SUCCESS IN HOSPITALITY INDUSTRY: EVALUATING PERFORMANCE THROUGH OPERATING INDICATORS

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Abstract

Purpose – The objective of this study was to identify which operating indicators contribute to a relevant evaluation of performance that impacts the sustainability and success of hotel companies. The success of any hotel business depends on the ability of managers to monitor the operations. Since, operating indicators are powerful tools that enable better performance and have increased with changes in the hotel market, working practices, and sustainability standards imposed by several organizations, the identification of the indicators that should be included in the performance evaluation is imperative. Consequently, evaluating a hotel's performance using the most reliable operating indicators is crucial to guaranteeing its success.
Methodology – A hybrid methodology was adopted, using three sources of evidence, scientific articles, hotel consultancy firms, and professional books in the field of hospitality management accounting.
Findings – This study concluded that key performance indicators (KPI) provide valid information for any hotel, helping to monitor and evaluate performance. In this way, 55 operating indicators were presented that are helpful for any hotel manager, due to their ease of use, and allowing the comparison of the performance of hotels. Also, the great lack of relationship between scientific literature and hotel practice was reduced by this paper considerably.
Originality of the research – There is a gap between the operating indicators used in theory and in practice. This study links the use of indicators at a practical level with the most used at a theoretical level. Some theoretical indicators are more complete and richer in information which contribute to a relevant performance evaluation with an impact on the sustainability and success of hotel companies.
Keywords hospitality industry, operating indicators, key performance indicators (KPI), performance evaluation

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INTRODUCTION

The hospitality industry has come under a lot of pressure and is facing challenges in terms of sustainability, human resources, and competitiveness (Maia & Costa, 2021; Pardinha et al., 2023). Using indicators to measure companies' development is fundamental to their success in a world as the hospitality industry. Consequently, the organization's resources will be optimized and even the needs of the different stakeholders will be met (Kala & Bagri, 2014, 2016).

Indicators could be divided into two different types: financial and non-financial. Financial indicators, also known as traditional indicators, measure the general and objective dimensions of a company. Non-financial indicators measure the subjective dimensions of a company (Tan et al., 2022). Although the financial indicators are considered more objective than others, several authors have criticized them (Calinao et al., 2022; Pardinha et al., 2023) because they are no longer given an exclusive role. Non-financial indicators offer more advantages than financial indicators, as they connect with the company's strategy, highlighting the relationship with customers, the relationship with operations, and the relationship with the organizational culture (Harris & Mongiello, 2001; Maia & Costa, 2021).

Managers have the desire to achieve success (Maia & Costa, 2021) and, therefore, must have the capacity to systematize and monitor the financial and non-financial information of companies, because the exclusive use of financial metrics may not be considered a good indicator to evaluate the performance of hotel companies, since they have specific operating indicators for the sector (Campos et al., 2022; Casanueva et al., 2015). These tools optimize the organization's resources and even satisfy the various stakeholders (Kala & Bagri, 2014, 2016).

Pardinha et al. (2023) argue to analyse determinants such as quality and flexibility in applying innovative technologies focused on key aspects of the current world such as sustainability. Despite the differences between the indicators and the areas they cover, managers need to be able to make critical and conscious decisions through the useful analysis of these metrics, thus obtaining competitive advantages.

Non-financial indicators are designated in different ways: operating indicators (Tan et al., 2022), metrics (Barreda et al., 2017), KPIs (Liu & O'Neill, 2023) or operating ratios (Campos et al., 2022). In hospitality industry, operating indicators are disaggregated by the different hotel departments (HANYC, 2014). Nevertheless, different authors divide the indicators into different categories, for example, Wadongo et al. (2010a) classify the indicators into the following areas: competitiveness; service quality; flexibility; resource utilization; innovation; supplier performance; community/environmental perspective; and labour productivity. Years later, Maia and Costa (2021) introduced different areas such as accessibility and promotion, marketing, and prestige. Jugović et al. (2022) made a more in-depth analysis and divided the operating indicators: into market; employee; user; service; price; distribution; advertising; sales promotion; personal sales; public relations; direct marketing. Pardinha et al. (2023) also considered areas such as customer; internal management; innovation; and external environment.

Operating indicators are the most widely used worldwide (Bianco et al., 2023; Failte Ireland, 2013). These indicators are often related to different management accounting practices, such as the tableau de bord, benchmarking, and the balanced scorecard (Campos et al., 2022). There has been an increase in the analysis of operating metrics over the years, such as: "total occupancy rate, occupancy rate, revenue ratios, staff costs, and customer satisfaction" (Campos et al., 2022, p. 246). Bento et al. (2021) claim that operating indicators are also an advantage for revenue management, as they make it possible to improve the pricing optimization strategy. In addition, KPIs are increasingly being used as a way of improving marketing and the competitiveness of companies (Bianco et al., 2023; Pardinha et al., 2023); some hotels are even seeking certifications to increase the use of KPIs and generate a greater competitive advantage.

Operating indicators such as occupancy rate, average daily rate (ADR) and revenue per available room (RevPAR) are the most studied around the world (Bento et al., 2021), but are they enough for an effective analysis of hotel performance, considering aspects such as the imminent growth in responsibility for long-term sustainability? Operating indicators play a crucial role in hotel sustainability because, through a detailed view of company data, it is possible to maximize the efficiency of hotel services. Management accounting systems such as the Uniform System of Accounting for the Lodging Industry (USALI) have been developing and introducing new metrics throughout several editions and the next edition of this system will consider environmental operating indicators, as environmental impact affects hotel profitability (HFTP, 2022).

Bianco et al. (2023) identified several metrics to analyse the performance such as occupancy rate, ADR, and RevPAR of several hotels with sustainable certification were analysed. The same indicators were used to examine new hotels in emerging markets, and it was found that the quicker a hotel achieves operating stability, the more secure its project becomes (Tan et al., 2022). In addition to the indicators already mentioned (Abdelmawgoud & El Salam, 2022) studied indicators such as profit per available room (ProfPAR), net revenue per available room (NRevPAR), and total revenue per client (TRevPEC).

Therefore, the study of KPIs becomes relevant because if they are combined with the company's strategy, they will improve decision-making by managers and employees and, consequently, produce better results. Managers advocate KPIs as an investment for the success of a hotel company because they help to understand the return on investment of applying the different metrics and allow volatility to be reduced (Abdelmawgoud & El Salam, 2022). By analysing hotel operations, it is also possible to relate them to turnover, revenue, and even costs (Pardinha et al., 2023). It is therefore possible to make internal and external comparisons of operating indicators for benchmarking, enabling the use of more efficient costing systems and better positioning in the hotel market (Campos et al., 2022). Despite the various advantages presented by using KPIs in hotel companies, some authors take the opposite view of their benefits (Tan et al., 2022), stating that in established markets use of standard operating metrics does not improve hotel operating performance. Nonetheless, performance evaluation analyses the success of a hotel in relation to the market, so performance evaluation is fundamental in a hotel company and is characterised by the fact that it relates planning to the service provision. A hotel should use a performance evaluation with operating indicators included (Maia & Costa, 2021).

The age of managers can also be a variable to consider when using KPIs. Managers who are younger and have higher levels of education use these metrics to monitor and review digital platforms, while older managers have greater difficulty with technology and place greater value on customer relations and satisfaction. As for managers with less experience, they prefer financial indicators (Pardinha et al., 2023). Thus, age can be a relevant factor in the use of KPIs. Furthermore, since younger managers will soon be managing the hotel market, the subject of "operating indicators" is highly relevant to them.

Considering the above, this study aims to identify which operating indicators should be included in a performance evaluation that implies sustainability and success in hotel companies. Furthermore, operating indicators used by hotels vary according to their characteristics, such as the departments they have. Studies should be carried out to find out whether the operating indicators used vary with other hotel characteristics (Pardinha et al., 2023).

This research offers valuable insights for hospitality professionals because the specific application of these indicators will enable managers to make faster and better decisions by implementing more efficient strategies, which will consequently translate into better performance for hotel operations. The originality of this paper arises from the fact that instead of using the traditional indicators, the most complete and essential for successful decision-making will be used.

Lastly, this paper is structured as follows: introduction, where the context and history of hotel indicators are discussed and the objectives are formulated; methodology, where the type of method used is presented; and results, where the most significant indicators for successful hotel performance evaluation have been defined; conclusions, where the contributions and avenues for future research are presented.

1. METHODOLOGY

According to the objective, the methodology applied is a hybrid review, like the study by Cardoso et al. (2023) and Koseoglu (2016), based on bibliometric and qualitative managers needed to help researchers map scientific information and increase the accuracy of methodologies, researchers, and studies (Zupic & Čater, 2014).

Observing the information presented in the literature review, three different sources of evidence were considered: scientific literature, hotel consultancies, and professional books. The same method was used previously by Paterno et al. (2023). The search for scientific literature began on January 5, 2024, in two different databases: Scopus (article titles, abstract, keywords) and Web of Science (Topics). Both databases are considered worldwide to be reliable and simple, intuitive, and clear to use, which makes for an effective and professional search. They are also widely used in studies with a methodology such as Robayo-Acuña and Chams-Anturi (2023) agree and defend that at least two databases should be used to mitigate the possible problems of differences in coverage between individual databases. The search string was formulated based on keywords synonymous with hotel and operating indicators, as follows: (hotel* OR "lodging industry" OR hospitality OR accommodation) AND ("operating ratio*" OR "operating metric*" OR "operating indicator*" OR "operating rate" OR "KPI" OR "key performance indicators"). It is important to mention that no specific period was set for the research.

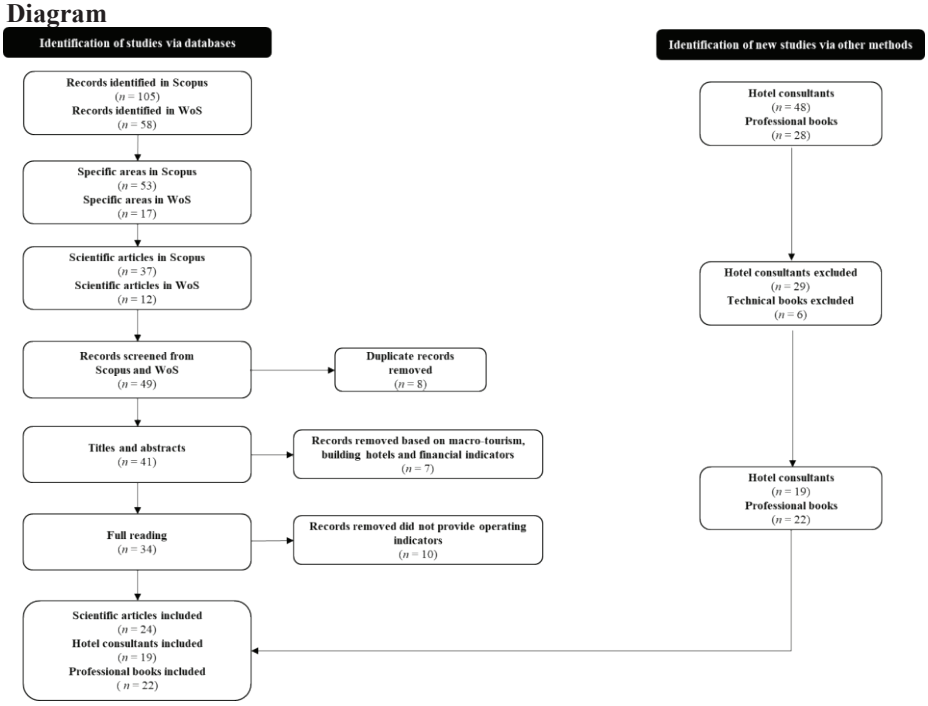
Considering the search string, 105 documents were identified in Scopus and 58 documents in Web of Science. In Scopus, the search was refined by area (Business, Management, and Accounting AND Economics, Econometrics, and Finance), obtaining 53 documents and, after selecting only scientific articles, the sample was reduced to 37 documents. In Web of Science, using the same search string, the authors obtained 58 documents, of which "Business economics" was refined by area, reducing the sample to 17 documents. Of these 17, only scientific articles were considered, yielding 12 documents leaving the sample with 49 scientific articles from the two databases. Eight documents were repeated, and then the sample was changed to 41 scientific articles. The exclusion of different studies that were not related to the topic guaranteed the quality of the selected sample (Hiebl, 2021).

The articles were exported, their titles and abstracts were analysed and seven were excluded because they were based on macro-tourism, building hotels, and only financial indicators. The final stage consisted of reading all 34 documents. A further 10 documents were excluded because they did not provide information about operating indicators. Thus, the final sample of scientific literature was set at 24 documents.

To complement the information gathered through scientific literature and give a more practical and useful approach to the users of the operating indicators proposed in this study, the authors have added relevant information from two different sources of evidence: hotel consultancies and professional books. The source, hotel consultancies, was chosen to identify the operating indicators which are used in practice by hotel managers, as well as the research by hotel consultancies and some software consultancies in the sector helps to identify more precisely the needs of some systems and improves the processes of existing systems (Teknikservis, n.d.). The websites of 48 hotel consultancies were searched, but only 19 provided information on operating indicators. Given the limited information on operating indicators available in scientific articles, professional books were an option as they provide a wide range of indicators that are commonly taught to higher education students. These professional books belong to the bibliography of higher education curricular units. According to EUI Library (2022), professional books are an excellent resource for deepening your knowledge of a subject. Moreover, 28 books were analysed in which the title was related to management accounting for the hospitality industry, but only 22 professional books had relevant information on the main topic of the study, operating indicators.

Figure 1 summarizes the information explained above. As in Cardoso's study (2023), this research used the protocol Scientific Procedures and Rationales for Systematic Literature Reviews (SPAR-4-SLR).

Figure 1: **PRISMA Diagram**



Source: Page et al. (2021).

2. RESULTS AND DISCUSSION

The methodology adopted resulted in a total of 410 operating indicators for different areas of a hotel's operation, 132 of which resulted from research into scientific articles, 182 from research into hotel consultancies, and 96 from research into professional books related to management accounting practices and the hospitality industry. It is clear that this large number of indicators have made it possible to identify the gap between theory and practice, because although, as expected, some of the operating indicators are similar in the three data sources analysed, many of the indicators in the scientific literature are not found in hotel consultancies and professional books. In fact, some indicators are widely studied in scientific articles but have no correspondence in hotel consultancies (which operate in the real world with hotels) and professional books (which are primarily targeted at hotel managers). This study seeks to overcome this gap by creating a link between theory and practice.

Bearing in mind the main objective of the study, to identify which operating indicators contribute to a useful evaluation of performance that impacts the sustainability and success of the hospitality industry, it was necessary to adopt a rule to include only the most relevant indicators. In this way, all the operating indicators that appeared at least twice in one of the three sources of evidence were considered, giving a total of 55 operating indicators. These indicators were divided into three different categories, i.e., the two main departments of a hotel (rooms and F&B) and hotel indicators. Table 1 represents the summary of hotel operating indicators.

Table 1: **Summary of hotel operating indicators**

Indicators	Formulas	Scientific literature	Hotel consultancies	Professional books
		Rooms		
ADR/Average room rate (ARR)	$\frac{\text{Revenue of rooms sold}}{\text{Rooms sold}}$	(Barreda et al., 2017; Bento et al., 2021; Bianco et al., 2023; Calinao et al., 2022; Campa-Planas et al., 2017; Choi et al., 2019; Liu & O'Neill, 2023; Maia & Costa, 2021; Nalley et al., 2019; O'Neill, 2004; Pardinha et al., 2023; Singh & Schmidgall, 2002; Tan et al., 2022; Wadongo et al., 2010b)	(CHC, 2024; Cloudbeds, 2023; HCMS, 2024; HIS, 2024; Horwath HTL, 2024; HotelAVE, 2024; HVS, 2024; Newhotel, 2019; Nordic Hotel Consulting, 2021; PKF, 2024; RevFine, 2023; Revmanager, 2020; SiteMinder, 2024; STR, 2024)	(Bragg, 2018; Chibili, 2017; Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; Ginneken, 2019; Guilding & Ji, 2014; HANYC, 2014; Harris, 2013; Hudson & Hudson, 2022; Jagels & Coltman, 2004; Jones et al., 2012; Lima Santos et al., 2016; Ogbeide, 2014; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Occupancy rate/ Room occupancy percentage	$\frac{\text{Rooms sold}}{\text{Rooms available}} x\ 100$	(Barreda et al., 2017; Bento et al., 2021; Bianco et al., 2023; Calinao et al., 2022; Campa-Planas et al., 2017; Choi et al., 2019; Kala & Bagri, 2014; Liu & O'Neill, 2023; Maia & Costa, 2021; Nalley et al., 2019; O'Neill, 2004; Singh & Schmidgall, 2002; Tan et al., 2022; Wadongo et al., 2010b)	(CHC, 2024; Cloudbeds, 2023; HCMS, 2024; HIS, 2024; Horwath HTL, 2024; HotelAVE, 2024; HVS, 2024; Nordic Hotel Consulting, 2021; Otamiser, 2024; PKF, 2024; RevFine, 2023; Revmanager, 2020; Riley Hotel Group, 2024; SiteMinder, 2024; STR, 2024)	(Burguess, 2014; Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; Ginneken, 2019; Guilding & Ji, 2014; HANYC, 2014; Harris, 2013; Hudson & Hudson, 2022; Jagels & Coltman, 2004; Jones et al., 2012; Lima Santos et al., 2016; Okumus et al., 2010; Schmidgall, 2016; Schmidgall & Damitio, 2000)
RevPAR	$\frac{\text{Room revenue}}{\text{Number of rooms available}}$	(Barreda et al., 2017; Bento et al., 2021; Bianco et al., 2023; Calinao et al., 2022; Campa-Planas et al., 2017; Choi et al., 2019; Harris & Mongiello, 2001; Kala & Bagri, 2016; Komlósi & Gyurácz-Németh, 2014; Liu & O'Neill, 2023; Nalley et al., 2019; Singh & Schmidgall, 2002; Tan et al., 2022)	(CHC, 2024; Cloudbeds, 2023; HIS, 2024; Horwath HTL, 2024; HotelAVE, 2024; HVS, 2024; Newhotel, 2019; NML, 2024; Nordic Hotel Consulting, 2021; Otamiser, 2024; PKF, 2024; RevFine, 2023; Revmanager, 2020; SiteMinder, 2024; STR, 2024; Xotels, 2024)	(Bragg, 2018; Chibili, 2017; Coltman, 1994; Dopson & Hayes, 2016; Ginneken, 2019; Guilding & Ji, 2014; HANYC, 2014; Harris, 2013; Hudson & Hudson, 2022; Jagels & Coltman, 2004; Jones et al., 2012; Lima Santos et al., 2016; Schmidgall, 2016; Schmidgall & Damitio, 2000)
GOP per available room (GOPPAR)	$\frac{\text{Gross operating profit}}{\text{Number of rooms available}}$	(Calinao et al., 2022; Liu & O'Neill, 2023; Tan et al., 2022)	(CHC, 2024; Cloudbeds, 2023; Horwath HTL, 2024; NML, 2024; RevFine, 2023; Revmanager, 2020; SiteMinder, 2024; Xotels, 2024)	(Dopson & Hayes, 2016; HANYC, 2014; Harris, 2013; Jones et al., 2012; Lima Santos et al., 2016; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Total revenue per available room (TRevPAR)	$\frac{\text{Total operating revenue}}{\text{Rooms available}}$	-	(CHC, 2024; Cloudbeds, 2023; Horwath HTL, 2024; Newhotel, 2019; RevFine, 2023; Revmanager, 2020; SiteMinder, 2024; Xotels, 2024)	(Chibili, 2017; HANYC, 2014; Jones et al., 2012; Lima Santos et al., 2016)
Earnings before interest, taxes, depreciation and amortization (EBITDA)	$\text{GOP} - \text{Management fees} - \text{Non Operating income expenses}$	-	(Cloudbeds, 2023; Revmanager, 2020)	(Chibili, 2017; Coltman, 1994; HANYC, 2014; Harris, 2013; Schmidgall, 2016)
Revenue per available customer (RevPAC)	$\frac{\text{Total revenue from hotel guests}}{\text{Total number of guests}}$	(Singh & Schmidgall, 2002)	-	(Bragg, 2018; Chibili, 2017; Dopson & Hayes, 2016; Lima Santos et al., 2016; Schmidgall, 2016)
Paid occupancy	$\frac{\text{Paid rooms}}{\text{Rooms available}}$	(Maia & Costa, 2021; Pardinha et al., 2023)	-	(Bragg, 2018; Guilding & Ji, 2014; Schmidgall, 2016)
NRevPAR	$\frac{\text{Net revenue}}{\text{Rooms available}}$	-	(Cloudbeds, 2023; HCMS, 2024; RevFine, 2023; Revmanager, 2020)	-
Revenue per occupied room (RevPOR)	$\frac{\text{Total revenue}}{\text{Rooms occupied}}$	-	(Cloudbeds, 2023; HCMS, 2024; RevFine, 2023; SiteMinder, 2024)	-

Multiple occupancy	$\frac{\text{Rooms occupied by two or more people}}{\text{Rooms occupied by guests}}$	-	-	(Coltman, 1994; Harris, 2013; Lima Santos et al., 2016; Schmidgall, 2016)
Complimentary occupancy percentage	$\frac{\text{Number of complimentary rooms occupied}}{\text{Rooms available}}$	-	-	(Bragg, 2018; Guilding & Ji, 2014; Schmidgall, 2016)
EBITDA per available room (EBITDA PAR)	$\frac{\text{EBITDA}}{\text{Rooms available}}$	-	(CHC, 2024; Horwath HTL, 2024)	(HANYC, 2014)
Average occupancy per room	$\frac{\text{Number of guests}}{\text{Number of rooms occupied by guests}}$	-	-	(Bragg, 2018; Schmidgall, 2016)
Contribution margin ratio	$\frac{\text{Contribution margin}}{\text{Revenue}}$	-	-	(Jiambalvo, 2018; Noreen et al., 2023)
RevPAR Index / Revenue generation index (RGI)	$\frac{\text{Your property´s RevPAR}}{\text{CompSet´s RevPAR}}$	-	(Cloudbeds, 2023; Revmanager, 2020)	-
Average length of stay (ALOS)	$\frac{\text{Total room nights occupied}}{\text{Total of reservations}}$	-	(Cloudbeds, 2023; SiteMinder, 2024)	-
TrevPEC	$\frac{\text{Total revenue}}{\text{Number of guest}}$	-	(Revmanager, 2020; Xotels, 2024)	-
Room yield percentage	$\frac{\text{Actual total room revenue}}{\text{Potential total room revenue}}$	-	-	(Guilding & Ji, 2014; Harris, 2013)
		F&B		
Food cost percentage	$\frac{\text{Cost of food sold}}{\text{Food revenue}} x\ 100$	(Harris & Mongiello, 2001; Singh & Schmidgall, 2002; Wadongo et al., 2010b)	(HCMS, 2024)	(Burguess, 2014; Chibili, 2017; Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; HANYC, 2014; Harris, 2013; Lima Santos et al., 2016; Ogbeide, 2014; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Cost of sales	N.A.	(Kotas, 1982)	-	(Burguess, 2014; Chibili, 2017; Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; HANYC, 2014; Harris, 2013; Hilton, 2020; Hudson & Hudson, 2022; Jagels & Coltman, 2004; Jiambalvo, 2018; Jones et al., 2012; Noreen et al., 2023; Ogbeide, 2014; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Beverage cost percentage	$\frac{\text{Cost of beverage sold}}{\text{Beverage revenue}} x\ 100$	(Harris & Mongiello, 2001; Singh & Schmidgall, 2002)	-	(Burguess, 2014; Chibili, 2017; Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; HANYC, 2014; Harris, 2013; Lima Santos et al., 2016; Ogbeide, 2014; Schmidgall, 2016; Schmidgall & Damitio, 2000)
F&B revenue	N.A.	(Kala & Bagri, 2014, 2016; Wadongo et al., 2010b)	-	(Chibili, 2017; Coltman, 1994; Cote, 2012; HANYC, 2014; Harris, 2013; Jagels & Coltman, 2004; Ogbeide, 2014; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Cost of food sales	N.A.	-	-	(Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; Ginneken, 2019; HANYC, 2014; Harris, 2013; Jagels & Coltman,

				2004; Jiambalvo, 2018; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Seat turnover	$\frac{\text{Covers served}}{\text{No. of seats} \times \text{No. of operating days in period}}$	-	-	(Bragg, 2018; Coltman, 1994; Dopson & Hayes, 2016; Guilding & Ji, 2014; Harris, 2013; Jagels & Coltman, 2004; Lima Santos et al., 2016; Schmidgall, 2016)
Revenue per available seat hour (RevPASH)	$\frac{\text{Total F\&B revenue}}{\text{No. of available seats} \times \text{No. of working hours}}$	-	-	(Chibili, 2017; HANYC, 2014; Lima Santos et al., 2016; Noreen et al., 2023)
Revenue yield per seat/Revenue per available seat (RevPAS)	$\frac{\text{Total F\&B revenue}}{\text{No. of available seats}}$	-	-	(Coltman, 1994; Guilding & Ji, 2014; HANYC, 2014; Jagels & Coltman, 2004; Lima Santos et al., 2016)
Average food check per meal period by venue (or banquet)	$\frac{\text{Total food revenue per meal period per venue (or banquet function)}}{\text{Number of customers served during that meal period in that venue (or banquet function)}}$	(Singh & Schmidgall, 2002; Wadongo et al., 2010b)	-	(HANYC, 2014; Jagels & Coltman, 2004)
Ratio of beverage to food revenue	$\frac{\text{Beverage revenue}}{\text{Food revenue}}$	-	-	(Bragg, 2018; Jagels & Coltman, 2004; Lima Santos et al., 2016)
Revenue per available square meters (RevPAM)	$\frac{\text{Total revenue}}{\text{Available square meters}}$	-	(SiteMinder, 2024; Xotels, 2024)	-
F&B revenue mix	$\frac{\text{Total venue revenue (or any other segment)}}{\text{Total F\&B revenue}}$	-	(SiteMinder, 2024; Xotels, 2024)	(Dopson & Hayes, 2016)
		Hotel indicators		
Revenue	N.A.	(Harris & Mongiello, 2001; Kala & Bagri, 2014, 2016; Liu & O'Neill, 2023; Maia & Costa, 2021; O'Neill, 2004; Pardinha et al., 2023; Wadongo et al., 2010b)	(HCMS, 2024; HotelAVE, 2024; PKF, 2024; Riley Hotel Group, 2024)	(Chibili, 2017; Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; Edmonds et al., 2023; HANYC, 2014; Harris, 2013; Hilton, 2020; Jagels & Coltman, 2004; Jiambalvo, 2018; Jones et al., 2012; Noreen et al., 2023; Ogbeide, 2014; Okumus et al., 2010; Schmidgall & Damitio, 2000)
Labour costs	N.A.	-	(CHC, 2024; HCMS, 2024; Horwath HTL, 2024)	(Chibili, 2017; Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; Ginneken, 2019; HANYC, 2014; Harris, 2013; Hilton, 2020; Jagels & Coltman, 2004; Jiambalvo, 2018; Jones et al., 2012; Lima Santos et al., 2016; Noreen et al., 2023; Ogbeide, 2014; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Total operating cost	N.A.	(Dutescu et al., 2014; Kala & Bagri, 2014; Wadongo et al., 2010b)	-	(Coltman, 1994; Cote, 2012; Dopson & Hayes, 2016; HANYC, 2014; Harris, 2013; Hilton, 2020; Jageles & Coltman, 2004; Jiambalvo, 2018; Noreen et al., 2023; Ogbeide, 2014; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Gross operating profit (GOP)	$\text{Revenue} - \text{Operating costs}$	(Harris & Mongiello, 2001; Kala & Bagri, 2016; Liu & O'Neill, 2023; Tan et al., 2022)	(Cloudbeds, 2023; HCMS, 2024)	(Burguess, 2014; Chibili, 2017; Coltman, 1994; Dopson & Hayes, 2016; HANYC, 2014; Harris, 2013; Lima Santos et al., 2016; Schmidgall, 2016; Schmidgall & Damitio, 2000)
Labour cost (percentage)/Labour efficiency/productivity	$\frac{\text{Labour costs}}{\text{Revenue (total sales)}} x\,100$	(Harris & Mongiello, 2001; Singh & Schmidgall, 2002; Wadongo et al., 2010b)	(CHC, 2024; DataPine, 2023; HCMS, 2024; Horwath HTL, 2024)	(Burguess, 2014; HANYC, 2014; Harris, 2013; Hilton, 2020; Schmidgall, 2016)
Sales volume	N.A	(Grynko et al., 2016; Komlósi & Gyurácz-Németh, 2014; Kotas, 1982)	(DataPine, 2023; HCMS, 2024)	(Chibili, 2017; Coltman, 1994; HANYC, 2014; Harris, 2013; Hilton,

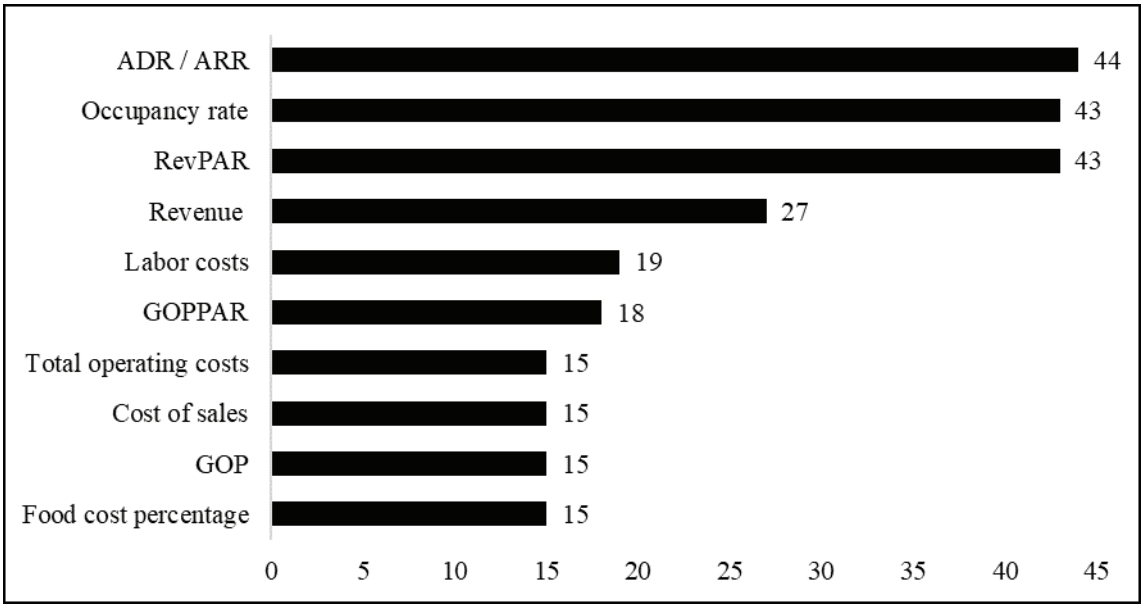
				2020; Jiambalvo, 2018; Noreen et al., 2023; Okumus et al., 2010; Schmidgall, 2016)
Customer/Guest satisfaction	N.A.	(Harris & Mongiello, 2001; Jugović et al., 2022; Kala & Bagri, 2014, 2016; Komlósi & Gyurácz-Németh, 2014; Pardinha et al., 2023; Wadongo et al., 2010b)	(CHC, 2024; DataPine, 2023; HCMS, 2024; Newhotel, 2019; Revmanager, 2020)	(Okumus et al., 2010)
Market share	$\frac{\text{Available hotel rooms}}{\text{Rooms available in the area}}$	(Kala & Bagri, 2014, 2016)	-	(Bragg, 2018; Guilding & Ji, 2014; Hilton, 2020; Jiambalvo, 2018; Noreen et al., 2023; Okumus et al., 2010)
Employee training and development, product and service development	N.A.	(Harris & Mongiello, 2001; Kala & Bagri, 2016; Komlósi & Gyurácz-Németh, 2014; Wadongo et al., 2010b)	(CHC, 2024)	-
Sales growth	$\frac{\text{Sales}_n - \text{Sales}_{n-1}}{\text{Sales}_{n-1}}$	(Kala & Bagri, 2014, 2016; Wadongo et al., 2010b)	(DataPine, 2023)	-
Staff turnover	$\frac{\text{Employees who left}}{\text{Average number of employees}} \times 100$	(Kala & Bagri, 2014, 2016; Komlósi & Gyurácz-Németh, 2014)	(DataPine, 2023)	-
Customer complaints	N.A.	(Kala & Bagri, 2014, 2016; Pardinha et al., 2023)	-	-
Customer lifetime value	$\frac{\text{Customer revenue per period of time}}{\text{Period of time}}$	(Balliauw et al., 2020; Jugović et al., 2022)	(DataPine, 2023)	-
Revenue per employee	$\frac{\text{Food and beverage revenue}}{\text{Number of employees}}$	-	-	(Coltman, 1994; Harris, 2013; Schmidgall, 2016)
Labour cost per available room (LPAR)	$\frac{\text{Labour costs}}{\text{Rooms available}}$	-	(CHC, 2024; HCMS, 2024)	-
Number of new customers	N.A.	(Kala & Bagri, 2014, 2016)	-	-
Number of repeat customer	N.A.	(Kala & Bagri, 2016; Komlósi & Gyurácz-Németh, 2014)	-	-
Customer payment time	$\frac{\text{Customers}}{\text{Sales}} \times 365$	(Harris & Mongiello, 2001; Komlósi & Gyurácz-Németh, 2014)	-	-
Guest market share	$\frac{\text{Hotel guests}}{\text{Hotel guests in the area}}$	(Maia & Costa, 2021; Wadongo et al., 2010b)	-	-
Degree of competitiveness	N.A.	(Kala & Bagri, 2014, 2016)	-	-
Number of facilities and equipment failures	N.A.	(Lai & Choi, 2015; Wadongo et al., 2010b)	-	-
Number of rooms serviced per employee	$\frac{\text{Number of rooms serviced}}{\text{Number of employees}}$	-	-	(Harris, 2013; Jagels & Coltman, 2004)
Cost per customer	$\frac{\text{Total labour and related expenses}}{\text{No. of customers}}$	-	-	(Edmonds et al., 2023; HANYC, 2014)
Full-time equivalent (FTE)	$\frac{\text{Total No. of hours worked}}{\text{No. of hours in standard work week} \times \frac{\text{No. of days in period}}{7}}$	-	-	(HANYC, 2014; Ogbeide, 2014)

2.1. The main operating indicators

After the elaboration of Table 1, the 10 most common operating hotel indicators in all the sources of evidence studied were identified, four of which belong to the rooms department (ADR/ARR, occupancy rate, RevPAR and GOPPAR), two to the F&B department (cost of sales and food cost percentage) and the remaining four to the hotel indicators (revenue, labour costs, total operating costs, GOP).

According to Figure 2, ADR, also known as ARR, is the most representative indicator, appearing in 44 different sources. In the second position are occupancy rate and RevPAR, which are represented in 43 sources. These results agree with several authors who state that these three operating indicators are the most used and talked about not only in the literature but also in hotel consultancies and professional books (Bianco et al., 2023; CHC, 2024; HANYC, 2014; Tan et al., 2022). In third position in the top 10 is revenue which is represented in 27 different sources. With less representation (19) but in fourth position is labour costs. GOPPAR appears in fifth position in 18 sources. Finally, total operating costs, cost of sales, GOP, and food cost percentage are in the sixth position being represented in 15 sources.

Figure 2: **The 10 most common operating hotel indicators**



Each of the 10 operating indicators most studied in the literature, by hotel consultancies' and in professional books on hotel management accounting will be discussed below. It is important to note that these indicators should not be analysed separately because some are interdependent (Bianco et al., 2023).To being considered one of the most widely used indicators in the hospitality industry (Bento et al., 2021; Pardinha et al., 2023), the ADR is also a significant predictive indicator not only for managers but also for investors (Calinao et al., 2022; O'Neill, 2004), due to ADR is a predictor of hotel value (Liu & O'Neill, 2023), and is a predictor of RevPAR (Barreda et al., 2017). ADR is an operating indicator used in hotel performance evaluation (Tan et al., 2022; Liu & O'Neill, 2023). ADR is a key performance indicator that affects the supply and demand of hotels and is linked to revenue management through pricing techniques (Choi et al., 2019). The hotel manager must be able to set the ADR at a value that is considered "high" to maintain the company's reputation, because the lower this indicator is, the more difficult it will be to retain customers with a greater ability to pay for accommodation. Conversely, if the ADR increases, there is a possibility that the hotel's occupancy rate will increase and, in this case, the manager must consider the best policy to adopt, since a higher occupancy rate also requires a greater expenditure of resources, not only financial but also human, material, and raw (Choi et al., 2019). ADR depends on various factors: hotel's physical location, hotel brand (Liu & O'Neill, 2023), quality of the room, booking time and promotions (Barreda et al., 2017).

The occupancy rate indicator is concerned, it is evaluated in different ways, such as occupancy rate (Kala & Bagri, 2016); paid occupancy (Bragg, 2018); average occupancy per room (Guilding & Ji, 2014); room occupancy percentage (Harris, 2013); multiple occupancy (Schmidgall, 2016); *etc*. This indicator is also considered one of the most important for analysing a hotel's performance (Kala & Bagri, 2014). To stabilize an indicator such as occupancy, the number of years in the holding period must increase. In addition, hotels that are part of a hotel chain have less volatility in this indicator, which is beneficial; the same is not true for independent hotels, where the risk of profit increases (Liu & O'Neill, 2023). Furthermore, if hotel properties are considered to have diamond ratings, occupancy rates increase (Nalley et al., 2019).

RevPAR is considered a standard indicator of a hotel's performance and one of the most important for benchmarking (Calinao et al., 2022). RevPAR therefore behaves differently in situations that could be considered similar, as is the case with major

events. While no significant increases in RevPAR were identified with the FIFA World Cup in Brazil (Barreda et al., 2017), this was not the case with the Web Summit event in Portugal, where RevPAR increased by 115% (Bento et al., 2021).

An increase in ADR automatically increases RevPAR, which translates into greater profit for the hotel (Bianco et al., 2023). However, there are cases in which the influence of this indicator can be negative, as in the case of Calinao's study (2022) with an increase in supply. Thus, an increase in supply can be detrimental to an increase in RevPAR. Additionally, mid-range hotels find it easier to analyse their performance through RevPAR than luxury hotels (Tan et al., 2022).

The revenue indicator can be affected by customer loyalty, as the more loyal customers there are to the hotel, the less volatility there will be in revenue, which is reflected in the company's profits (Liu & O'Neill, 2023). Revenue is sometimes associated with financial indicators and with management accounting practices such as the balanced scorecard, which argues that revenue is one of the critical and most important performance indicators (Kala & Bagri, 2016; Wadongo et al., 2010b).

The labour cost was not found in the scientific literature studied, which does not corroborate the information presented in the literature review in which some authors argue that valuing human resources is fundamental to the success of any organization. In hotel consultancies, this indicator appears three times and in professional books, being the most representative in the last source. Some authors distinguish between direct and indirect labour costs, which are directly linked to the company's operations, while indirect costs are not directly related to operations (Jiambalvo, 2018).

These costs require planning and budget forecasting to keep them under control. However, monitoring this indicator can sometimes be complicated and it is also difficult to control this indicator automatically because it is an indicator that "measures" people and is not a tool that can be implemented in any cost control system or software (Jagels & Coltman, 2004). As far as F&B is concerned, personnel costs are the second largest expense (Dopson & Hayes, 2016). In addition to this indicator, many others evaluate not only expenses but also the revenue generated by staff (HCMS, 2024).

GOPPAR measures operating profit after deducting franchise fees and other costs (Liu & O'Neill, 2023); it is one of the best indicators to measure a hotel's performance because it shows the value of the hotel as a whole and is considered a KPI of excellence (Revmanager, 2020). This indicator helps a hotel to adjust to achieve its objectives applies a rigorous analysis of the revenue management process and helps to analyse the financial side because it promotes the value of its assets (Xotels, 2024). Nevertheless, some consider RevPAR to be better than GOPPAR (Calinao et al., 2022; Tang, 2020). These indicators, like occupancy rate and RevPAR, are more stable in chain hotels than in independent hotels (Liu & O'Neill, 2023).

Authors such as Dutescu et al. (2014), Kala and Bagri (2014), and Wadongo's study (2010b) in their study identified total operating costs as a key indicator of the performance of a hotel chain. In Wadongo et al. (2010b) study, this indicator is one of the five most important indicators, which is like the present study as it is in the sixth position as mentioned above. However, the total operating costs, despite their large representation in books, often present in income statements, are not present on the websites of hotel consultancies.

The cost of sales was studied in the scientific literature more than 40 years ago in a study by Kotas (1982). Currently, this measure is not present in hotel consultancies but is present in various professional books and represents the cost of sales of food and beverages sold (Dopson & Hayes, 2016).

Finally, although the GOP is present as often as the previous indicators, its representativeness is more homogeneous across the three sources of evidence. Tan et al. (2022) argue that this indicator is the only one that allows stabilized operating performance compared to the others and is even compared to occupancy and ADR indicators to minimize KPI fluctuations and maximize a hotel company's marketing strategies (Liu & O'Neill, 2023).

As for the food cost percentage, this indicator is not widely covered in the recent scientific literature, but it is still considered one of the most widely used indicators (Wadongo et al., 2010b) and is widely discussed in professional books; this indicator is great for analysing restaurant performance and according to Harris and Mongiello (2001), the accommodation has a higher fixed cost structure than F&B. However, the food cost percentage is important so that food is not wasted, and this results in increased costs for the company. A good way to control these costs is to make a monthly product inventory (HCMS) or even compare it with the industry average (Schmidgall, 2016).

In this way, the 10 most common indicators at a general level are ADR/ARR, occupancy rate, RevPAR, revenue, labour cost, GOPPAR, total operating costs, cost of sales, GOP, and food cost percentage. The different operating indicators were presented and compared through three sources of evidence, and there are several indicators that, despite being more developed in scientific literature and professional books, are not always present in hotel consulting companies. Only the ADR, occupancy rate, and RevPAR indicators appear more often in the three sources of evidence. Labour costs do not appear in the scientific literature, and the cost of sales and total operating costs are not mentioned in the hotel consulting literature, which shows that there are problems to be solved between theory and practice.

Considering the updating of sustainability measures at various levels, especially at the environmental level, environmental sustainability indicators are not yet relevant in scientific literature, hotel consultancies, or professional books. Nevertheless, according to the Directive (EU) 2022/2464 of the European Parliament and of the Council (OJEU, 2022), in the medium term, all companies will be obliged to present a sustainability report at the end of each year.

CONCLUSIONS

The objective of this study was to identify which operating indicators contribute to a relevant evaluation of performance that impacts the sustainability and success of hotel companies. To this end, a hybrid methodology was used, based on three sources of evidence: scientific literature, hotel consultancies, and professional books in the field of management accounting applied to hotels. Some sources were excluded because the indicators used centred on the building phase of a hotel and were not focused on operating management performance, which limited the number of papers collected.

This research has led to the conclusion that KPIs provide critical information for any hotel organization by helping to monitor and predict performance. Then, 55 operating indicators have been presented that will be useful to any hotel manager, as they are practical and easy to use, allowing the operating performance of a hotel company to be monitored.

The indicators considered most important are ADR, RevPAR, and occupancy rate, thus corroborating other authors (Bianco et al., 2023; CHC, 2024; HANYC, 2014; Tan et al., 2022). GOPPAR is also an important indicator of hotel performance because it shows the value of the hotel.

Regarding the labour cost indicator, it has not been highlighted in the scientific literature, which the authors believe is worrying because all companies in the hotel sector depend on human resources and they are the most difficult to monitor because they are people and not just metrics that can be measured by software. As for the various operating indicators belonging to the F&B department, they also require rigorous attention, since this department works with perishable raw materials and alcoholic beverages that can jeopardize the safety of workers.

A very important factor in the monitoring of operating indicators is whether the hotels belong to hotel chains, as it is easier to implement or use KPIs and there is less risk of volatility. The age of the hotel, the star category, the region in which the hotel is located, and the age of the managers are all potential factors that influence the performance of the operating indicators, which will therefore be reflected in the success or failure of the hotel company.

This study also highlighted the importance of comparing indicators by benchmarking the hotel industry. However, there are still some gaps between the scientific literature and the hotel consultancies and professional books. In some cases, some indicators are widely covered in the scientific literature, but the same is not true for the hotel consultancies (which are the real companies that work with the hotels) and in the professional books. For the authors, this is a serious problem that should be resolved by creating links between theory and practice.

As theoretical implications, this study contribute to an uniformization of operating indicators, both in terms of designation and calculation, as this is something that differs according to the sources used. In this way, this article makes it possible to have a compilation of all the existing indicators in a single document. Also, this research is a first step in establishing the relationship between theory and practice to ensure alignment in terms of operating indicators, highlighting those most used by managers and those most used at a theoretical level whose practical application would be useful. As a result, hotel managers are aware of emerging operating indicators, which legitimizes a practical implication of this study. Then, a hotel that uses these operating indicators in its performance evaluation will have great opportunities for success, as this will allow its managers to track and monitor all the information related to the hotel departments and make assertive and correct decisions.

The main limitations of this study concern the choice of scientific literature sources (Scopus and Web of Science), which may have left out some articles of potential interest to the research. Another limitation is the fact that professional books are limited to the English language.

Key performance indicators should cover all the different areas of a hotel. Therefore, it is suggested that future research should include more scientific studies of managers' opinions, using interviews or questionnaires to verify the importance of operating indicators in managers' perceptions. Sustainable indicators should also be studied, as hotel managers will soon have to include sustainability in their financial reports. These studies can be conducted on financial, environmental, or socio-cultural sustainability indicators. Moreover, a systematic analysis of the literature should be carried out to analyse what has been studied through the operating indicators as well as the methodologies used, contributing to the advancement of knowledge.

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