfaction as a peripheral outcome, rather than as a driver of value. Recent conceptual works (Chu & Hsu, 2023; Ng & Wood, 2018) emphasize the need to rethink these systems by integrating customer experience data and acknowledging the active role of guests in cocreating value. Recent calls for resilience and profitability in the post-pandemic era have led to the urgent need for better integration especially urgent (Shapoval et al., 2021). However, practical and empirical applications of such integration remain limited.

S-D-L posits that service is the dominant basis of all economic exchanges, where value arises through service-for-service exchanges rather than goods-for-goods or goods-for-money transactions (Vargo & Lusch, 2009, 2017). While Ingenbleek (2014) applies S-D-L to value-informed pricing, there is a notable absence of managerial accounting concepts that reflect customer value creation in service contexts (Carlbäck, 2010; Guilding & Mcmanus, 2002; Gupta & Zeithaml, 2006). Novel Experience Accounting (EA) has the potential to address this gap by linking the cost of resources directly to customer experience outcomes and, assuming an understanding of the importance and performance of these experiences for overall customer perception, their share in revenues. Although both EA and Ingenbleek's (2014) value-based pricing concept are rooted in the idea of comparative resource advantage (Hunt & Morgan, 1995), EA represents a more complete framework that extends beyond pricing. EA uses customer experience as the foundation for resource decisions, prioritizing those that matter most to specific customer segments (Andersson & Carlbäck, 2009).

To advance our understanding of value cocreation in service ecosystems, this study integrates two theoretical concepts. First, S-D-L is used to conceptualize value cocreation processes in the management context. Second, EA was applied as a measurement tool to quantify the contribution of specific experiences to overall customer satisfaction. While S-D-L has rarely been

operationalized in the context of managerial accounting, EA offers a practical framework to bridge this gap and make service performance measurable from both management and customer perspectives.

Specifically, this study analyzes how service-related experiences influence customer satisfaction and the perceived value for money in the mainstream cruise industry. Drawing on the S-D-L and EA frameworks, we examine how service contributes to satisfaction both directly and indirectly through its influence on other experience dimensions such as ambiance, dining, and perceived value. This approach supports the development of customer-centric performance metrics and enhances managerial decision making in all-inclusive hospitality settings. The analysis was based on online customer reviews of a cruise company operating in the mainstream market segment. The cruise industry offers a compelling setting for this study because of its blend of curated experiences, making it a rich example of a service ecosystem. We argue that our analytical approach and findings can be extended to other all-inclusive service models as well as to less complex hospitality environments. Specifically, EA enables organizations to identify, evaluate, and improve critical experience drivers and guide resource allocation, which has the greatest impact.

The Case Company

The selection of the case company was explicitly performed in the mass market segment, where operators could better scale successful models and clearly separate them from the luxury service concepts. *MSC Cruises S.A.*, in which this case is made, operate exclusively in the mainstream cruise market segment and focus solely on the mass market. According to the company's information, MSC Cruises are the world's largest privately owned cruise company and the number one cruise line in Europe, South America, and South Africa. It has achieved 800% growth in its first ten years and has become famous for operating one of the youngest cruise fleets at sea.

This cruise company was developed to cater to European customers and features affordably priced offerings on all continents, often offering the lowest price per passenger cruise day in the market. MSC attempts to attract an international array of passengers, keeping ships' interior design classic elegant and staying decidedly traditional in evening entertainment. To maintain lower ticket prices, MSC offer a wider choice of customized cruise extras, such as drinks and internet packages.

This study analyzed MSC cruise customer reviews posted on the Internet on three major websites: *cruisecritique.com, cruiseline.com* and *tripadvisor.com*. The reviews rate different customer satisfaction categories and cruises in overall. This facilitated the modelling of the relationships between service ratings and other related individual topics through the extraction of rating indicators to investigate variations in overall customer satisfaction. This study aims to examine how service-related experiences affect customer satisfaction and perceived value for money by applying the integrated framework of S-D-L and Experience Accounting to analyze their interactions within the service ecosystem.

Literature Review

There is substantial opportunity to develop new concepts and tools in hospitality management that integrate perceived customer value, resource allocation, and customer metrics into managerial accounting (Andersson & Carlbäck, 2009; Gupta & Zeithaml, 2006; McManus, 2013; McManus & Guilding, 2008; Nemeschansky, 2020).

Ng and Wood (2018) criticise the reductionist nature of traditional customer accounting, which often fails to reflect customers' contextual roles in value cocreation. They call for accounting logic aligned with S-D-L, yet offer no operational model. Chu and Hsu (2023) similarly proposed a conceptual framework for cruise revenue management that incorporates customer experience and service principles, but their approach remains conceptually theoretical. To date, there is a lack of empirical research that quantitatively examines how specific customer experiences translate into perceived value and satisfaction within a financially relevant framework, an important gap this study addresses using the Experience Accounting (EA) approach.

Previous cruising studies have considered various variables and models (e.g., Castillo-Manzano et al., 2018; Chang et al., 2017; Demydyuk & Carlbäck, 2025; Duman & Mattila, 2005; Hosany & Witham, 2010; B. Li, 2014; Y. Li & Kwortnik, 2017; Snitzer, 2020; Syriopoulos et al., 2022; Tao & Kim, 2019; Vogel, 2009; Weaver, 2005; Yoon & Cha, 2020). However, these studies were based on an array of theories and frameworks outside the accounting or operational domains, and neither applied S-D-L.

Theoretical Foundations

Because resources are limited, firms must allocate them optimally to maximize returns, not only through cost minimization but also by enhancing the value customers derive from offerings (Ingenbleek, 2014; Liu et al., 2022). Resource advantage theory of competition (Hunt & Morgan, 1995) posits that combining low resource costs with high customer value generates a competitive advantage. Information about which customer experiences add the most value can guide resource allocation toward greater value creation (Carlbäck, 2022; Ingenbleek, 2014). This principle underpins the Experience Accounting (EA) framework, which seeks to compare individual customer experiences and align them with resource consumption to achieve desired performance levels (Andersson & Carlbäck, 2009; Ingenbleek, 2014).

Integrating EA with the behavioral economics foundation of S-D-L allows us to address service and cocreated value from both theoretical and practical perspectives (Wieland et al., 2017). S-D-L asserts that service is the fundamental basis of all economic exchanges, where value emerges through service-for-service interactions between employees and customers rather than traditional goods-for-goods or goods-for-money exchanges (Vargo & Lusch, 2009). In this view, service exchange, rather than physical products or services, is the foundation of experience.

Figure 1. Integration of the S-D-L and the EA frameworks into the management context. Partially adopted from Wieland, Hartmann, & Vargo (2017).

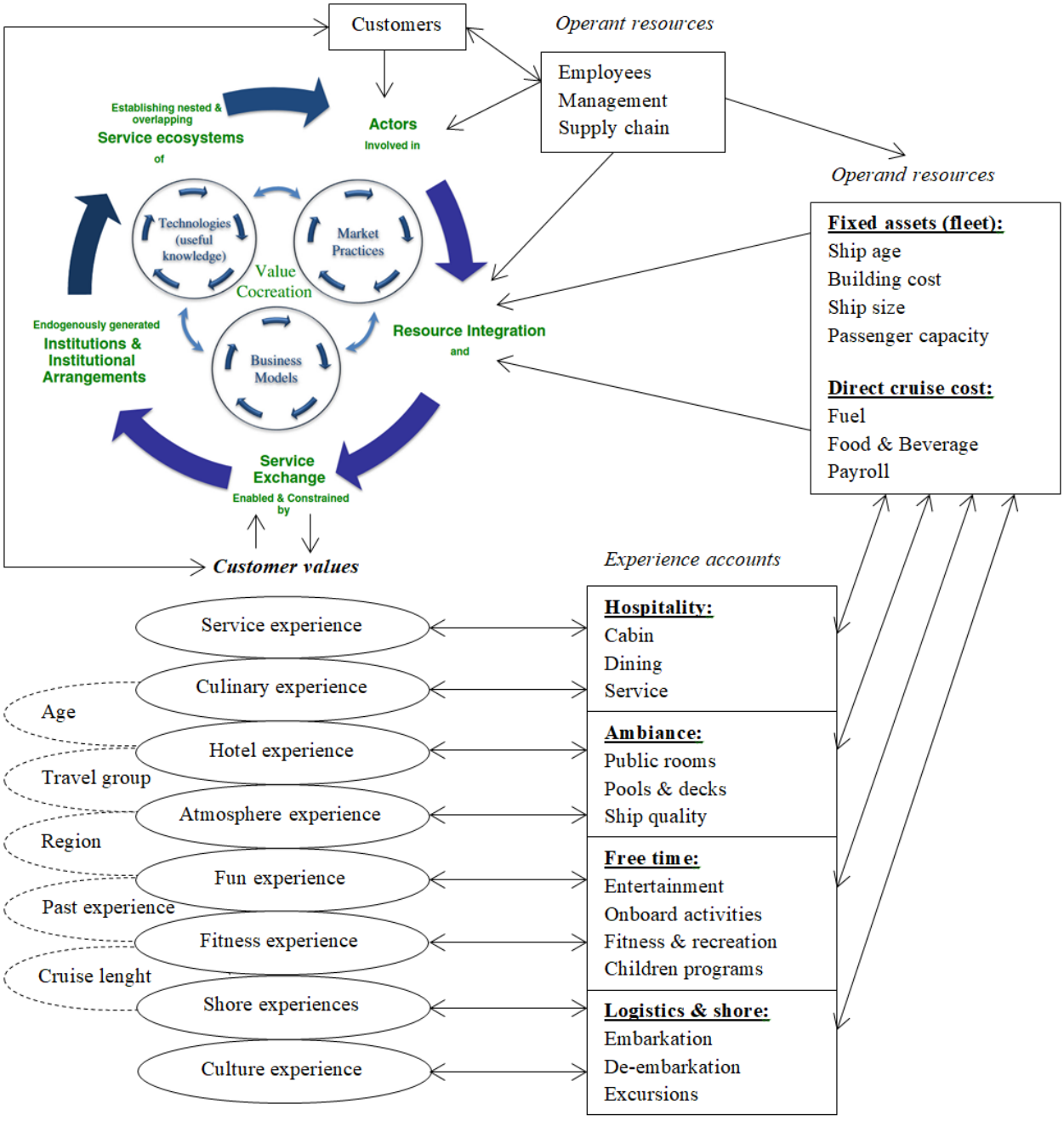


Figure 1 illustrates the intersection of the S-D logic and EA in supporting performance management systems. The model draws from Wieland, Hartmann, and Vargo (2017) fractal, service ecosystem perspective, and adapts Andersson and Carlbäck's (2009) EA framework from restaurants to the cruise industry context. Central to this framework is the distinction between

operant resources (knowledge and skills) that act on operand resources (physical assets) and operant resources that play a dominant role in value creation (Vargo et al., 2017). Aligned with Pine and Gilmore´s (2011) Experience Economy concept, the model emphasizes the growing importance of operant resources in service ecosystems where experiences are cocreated by employees, customers, and other stakeholders (actors).

In cruise and all-inclusive resort settings, experiences are shaped not only by formal service plans but also by the knowledge and competence of service personnel, operant resources that may warrant greater emphasis within EA. Consequently, this study examines the direct relationships between service quality and other experience dimensions, as service is integral to overall guest experience. These interactions influence the overall satisfaction, perceived value for money, and passenger evaluations of ships and cruise lines.

S-D-L focuses on service ecosystems, and cocreation (Vargo et al., 2017) provides a fertile theoretical foundation for advancing EA, particularly in enclosed, all-inclusive service models such as cruise companies and resorts. These environments offer ideal contexts for testing and refining EA for future managerial applications. A critical prerequisite for customer-centric performance management is the incorporation of customer experience insights into service ecosystems, embracing cocreation to enhance resource utilization and competitive advantage. Understanding the cocreation principles of S-D-L is vital for developing managerial accounting systems such as EA that reflect customer value (Grönroos & Voima, 2013; Vargo et al., 2017).

Building on S-D logic and EA, this study assesses the relative importance of customer experiences to integrate value cocreation into the managerial accounting context. By combining these perspectives, we aim to advance performance management systems that more accurately reflect customer value and enable value-informed managerial decision making.

Hypothesis Development

Customer experiences on a cruise are multifaceted, with each element—such as service, ambiance, or dining—playing a unique role in shaping customer satisfaction and overall cruise evaluation. Drawing on S-D-L, EA, and prior empirical studies, we propose a set of hypotheses that reflect the distinct contributions of experience elements and their interdependencies, forming the basis for a hybrid mediation model that combines parallel and serial mediation.

H1: *Each customer experience contributes differently to customer satisfaction and, by extension, to the overall cruise rating (direct effects).*

This hypothesis is based on the premise that experience components, ranging from dining and service to ambiance and entertainment, vary in their direct impact on customer satisfaction. Previous research using importance-performance grids in general (Busacca & Padula, 2005) and online cruise review analysis in particular (Demydyuk & Carlbäck, 2025; Cardenas et al., 2022; Tao & Kim, 2019), supports the idea that certain experiences are more critical to guests' overall evaluations than others.

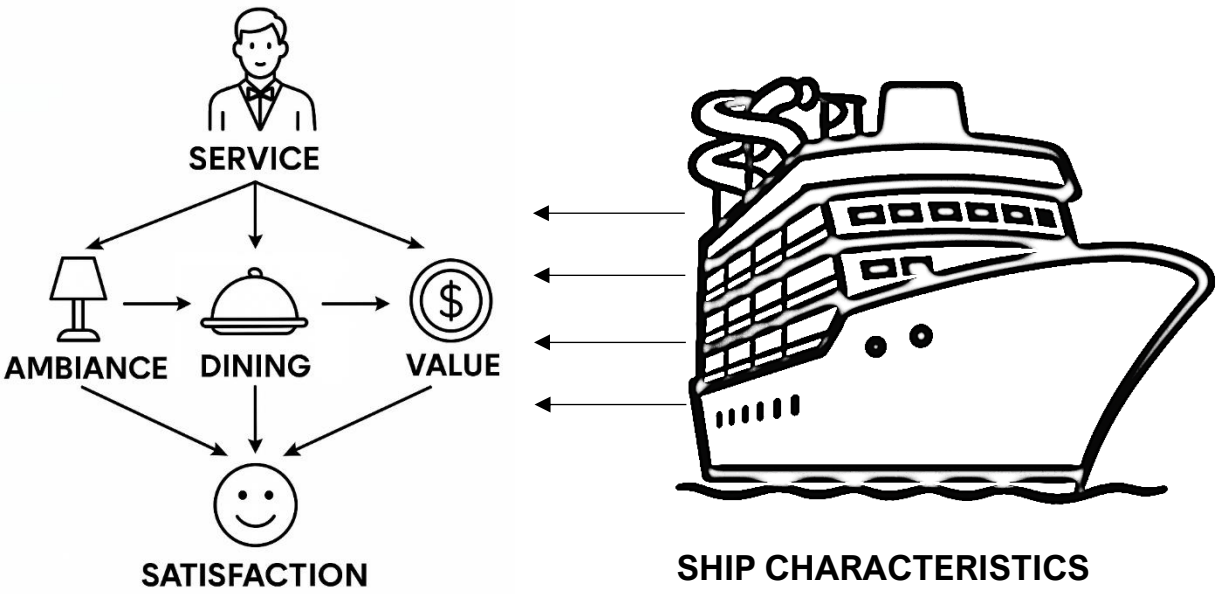
H2: *Customer experiences influence one another through indirect effects, such that the perception of one experience mediates the impact of another on overall satisfaction (serial mediation).*

This hypothesis reflects the dynamic interplay between experience elements, where the effect of one dimension (e.g., ambiance) on satisfaction is partially mediated by another (e.g., service or dining). These interdependencies suggest a serial mediation structure in which one experience amplifies or dilutes the effect of another before influencing the overall evaluation. This assumption is grounded in conceptual work on value cocreation (Grönroos & Voima, 2013; Vargo & Lusch, 2017) and qualitative insights (Jordan & Gibson, 2005) that emphasize the cumulative and relational nature of service experiences.

H3: *Perceptions of service quality mediate the relationship between other experience categories and satisfaction, enhancing perceptions of dining, ambiance, and value for money (parallel mediation).*

We posit that service acts as a central mediating factor across multiple experience domains. High service quality not only directly contributes to satisfaction but also indirectly improves customer perceptions of other touchpoints, such as dining, public spaces, and perceived value, through parallel mediation paths. This reflects the operant role of service in shaping the interpretation and impact of more tangible operand resources (Grönroos & Voima, 2013; Vargo et al., 2017).

Figure 2. Conceptual Diagram for Hypotheses testing



By integrating the three hypotheses, we constructed a hybrid mediation model that captures both parallel and serial pathways through which cruise experiences influence overall satisfaction (Figure 2). This approach allows us to test not only the direct effects of individual experience elements (H1) but also their indirect effects through mediated relationships (H2 and H3). In doing so, we extend the theoretical lens of Service-Dominant Logic by modelling the mechanisms of value cocreation at a granular, experience-specific level. At the same time, we build on Experience Accounting (Andersson & Carlbäck, 2009) by offering a quantified, pathway-based understanding

of how customer perceptions translate into meaningful financial and managerial outcomes. Furthermore, we consider the role of the physical environment in which experiences are cocreated by controlling for ship characteristics, thus integrating operand resources into the model. As Figure 2 shows, the resulting framework can serve as both a conceptual contribution and a practical decision tool for experience-intensive service providers.

Methodology

This study begins by identifying the main categories that impact customer satisfaction and perceived value for money (Part I) and then proceeds to identify the role that service plays in the perception of these categories (Part II). In doing so, the authors consider multiple factors and aspects on both sides of the service for service exchange, namely, the customer and cruise line (Vargo et al., 2017), and reconstruct the environment in which customer experiences are created. This study is the first to analyze merged data from three different sources.

Consistent with the aim of this study, the methodology was designed to quantify the role of service as an operant resource in shaping customer satisfaction and perceived value for money. We analyze the interrelationships between experience categories using customer-generated ratings, technical ship features, and financial data, applying regression-based linear and mediation analysis to understand how service affects both individual experiences and overall value perceptions within a service ecosystem.

Data collection, sample and variables

The first dataset reflects the customer perspective. Customer cruise reviews written in English were collected from three internet portals to access customer satisfaction data: *cruisecritique.com, cruiseline.com and tripadvisor.com.* These three portals were selected based on a combination of available data for star ratings in various categories, passenger demographics, and a sufficient number of reviews for MSC ships. Only readily available quantified data were analyzed in this study, and textual comments were not deployed. Measured on a five-point Likert scale, the ratings for single categories and overall satisfaction ratings ranged from 1 (lowest) to 5 (highest), with no rating. All the data consistently contained the date of review (framed between 2004 and 2019), cruise destinations, and ship names. A web crawler written in PHP language 7.4 was used to download the reviews.

The cleanup of data consisted of deleting duplicate reviews and reviews without a date or overall rating, which resulted in the following distribution of usable reviews:

cruisecritique.com	5016	(51.4%)
cruiseline.com	3672	(37.6%)
tripadvisor.com	1065	(10.9%)
Total	**9753**	**(100.0%).**

Review ratings from different websites were aggregated into a single database. Specifically, single experience ratings and passenger data available across different websites were merged, whereas variables available from only one or two websites had lower observation counts. A more detailed explanation of the data structure can be found in Annex 1.

The second dataset contained information about the MSC fleet, such as ship age, size, and similar data and was collected from the *cruisemappers.com* website. This type of data, further summarized in Table II, was needed to re-create a firm's operational strategies through its operand resources or according to Banker and Johnston's (2007) *executional drivers* of firm strategy. For instance, service intensity can be better understood through passengers to crew or passenger to space ratios, and the size and age of the ship can give an idea about the cruise atmosphere as more intimate and family like or more crowded and fun-oriented. In addition, the number of decks indicates the various onboard activities that can be undertaken during a cruise.

The first and second datasets were merged using the ship name as the key feature. Specifically, individual ship characteristics were added to each review relevant to this specific ship. Before performing the tests, the data for the 17 ships belonging to the MSC fleet in 2019 were grouped according to their building class. That is, sister-ships have identical characteristics and form a generation of vessels through which a cruise company can implement its current visions and strategies. Table I presents fleets grouped by class.

Table 1. Total MSC Cruises fleet grouped by the ship class: the list of participating ships including the year built

Lirica class	MSC Armonia (2001), MSC Sinfonia (2002), MSC Lirica (2003), MSC Opera (2004)
Musica class	MSC Musica (2006), MSC Orchestra (2007), MSC Poesia (2008), MSC Magnifica (2010)
Fantasia class	MSC Fantasia (2008), MSC Splendida (2009), MSC Divina (2012), MSC Preziosa (2013)
Meraviglia class	MSC Bellissima (2019), MSC Meraviglia (2017), MSC Grandiosa (2019)
Seaside class	MSC Seaside (2017), MSC Seaview (2018)

Following grouping by ship generation (Table 1), the sample was split into five sub-samples accordingly. Customer-associated data, such as Traveler's age, cruise length, and size of the travel group (solo, couple, and family with children or multi-generational family/friends), were also available from the reviews but inconsistently. Specifically, only 47.5% of the reviews contained age information, 38.2% of the travel group, and 29.8% of the cruise length. Despite missing values, the sample size containing available records allowed rigorous statistical analysis.

Accounting, financial, and operating information comes from annual reports posted on MSC corporate websites, and covers a period of five years between 2016 and 2021. This information provides the number of passengers carried and passenger cruise days, both available and sold, which have been used as denominators for calculating various passenger metrics. Specifically, the average ticket price, onboard spent, and the cost of food per passenger-day were calculated. This information was used to gather a general impression of the company, understand its operating strategies, compare it with its direct competitors, and validate the findings.

Descriptive statistics

A summary of the descriptive statistics for the variables used in the analysis is presented in Tables 2 and 3, both of which provide an overview of the variables, such as the ship characteristics and review categories, number of observations, and mean values. The data frequencies and distributions are presented in Annex 2.

Following Table 2, simple observations reveal how newer ships grew in size from 13 decks in 2001 to 19 decks in 2017, and the number of cabins doubled. Accordingly, shipbuilding costs increased from $245 M some 20 years ago to $1000 M for recently built ships. The meaning of this change was two-fold. On one hand, larger ships can offer more onboard activities, match the interests of the wider public, and offer more opportunities for onboard revenue generation. On the other hand, this increase in size also leads to a reduction of service intensity onboard (passenger-to-crew ratio), for instance in the Musica and Fantasia class there are 2.4 – 2.5 passengers per crew member, which grew over the next 15 years to 2.9 passenger per crew for Seaside and Meraviglia classes.

In terms of the average passenger profile (Annex 2), the vast majority of guests in this sample (73.6%) were between 40-70 years old and took a classical seven-night cruise (73.8%). Couples were represented the most (19.5%), followed by larger groups starting with four people, mainly multi-generational families (4.9%), and groups of friends and family (5.2%).

Table III summarizes the descriptive statistics for the customer reviews for the entire sample based on the data from the three websites as well as grouped per ship class. These results offer several interesting insights. First, the overall satisfaction rating for the MSC cruises was relatively low (3.49). It improves slightly for newer ships, such as those in the Seaside class (3.76), but remain below four, which means that the majority of customers are not satisfied with their cruises (4 = satisfied, 5 = very satisfied). A further immediate observation is that satisfaction ratings with categories characterizing the ship layout and quality, such as cabins (4.09), public rooms (4.00), ship quality (4.28), and disembarkation (4.11), are well above the other indicators. Other indicators that relate more to everyday operations, such as Dining (3.29) and Service (3.66), are relatively low compared with other mass-market operators.

Method

All analyses were performed using SPSS Statistics 28 software. The main analysis consisted of two parts, each consisting of a stand-alone statistical analysis. The first part tested Hypothesis 1, and the second part tested Hypotheses 2 and 3.

Part 1. In the first part, a series of multivariate regressions was run to explore and identify the relationships between star ratings in different review categories and the overall cruise rating separately for the five ship classes. Standard Least Squares Regression was applied:

$$y = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_p x_{ip} + \epsilon \qquad (1),$$

where the dependent variable y is the overall customer cruise satisfaction and the independent variables $x_{i1,}$ $x_{i2,}$…, are as follows:

x_{i1} = Cabin rating; x_{i2} = Dining; x_{i3} = Service; x_{i4} = Entertainment; x_{i5} = Onboard activities; x_{i6} = Embarkation; x_{i7} = Disembarkation; x_{i8} = Public rooms; x_{i9} = Fitness and recreation; x_{i10} = Excursions; x_{i11} = Pools and decks; x_{i12} = Children's programs; x_{i13} = Value for money; x_{i14} = Ship quality

β_0 = y-intercept (constant)
ϵ = model's error term.

The results of this part of the analysis were considered along with other theoretical inputs to design the mediation model used in Part 2. Specifically, only the control variables with significant coefficients were selected to participate in Part 2.

Part 2. In the second part of the analysis, we tested a hybrid regression-based mediation model to understand the direct and indirect effects of service experience (X=SERVICE) as an operant resource on overall satisfaction (Y=OVERALL RATING, link *c'*) through ambiance and dining experiences and perceived value for money (Hypothesis 3). The model with three mediators (M_1=PUBLIC link a_1, M_2=DINING link a_2, and M_3=VALUE link a_3) is a combination of parallel and serial mediation. The indirect effect represents the impact of the mediator variable on the original relationship (i.e., the relationship between independent outcome variables).

This type of analysis is best suited for measuring complex causal relationships, which we summarize in the model depicted in Figure 3 in the form of a statistical diagram(Hayes, 2022). Using this type of model allows us to test additional relationships between mediators (links d_{21}, d_{31}, and d_{32}) and additional indirect effects, such as X on Y through M_1 and M_2 or M_2 and M_3, and test Hypothesis 2. In contrast, a parallel mediation would only allow measuring an indirect effect through each mediator or all three at once in a serial mediation. We also extended the analysis of Hypothesis 1 performed in Part 1 by measuring the same direct effects in a more complex and refined setup.

To reflect the differences in customer expectations, we controlled for passenger attributes such as age, size of travel party, and cruise length in the context of single experiences (links e_{mi}) and overall satisfaction (links e_{yi}). Finally, ship technical characteristics that reflect the physical environment in which experiences occur were also considered as control variables (links e_{mi} and e_{yi} accordingly).

A regression-based conditional process analysis was performed using the PROCESS macro for SPSS 4.0 (Hayes, 2022) following the Model 6 template, as depicted in Figure 3. Model 6 is a mediation model that measures the following effects (2):

$$
\begin{aligned}
&\text{Indirect effect of } X \text{ on } Y \text{ through } M_i \text{ only} = a_i\, b_i \\
&\text{Indirect effect of } X \text{ on } Y \text{ through } M1 \text{ and } M2 \text{ in serial} = a_1\, d_{21}\, b_2 \\
&\text{Indirect effect of } X \text{ on } Y \text{ through } M1 \text{ and } M3 \text{ in serial} = a_1\, d_{31}\, b_3 \\
&\text{Indirect effect of } X \text{ on } Y \text{ through } M1, M2, \text{ and } M3 \text{ in serial} = a_1\, d_{21}\, d_{32}\, b_3 \\
&\text{Indirect effect of } X \text{ on } Y \text{ through } M2 \text{ and } M3 \text{ in serial} = a_2\, d_{32}\, b_3 \\
&\text{Direct effect of } X \text{ on } Y = c'.
\end{aligned}
\tag{2}
$$

PROCESS 4.0, which uses bootstrapping to assess the direct and indirect effects of variables as well as to optimize data for the analysis. To judge the significance of the indirect effect, PROCESS 4.0 uses 95-percent bootstrap confidence intervals constructed using 5000 bootstrap samples (Hayes, 2022).

Figure 3. Statistical diagram for regression-based mediation analysis Model 6 (Hayes, 2022).

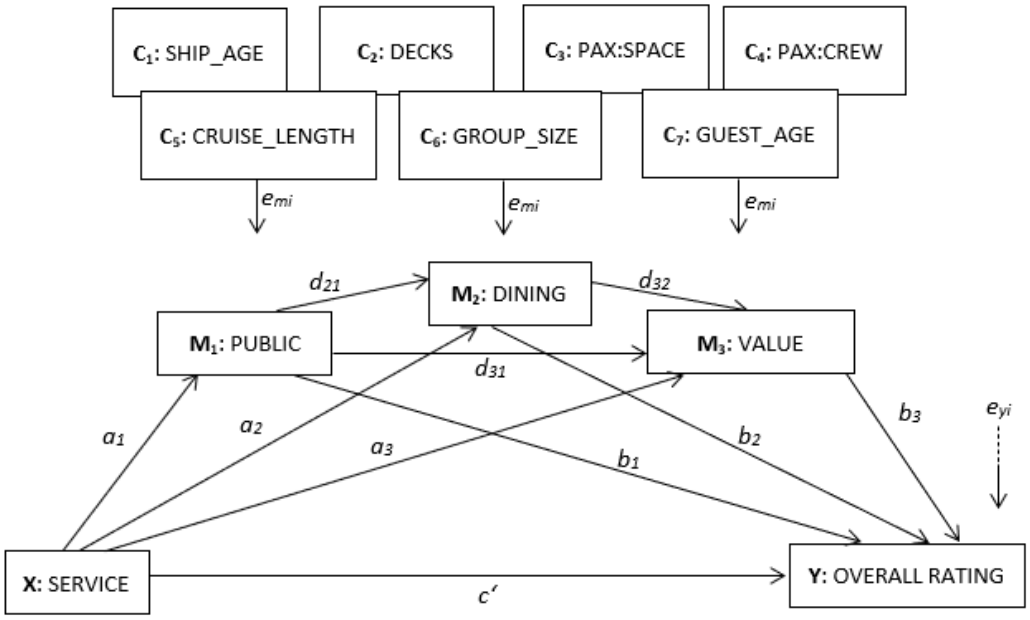


Table 2. Descriptive statistics: Ship characteristics of the total MSC Cruises fleet and by ship class

							Lirica class		Musica class		Fantasia class		Meraviglia class		Seaside class	
		N	Min	Max	Mean	Std.Dev	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Ship age as of 2021	SHIP_AGE	19	1	21	11,1	5,5	4	20	4	14	4	11	4	4	3	5
Building cost, M$	BUILD_COST	19	245	1.000	557	210	4	256	4	435	4	550	4	928	3	749
Passenger capacity	PAX_CAPACITY	19	1.950	4.842	3.284	867	4	1.996	4	2.540	4	3.452	4	4.567	3	4.138
Passenger cabins	PAX_CABINS	19	975	2.421	1.642	433	4	998	4	1.270	4	1.726	4	2.284	3	2.069
Ship crew	CREW	19	721	1.704	1.231	289	4	722	4	1.040	4	1.384	4	1.574	3	1.417
Total decks	DECKS	19	13	19	17	2	4	13	4	16	4	17	4	18	3	19
Passenger:Space ratio	PAX:SPACE	19	26	35	31	2	4	28	4	30	4	33	4	31	3	31
Passenger:Crew ratio	PAX:CREW	19	2,4	2,9	2,7	0,2	4	2,8	4	2,4	4	2,5	4	2,9	3	2,9
Gross tonnage	GROSS_TONN	19	65.542	181.541	123.991	36.156	4	65.563	4	93.075	4	138.818	4	171.068	3	153.755

Table 3. Descriptive statistics: Average satisfaction ratings by different review categories of the total MSC Cruises fleet and by ship class

		Whole sample					Lirica class		Musica class		Fantasia class		Meraviglia class		Seaside class	
Experiences	Variables	N	Min	Max	Mean	Std. Dev	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Overall rating	OVERALL	9753	1	5	3.49	1.366	1815	3.44	1662	3.21	3347	3.53	1191	3.48	1738	3.76
Cabin	CABIN	7716	1	5	4.09	1.117	1580	3.88	1305	4.08	2623	4.26	905	4.06	1303	4.00
Dining	DINING	8661	1	5	3.29	1.449	1651	3.33	1493	3.02	3034	3.30	1006	3.30	1477	3.46
Service	SERVICE	8507	1	5	3.66	1.456	1624	3.67	1481	3.46	3011	3.70	927	3.70	1464	3.73
Entertainment	ENTERT	8405	1	5	3.61	1.386	1609	3.52	1453	3.35	2941	3.67	970	3.53	1432	3.88
Onboard activities	ONBOARD	3228	1	5	3.47	1.334	382	3.19	272	3.27	1189	3.41	586	3.51	799	3.72
Embarkation	EMBARK	6964	1	5	3.85	1.372	1440	3.69	1142	3.69	2239	3.83	805	3.88	1338	4.17
Dismbarkation	DEEMB	1987	1	5	4.11	1.245	246	4.02	155	3.95	523	4.02	401	4.31	662	4.13
Public rooms	PUBLIC	4923	1	5	4.00	1.144	1180	3.97	983	4.14	1697	4.10	396	3.63	667	3.82
Fitness & recreation	FITNES	3983	1	5	3.54	1.215	948	3.50	792	3.32	1361	3.64	324	3.49	558	3.67
Excursions	EXCURS	3439	1	5	3.22	1.312	853	3.34	727	3.09	1178	3.16	232	3.21	449	3.33
Pools & decks	POOLS	649	1	5	3.54	1.227	111	3.34	68	3.24	148	3.46	185	3.56	137	3.93
Children programs	KIDS	741	1	5	3.45	1.501	71	3.32	118	2.87	338	3.51	60	3.83	154	3.65
Value for money	VALUE	657	1	5	3.28	1.459	113	3.23	67	3.03	149	3.15	189	3.19	139	3.70
Ship quality	SHIPQUA	2984	1	5	4.28	1.120	340	3.69	429	4.07	1148	4.41	405	4.52	662	4.37

Table 4. Results of multivariate regression by ship classes. Dependent Variable (Y): Overall Cruise Rating

	Lirica class				**Musica class**				**Fantasia class**				**Meraviglia class**				**Seaside class**			
	N 1814				N 1661				N 3346				N 1190				N 1737			
	R sq 0.728				R sq 0.690				R sq 0.686				R sq 0.641				R sq 0.644			
	Beta	t	Std. err.	Sig.	Beta	t	Std. err.	Sig.	Beta	t	Std. err.	Sig.	Beta	t	Std. err.	Sig.	Beta	t	Std. err.	Sig.
Constant		-1.272	0.013	0.204		-4.981	0.015	0.000		-0.727	0.010	0.467		0.267	0.018	0.789		9.855	0.014	0.000
CABIN	**0.087*****	5.479	0.015	0.000	**0.085*****	4.998	0.018	0.000	**0.071*****	6.010	0.012	0.000	**0.077*****	3.681	0.022	0.000	**0.140*****	7.840	0.016	0.000
DINING	**0.333*****	17.735	0.019	0.000	**0.322*****	16.058	0.020	0.000	**0.321*****	23.169	0.013	0.000	**0.233*****	8.919	0.028	0.000	**0.253*****	11.581	0.021	0.000
SERVICE	**0.244*****	12.715	0.020	0.000	**0.270*****	13.412	0.020	0.000	**0.287*****	21.231	0.013	0.000	**0.247*****	9.473	0.028	0.000	**0.243*****	10.807	0.021	0.000
ENTERT	**0.109*****	6.441	0.017	0.000	**0.150*****	8.229	0.018	0.000	**0.113*****	8.989	0.012	0.000	**0.141*****	5.942	0.026	0.000	**0.081*****	4.392	0.018	0.000
ONBOARD	-0.009	-0.550	0.021	0.583	-0.014	-0.841	0.024	0.400	0.063***	5.005	0.012	0.000	0.028	1.126	0.021	0.260	0.056**	2.669	0.017	0.008
EMBARK	**0.114*****	7.339	0.014	0.000	**0.113*****	6.657	0.017	0.000	**0.075*****	6.450	0.012	0.000	**0.082*****	3.908	0.022	0.000	**0.056****	3.059	0.018	0.002
DEEMB	-0.012	-0.817	0.018	0.414	-0.024	-1.582	0.022	0.114	-0.021	-1.999	0.011	0.046	0.025	1.159	0.019	0.247	0.007	0.406	0.011	0.684
PUBLIC	**0.110*****	6.629	0.016	0.000	**0.072*****	3.923	0.019	0.000	**0.099*****	7.570	0.013	0.000	**0.127*****	5.496	0.025	0.000	**0.179*****	8.715	0.020	0.000
FITNES	0.020	1.268	0.014	0.205	0.038	2.225	0.017	0.026	0.057***	4.678	0.012	0.000	0.031	1.404	0.029	0.161	0.031	1.626	0.020	0.104
EXCURS	0.062***	4.272	0.013	0.000	0.034	2.185	0.015	0.029	0.040***	3.485	0.011	0.000	0.030	1.521	0.027	0.128	0.000	-0.027	0.019	0.979
POOLS	0.015	0.875	0.018	0.382	0.016	0.844	0.026	0.399	0.018	1.324	0.018	0.185	0.029	1.297	0.014	0.195	0.023	1.212	0.017	0.226
KIDS	0.031*	2.359	0.017	0.018	0.020	1.345	0.014	0.179	0.015	1.439	0.009	0.150	-0.004	-0.227	0.023	0.820	0.015	0.963	0.014	0.336
VALUE	**0.078*****	4.559	0.018	0.000	**0.047***	2.493	0.025	0.013	**0.043****	3.138	0.017	0.002	**0.124*****	5.066	0.015	0.000	**0.069*****	3.533	0.017	0.000
SHIPQUA	0.003	0.205	0.016	0.838	0.022	1.356	0.017	0.175	0.009	0.795	0.011	0.427	0.045	1.957	0.026	0.051	0.004	0.223	0.016	0.824

*Note: * p < 0.05, ** p < 0.01, *** p<0.001 (two-tailed)*

Findings

Part 1

Table IV presents the results of the multivariate regression analysis for each group by ship class. Based on the regression coefficients, positive ratings for SERVICE and DINING emerged as key predictors of the OVERALL cruise rating in all ship classes, with DINING being the highest. The highest value of 0.339*** was observed for dining in the Lirica Ship class (year built 2001-2004), followed by service (0.275***) in the Fantastica Ship class (2008-2013). All models had an R-squared value above 0.64, indicating that more than half of the overall ratings could be explained by these sub-ratings. Further, public rooms appear to be the third most important factor for cruise satisfaction, with the highest of 0.173*** for Seaside class ships (2017-2021) and the lowest of 0.073*** for Musica class (2006-2010). Although the results for cabin are statistically significant, the coefficients are slightly lower: the lowest is 0.073*** in the Fantasia class and the highest is 0.128*** in the Seaside class. Similar results were obtained for entertainment, embarkation, and value for money.

Supporting Hypothesis 1, these results demonstrate how different experiences unevenly contribute to overall cruise satisfaction, and how their weights change in different operational environments (ship class). Based on these coefficients, they can be considered essential, important, or secondary.

Part 2

Tables 5 and 6 summarize the main (direct) effects resulting from the two stages of the mediation path analysis, whereas Table 7 summarizes the indirect effects of service experience on overall cruise satisfaction via various mediators (experiences).

Table 5. Main (direct) effects based on the first stage mediation analysis (X→M, C→M*)*

Outcome Variable: Ambiance – public rooms **PUBLIC (M_1)**							
Path		effect	t	p	Model fit		
X→M_1 :	**Service and Staff SERVICE**	**0.4204*****	45.7703	0.0000	constant:	*coeff:*	0.0000
C_1→M_1 :	Ship age of 2021 SHIPAGE	0.0486	1.4420	0.1493		*t:*	0.0000
C_2→M_1 :	Number of decks DECKS	0.0927**	2.7566	0.0059		*p:*	1.0000
C_3→M_1 :	Passenger to space ratio PAXSP	-0.0842***	-4.1265	0.0000			
C_4→M_1 :	Passenger to crew ratio PAXCR	-0.1267***	-6.9158	0.0000	*R*	*R-sq*	*p*
C_5→M_1 :	Cruise length LENGTH	-0.0009	-0.0956	0.9239	0.4273	0.1826	0.0000
C_6→M_1 :	Size of travel party GROUP	0.0205*	2.2276	0.0259			
C_7→M_1 :	Age of passenger AGE	0.0070	0.7605	0.4470			
Outcome Variable: Dining experience **DINING (M_2)**							
		effect	t	p	Model fit		
X→M_2 :	**Service and Staff SERVICE**	**0.5993*****	72.8867	0.0000	constant:	*coeff:*	0.0000
M_1→M_2 :	**Ambiance PUBLIC**	**0.1501*****	18.2420	0.0000		*t:*	0.0000
C_1→M_2 :	Ship age of 2021 SHIPAGE	0.0089	0.3240	0.7459		*p:*	1.0000
C_2→M_2 :	Number of decks DECKS	-0.0334	-1.2218	0.2218			
C_3→M_2 :	Passenger to space ratio PAXSP	-0.0616***	3.7157	0.0002	*R*	*R-sq*	*p*
C_4→M_2 :	Passenger to crew ratio PAXCR	0.0849***	5.6906	0.0000	0.6769	0.4608	0.0000
C_5→M_2 :	Cruise length LENGTH	0.0036	0.4785	0.6323			
C_6→M_2 :	Size of travel party GROUP	0.0027	0.3636	0.7162			
C_7→M_2 :	Age of passenger AGE	-0.0123	0.7605	0.0993			

Outcome Variable: Value for money **VALUE (M_3)**

		effect	t	p	Model fit		
X→M_3 :	**Service and Staff SERVICE**	**0.1764*** **	13.0611	0.0000	constant:	*coeff:*	0.0000
M_1→M_3 :	**Ambiance PUBLIC**	**-0.1198*** **	-10.8394	0.0000		*t:*	0.0000
M_2→M_3 :	**Dining experience DINING**	**0.1162*** **	8.6827	0.0000		*p:*	1.0000
C_1→M_3 :	Ship age of 2021 SHIPAGE	0.1474***	4.0794	0.0000			
C_2→M_3 :	Number of decks DECKS	0.1714***	4.7459	0.0000	*R*	*R-sq*	*p*
C_3→M_3 :	Passenger to space ratio PAXSP	-0.0396	-1.8079	0.0706	0.2436	0.0594	0.0000
C_4→M_3 :	Passenger to crew ratio PAXCR	0.0107	0.5398	0.5893			
C_5→M_3 :	Cruise length LENGTH	0.0037	0.3734	0.7089			
C_6→M_3 :	Size of travel party GROUP	0.0034	0.3486	0.7274			
C_7→M_3 :	Age of passenger AGE	-0.0027	-0.2785	0.7806			

*Note: N=9753; * p < 0.05, ** p < 0.01, *** p<0.001 (two-tailed)*

Ambiance experience (M_1). In the first part of Table V, we observe that PUBLIC (rooms) is significantly and positively impacted by SERVICE (0.4204***, link a_1), meaning that better service positively impacts guest perception of ambiance in public rooms. In terms of the control variables, ambiance experience is positively related to the number of decks, which is usually associated with larger and consequently newer ships. At the same time, higher passenger-to-space and passer-to-crew ratios, also associated with larger ships, negatively impact ambiance experiences. In terms of passenger demographics, the size of the travel party was significantly and positively associated with ambiance experience, highlighting the importance of public spaces for larger groups. The model had a relatively low R-squared of 0.18.

Dining experience (M_2). Table V continues with DINING (experience), where we again observe a significantly positive effect of SERVICE (0.5993***, link a_2). DINING is also positively affected by PUBLIC, whereas the coefficient is lower than that for SERVICE (0.1501***, link d_{21}). When predicting onboard DINING satisfaction, passenger-to-space ratio is similarly to PUBLIC negative and significant, while passenger-to-crew is surprisingly positive. The latter may indicate that dining onboard newer MSC ships is more efficiently organized, so that guests are not disadvantaged by lower staff intensity. This model has a relatively high R-squared of 0.46.

Value for money perception (M_3). In the final part of Table V, SERVICE again emerges as the strongest positive predictor of VALUE (0.1764***, link a_3), followed by DINING (0.1162***, link d_{32}). The impact of PUBLIC on VALUE is surprisingly negative (-0.1198***, link d_{31}), which could indicate that higher ambiance satisfaction is attributable to newer ships, which are usually characterized by higher ticket prices. In line with this effect, ship age was also positively associated with higher VALUE, and ticket prices for older ships were usually more affordable. Nevertheless, the number of decks predicted VALUE positively (0.1714***), similar to the ambiance model. In the first stage of mediation, the VALUE model had the lowest R-squared of 0.06.

To summarize, the results of the first-stage mediation path analysis indicated multiple significant interrelations between single experiences, thus supporting Hypotheses 2. Furthermore, SERVICE emerged as a significant positive predictor of satisfaction with these experiences, with the highest coeffects, thus supporting Hypothesis 3.

Table 6. Main (direct) effects based on the second stage mediation analysis (M→Y, C→Y)

Outcome Variable: Overall cruise satisfaction **OVERALL (Y)**		effect	t	p	Model fit		
X→Y :	**Service and Staff SERVICE**	**0.3460*****	41.7494	0.0000	constant:	*coeff:*	0.0000
M_1→Y :	**Ambiance PUBLIC**	**0.1914*****	28.2941	0.0000		*t:*	0.0000
M_2→Y :	**Dining experience DINING**	**0.3945*****	48.2613	0.0000		*p:*	1.0000
M_3→Y :	**Value for money VALUE**	**0.0880*****	14.2796	0.0000			
C_1→Y :	Ship age of 2021 SHIPAGE	0.0759***	3.4471	0.0006	*R*	*R-sq*	*p*
C_2→Y :	Number of decks DECKS	0.0742***	3.3747	0.0007	0.8073	0.6517	0.0000
C_3→Y :	Passenger to space ratio PAXSP	0.0523***	3.9173	0.0001			
C_4→Y :	Passenger to crew ratio PAXCR	0.0906	7.5401	0.0000			
C_5→Y :	Cruise length LENGTH	0.0002	0.0361	0.9712			
C_6→Y :	Size of travel party GROUP	-0.0144*	-2.3994	0.0164			
C_7→Y :	Age of passenger AGE	0.0015	0.2440	0.8072			

*Note: N=9753; * p < 0.05, ** p < 0.01, *** p<0.001 (two-tailed)*

Overall cruise satisfaction (Y). In the second stage of the mediation path analysis presented in Table VI, we observed a significant positive effect of SERVICE on OVERALL (satisfaction) with a coefficient of 0.3460*** (link c'). All other single experiences were also positive and significant, with DINING being the highest (0.3945***, link b_2), PUBLIC (0.1914***, link b_1), and VALUE (0.0880***, link b_3). These results are similar to those obtained in Part 1 of the analysis, thus providing additional support for Hypothesis 1.

Moving on with control variables, ship age significantly and positively predicted overall cruise satisfaction, while the same positive effect was observed for the number of decks and passenger to space ratio. While the number of decks is usually associated with newer ships, these simultaneous effects indicate that ship characteristics alone do not predict satisfaction and only act in combination with positive experiences. Finally, the size of the travel party was negatively associated with overall satisfaction, meaning that large and often multi-generational groups are harder to satisfy. No significant relationships were observed between the review categories and the passenger age or cruise length. This model had the highest R-squared (0.65).

Indirect effects. Table VII summarizes the indirect effects of SERVICE on OVERALL through multiple combinations of mediators. Based on the confidence intervals, all indirect effects are significant (no zero between BootLLCI and BootULCI) and, with one exception (Ind5), positive. The total indirect effect of SERVICE on OVERALL is 0.3597***, which is similar to its direct effect. The highest indirect effect of SERVICE on OVERALL was achieved via DINING (0.2356***), meaning that with an increase in service satisfaction, satisfaction with dining increases, leading to an increase in overall cruise satisfaction (Ind2). On the other hand, the indirect effect of SERVICE on OVERALL via PUBLIC and VALUE was significantly negative. That is, with an increase in service satisfaction, satisfaction with ambiance grows; however, the perception of the value of money decreases, negatively impacting overall satisfaction (Ind5).

Table 7. Indirect effects of X on Y via M

	Path	effect	BootSE	BootLLCI	BootULCI
TOTAL INDIRECT EFFECT of X on Y		**0.3597*** **	**0.0070**	**0.3458**	**0.3734**
Ind1	X→M_1→Y SERVICE → PUBLIC → OVERALL	0.0805***	0.0034	0.0740	0.0873
Ind2	X→M_2→Y SERVICE → DINING → OVERALL	0.2365***	0.0063	0.2241	0.2488
Ind3	X→M_3→Y SERVICE → VALUE → OVERALL	0.0155***	0.0017	0.0123	0.0190
Ind4	X→ M_1→ M_2→Y SERVICE → PUBLIC → DINING → OVERALL	0.0249***	0.0016	0.0217	0.0282
Ind5	X→ M_1→ M_3→Y SERVICE → PUBLIC → VALUE → OVERALL	-0.0044***	0.0004	-0.0053	-0.0037
Ind6	X→ M_2→ M_3→Y SERVICE → DINING → VALUE → OVERALL	0.0061***	0.0007	0.0047	0.0076
Ind7	X→ M_1→ M_2→ M_3→Y SERVICE → PUBLIC → DINING → VALUE → OVERALL	0.0006***	0.0001	0.0005	0.0008

Cost and pricing strategy. As previously mentioned, MSC features relatively low overall satisfaction compared with its direct competitors, mainly because of a lower rating for service and dining. Examination of MSC's annual reports revealed that in 2019 food expenditures per passenger-cruise-day was about $8.5, which is significantly below competitors. At the same time, their average ticket price, that of $138 per passenger cruise day was not lower than that of the competition in 2019[1]. Given the strong relationship between dining satisfaction and overall customer satisfaction rating and the normal ticket price that is not below average, this raises the question of whether cutting back on food expenditure is a good place to cut costs.

Conclusion

This study set out to examine how service-related experiences shape cruise customer satisfaction and value perceptions, drawing on integrated insights from Service-Dominant Logic and the Experience Accounting. The analysis revealed that service is a central contributor to the cocreation of multiple experience dimensions, with both direct effects on overall satisfaction and indirect effects through its influence on dining, ambiance, and perceived value. These findings underscore the importance of embedding experience-based perspectives into hospitality performance measurements, emphasizing the central role of staff and management skills.

All three hypotheses are supported using complementary analytical approaches. First, we found that individual experiences contribute unevenly to overall satisfaction (H1) and that they also interact in meaningful ways (H2), influencing one another and shaping customers' holistic evaluations. Most notably, the service category emerged as a foundational element, positively influencing not only overall satisfaction but also other key experiences (H3), such as dining and

[1] Average ticket price per passenger cruise day in 2019 as reported in the 10-K statements, SEC EDGAR database: Carnival Corporation (CCL) - $122, Royal Caribbean International (RCL) - $139, Norwegian Cruise Line Holdings (NCLH) - $165, (Demydyuk & Carlbäck, 2025).

ambiance. In addition, our findings provide important insights into the interplay between operand resources and operant resources. While the physical attributes of the cruise product, such as ship age, size, and layout, are significant, they do not guarantee positive customer outcomes on their own. Rather, their impact depends on the quality of operant resources, including service delivery and staff skills.

Mainstream operators, such as MSC, may benefit from establishing a strategically sustainable balance that ensures the long-term implications of customer satisfaction are addressed (Demydyuk & Carlbäck, 2024), while maintaining adequate investment in those dimensions of the cruise experience identified as critical determinants of perceived value and customer loyalty (Demydyuk & Carlbäck, 2025).

Theoretical implications

This study contributes to the knowledge at the intersection of S-D-L and EA by providing a rigorous, pathway-based framework. It quantifies how multifaceted service experiences cocreate value and influence customer satisfaction in the cruise industry.

The novelty of this study lies in its ability to rank customer experiences in a way that makes them both measurable and actionable from managerial and accounting perspectives, thereby contributing to emerging efforts to reconcile customer and accounting logic in service-based industries. Building on the conceptual arguments of Ng and Wood (2018) and Chu and Hsu (2023), this study provides an empirical model-based application that operationalizes the principles of S-D-L within a performance management context. By applying the EA framework to customer review data, this study advances a customer-centric accounting approach that quantifies the contribution of service experiences to satisfaction and perceived value, thereby bridging the gap between conceptual models and actionable managerial tools. This study reframes service experiences, which have been primarily examined within the marketing domain, as integrated components of value creation that inform cross-functional decision making and enterprise-wide performance management. Building on this broad groundwork, this study highlights several theoretical advances.

First, we extend the S-D-L principles by empirically validating that individual service experience dimensions (e.g., dining, service, and ambiance) contribute unequally to overall satisfaction, and that their salience varies by operational context (ship class). This supports Vargo and Lusch's (2017) assertion that value is contextually and phenomenologically determined; however, we go further by quantifying these contextual effects and categorizing experience elements as *essential*, *important*, or *secondary*. Thus, our findings move beyond the generic cocreation premise to highlight which experiences matter the most and when, offering a refined conceptualization of operand and operant resources in service ecosystems.

Second, we clarify the interplay between operant and operand resources, a distinction often referenced but rarely empirically unpacked in S-D-L. Our results show that operand resources such as ship age, number of decks, and passenger-to-space ratios influence experience evaluations, but only when combined with operant resources such as staff behavior and competence. For example, larger and newer ships may offer more public space or upgraded dining venues, yet their positive impact on satisfaction is contingent on high-quality service delivery. This supports the theoretical

view of resource integration in value cocreation: operand resources create potential, whereas operant resources unlock it.

Specifically, we found that enhanced physical environments, such as those offered by newer ships, do not always translate into higher perceived value. Although these ships command higher ticket prices owing to improved ambiance, customers often pay without perceiving equivalent value when ambiance is the only standout feature. This underscores the limitations of upcharging physical settings alone. However, when ambiance is combined with exceptional service, these limits diminish—synergy luxury cruise lines leverage to justify premium pricing. Conversely, older, smaller ships, though less refined, are more affordable and illustrate how operant resources such as staff competence and service behavior hold greater value-generating potential and more strongly influence willingness to pay.

Third, we contribute to the emerging framework of Experience Accounting by developing and testing a hybrid mediation model that captures both serial and parallel relationships among the experience dimensions. This model quantifies how service quality cascades through ambiance and dining to shape value perceptions, and ultimately, overall satisfaction. It provides structural logic for understanding the interdependencies among experiences and introduces a more rigorous way to trace how customer evaluations are formed. Notably, the model reveals a counterintuitive mediation path: increased satisfaction with ambiance can reduce the perceived value for money, highlighting a misalignment between aesthetic upgrades and pricing strategies. This paradox reinforces EA's mission to make experiences not only visible, but also strategically and financially accountable across organizational functions.

Finally, our findings offer a broader theoretical synthesis that empirically connects the three conceptual strands of research. While Service-Dominant Logic provides the ideological foundation—placing service-for-service exchange and value cocreation at the heart of economic activity—Experience Accounting offers a framework for translating lived experiences into measurable managerial insights. We extend the seminal work of Andersson and Carlbäck (2009), who conceptualized Experience Accounting as a shift from cost accounting to managing experience, by showing how experience-based data can be systematically linked to financial decision-making. This also addresses Ng and Wood's (2019) call for accounting systems to integrate behavioral and customer-centric data into management control. Most directly, we build on Chu and Hsu's (2023) cruise revenue management framework by supplying empirical evidence on which experience categories matter the most for pricing and performance optimization. In doing so, our study bridges ideation and application, advancing a new paradigm in hospitality management where customer value is not only theorized but also empirically measured and made strategically actionable—positioning customer satisfaction as a cross-functional performance driver rather than an isolated concern within the marketing silo.

Practical Implications

In the growing environment of pricing and opinion transparency on the Internet, where customers act as information providers, pricing becomes a cocreation process in which customers serve as "the ultimate judges of the price proposed by the seller" (Ingenbleek, 2014, p.45). Therefore, understanding customer value ("what it is worth to the customer") and the costs of resource deployment by service providers is essential for developing pricing competence (Dutta et al., 2003;

Ingenbleek, 2014). The financial outcomes of this process offer critical feedback on how well managers set prices and deliver their value propositions (Gupta & Vajic, 2000; Lusch & Vargo, 2008). Meeting high customer expectations while generating profits requires attention and coordination. Thus, appropriate accounting information and tools for managing customer feedback must be in place.

As ships in the mass market continue to grow to capture economies of scale, service quality may suffer. Management can address this risk by developing clearly defined value-adding features based on core competencies, guided by advanced managerial accounting information. With such data, companies can optimize resource use, remaining in the control of profit targets while maximizing customer impact and building a sustainable competitive advantage (e.g., Gupta & Vajic, 2000; Ingenbleek, 2014). The effective allocation of operant resources, such as staff knowledge, skills, and attitude, is key to turning physical assets (operand resources) into superior value creation (Vargo et al., 2017). Using the right data and decision support tools, managers can engage operant resources to improve service performance, enhance satisfaction, and facilitate value cocreation. These performance parameters can be managed in real time with the help of big data analytics, both for operational and strategic decision making, but only if the necessary information is available.

Traditional cruise KPIs, such as revenue and cost per Available Lower Berth Day (ALBD), and onboard spend per passenger, provide essential financial benchmarks for operational performance. However, these metrics primarily capture what occurs financially without explaining why those outcomes happen. EA complements these conventional KPIs by incorporating key customer experience dimensions, such as service, dining, and ambiance, that drive satisfaction and perceived value. By linking financial results to specific experiential drivers, EA equips managers with actionable insights to diagnose performance issues and strategically allocate resources, enabling more effective and customer-centric decision-making. In doing so, EA operationalizes the shift toward experience-driven performance management, thereby advancing the conceptual framework proposed by Chu and Hsu (2023), who call for the integration of customer experience and service principles into cruise revenue management.

In the case of MSC Cruises, which operate a young and visually impressive fleet, customer satisfaction is highest for cabins and ship quality, indicating the effective use of operand resources in line with the company's value proposition. However, this is not sufficient when critical basics such as service and dining fail to meet expectations, as these aspects are both more noticeable and less costly to address than upgrading the ship infrastructure. During cruising, customers expect more than what they would receive at a high-class hotel; they seek pampering and personalized experiences (Reichheld et al., 2017). Especially in mature markets such as the U.S., where MSC aims to expand, affordability and modern fleet are not enough. For first-time guests to become loyal returners, cruises must be memorable.

The food and beverage experience has always played a central role in cruising. As Mario Zanetti, President of Costa Cruises, recently noted, "Customer food experience defines the product that cruise lines offer." The concern is not with the availability of basic food but rather with the level of culinary finesse and emotional engagement. In other words, the same EA framework can be applied to evaluate dining experiences more granularly (e.g., Andersson & Carlbäck, 2009; Nemeschansky, 2020). On a broader scale, the company can target less critical experiences for

cost savings and focus on investments to improve dining satisfaction, ultimately reducing the need for deep discounting.

In our sample, 75% of cruise passengers were between the ages of 40 and 70. In the future, this group will be gradually replaced by the Y and Z generations, who are already entering the cruise market (Reichheld et al., 2017). These younger generations have different expectations, values, and behaviors. Therefore, companies must invest in dynamic customer-monitoring systems to collect feedback and track evolving preferences. A more focused growth strategy that emphasizes the value of the cruise experience itself, rather than relying on traditional discounting, will likely prove more effective. While experimenting with new marketing channels and campaigns, cruise lines must rely on relevant accounting information to align their offers with value expectations. Despite cost pressures and other challenges (e.g., sustainability), profitability must remain a strategic priority.

In conclusion, we believe that MSC Cruises have strong potential for growth and profitability—if it rethinks its service philosophy through the lens of S-D-L. Many passengers praised crew friendliness yet expressed dissatisfaction with pre-cruise procedures, website usability, and complaint resolution. This suggests a need for MSC to evaluate service culture at all levels of management and to refocus efforts on the full-service exchange process. As Ingenbleek (2014) argues, a competitive advantage comes from investing in the knowledge and skills that drive customer value. This leads to greater perceived value for customers, who may in turn view prices as more acceptable, thus increasing sales and profitability.

Limitations and Future Research

One of the main limitations of this study was its generalizability. First, the analysis relies on people's perceptions, which are inherently subjective and can be influenced by various situational and contextual factors, potentially limiting its applicability in different settings. Second, the case study company represents only a small portion of the market and operates within a single segment, which may restrict the broader relevance of the findings. Third, the study did not employ time-series analysis, limiting the ability to judge the causal antecedents of customer satisfaction and other dynamic factors over time. Finally, the quantitative analysis of customer ratings offers only a rough and subjective approximation of customer satisfaction, which, while suitable for this study's purpose, suggests the need for deeper investigation.

Considering the crucial role of service elements in shaping customer experiences, future research could benefit from qualitative approaches that explore what customers specifically mean when rating their cruise experience. A finer differentiation among factors such as company policy, front-desk interactions, cleanliness, and the seamlessness of the overall cruise journey would help refine the concepts and frameworks currently applied in revenue management. This deeper understanding of customer-defined service elements would enable revenue managers to identify more accurately which experiential factors drive demand and willingness to pay, thereby facilitating more effective performance management and resource allocation within revenue management systems.

Building on these insights, future research should focus on the systematic integration of the identified experience categories into existing revenue management frameworks. This entails developing dynamic models that incorporate experiential variables alongside traditional metrics,

such as cost and revenue per ALBD, to enhance forecasting accuracy and pricing optimization. Furthermore, the use of technology-enabled data collection methodssuch as real-time customer feedback and AI-driven sentiment analysiscould support this integration by providing timely, actionable experiential data. Experimental and longitudinal studies are also needed to validate the financial impact of embedding experience metrics within revenue management systems, ultimately advancing the practical application of Experience Accounting and enabling more responsive, personalized, and customer-centric pricing strategies in cruise operations.

Use of AI declaration

The authors used the GPT 4.0 AI tool to improve the style and flow of the English language, as well as to generate the images used in Figure 2.

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Annex 1. Structure and matching of the review data (first dataset)

Variable	Measurement	Cruisecritique.com 5,016 reviews	Cruiseline.com 3,672 reviews	Tripadvisor.com 1,065 reviews
Cruise review data:				
Geographical market	Europe (dummy 1) Caribbean (dummy 2) All others (dummy 3)	DESTIN	DESTIN	DESTIN
Sailing date	DD.MM.YYYY	DATE	DATE	DATE
Cabin category	inside/outside/balcony/suite	CATEG	CATEG	CATEG
Experience ratings:				
Overall cruise rating	1-5 Likert scale	OVERALL	OVERALL	OVERALL
Cabin experience	1-5 Likert scale	CABIN	CABIN	CABIN
Dining experience	1-5 Likert scale	DINING	DINING	DINING
Service and staff experience	1-5 Likert scale	SERVICE	SERVICE	SERVICE
Entertainment experience	1-5 Likert scale	ENTERT	ENTERT	ENTERT
Onboard activities experience	1-5 Likert scale	-	ONBOARD	ONBOARD
Embarkation experience	1-5 Likert scale	EMBARK	EMBARK	-
De-embarkation experience	1-5 Likert scale	-	DEEMB	-
Public rooms experience	1-5 Likert scale	PUBLIC	-	-
Fitness & recreation experience	1-5 Likert scale	FITNES	-	-
Shore excursions experience	1-5 Likert scale	EXCURS	-	-
Pools & decks experience	1-5 Likert scale	-	-	POOLS
Value for money perception	1-5 Likert scale	-	-	VALUE
Ship quality perception	1-5 Likert scale	-	SHIPQA	-
Reviewer (guest) data:				
Likes for review	Likes count	-	LIKE	-
Length of cruise	Days count	-	LENGTH	-
Prior cruising experience	1st cruise (dummy 1) 2-3 cruises (dummy 2) 4-6 cruises (dummy 3) 7+ cruises (dummy 4)	EXPERI	EXPERI	-
Passenger age		AGE	-	-
Size of the travel group	Singles/Friends (dummy 1) Couple (dummy 2) Family, young children (3) Family, older children (4) Large Group (dummy 5)	-	GROUP	GROUP
Travelling with children	Y (dummy 1), N (dummy 2)	HASKIDS	KIDS	-
Votes for “helpful review”	Votes count	-	-	HELPV
Reviewer contribution	Reviews count	-	-	CONTRI

Annex 2. Data frequency for passenger-related control variables and grouping.

Passenger age:

< 20 years	71	(1.5%)
< 30	324	(7.0%)
< 40	675	(14.6%)
< 50	**1143**	**(24.7%)**
< 60	**1222**	**(26.4%)**
< 70	**1041**	**(22.5%)**
< 80	143	(3.1%)
> 80	10	(0.2%)
Valid	**4629**	**(100.0%)**
Missing	5124	(52.5%)
Total	9753	100.0%

Length of cruise:

1-3 nights	106	(0.04%)
4-6	124	(0.04%)
7	**2149**	**(73.8%)**
8-10	120	(0.04%)
11-14	313	(0.11%)
15-188	**99**	**(0.03%)**
Valid	**2911(100.0%)**	
Missing	6842(70.2%)	
Total	9753	100.0%

Size of the travel group:

1 (Solo)	445	(4.6%)
2 (Couple)	**1906**	**(19.5%)**
3 (Family with kids)	394	(4.0%)
4 (Multi-Family)	477	(4.9%)
5 (Big group)	506	(5.2%)
Valid	**3728**	**(100,0%)**
Missing	6025	(61.8%)
Total	9753	100.0%

Geographical market:

1 Europe	3406	(34.9%)
2 Caribbean	5314	(54.5%)
3 All others	991	(10.2%)
Valid	**9711**	**(100,0%)**
Missing	42	(0.4%)
Total	9753	100.0%