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How **pandemics** and **disease outbreaks impact** tourism: An industry perspective on challenges and opportunities

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Abstract | The global pandemic was a disaster for humankind, but it was also a source of opportunities and challenges for society. There is a large body of research about the impacts of pandemics and disease outbreaks in tourism, especially from the consumer perspective, but less attention has been paid to the perspectives of tourism players, especially in terms of the challenges and opportunities brought about by the pandemic. Using a panel of experts, an online survey was applied. Economic impacts were the most impactful during COVID-19, in particular unemployment. Lack of liquidity was identified as one of the most pressing financial concerns. Regarding operation and technological impacts, the majority pointed out a 'a race for technology' and in terms of opportunities, participants highlighted the emergence of new forms of organization and team management.

Keywords | Pandemics, tourism impacts, hospitality, COVID-19, post-COVID trends

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1. Introduction

Crises play a pivotal role in business by triggering unexpected and adverse impacts (Lee et al., 2024). Disease outbreaks, epidemics and pandemics have long provided selective societal and economic changes and transformations. Travel, tourism and hospitality have been substantially affected during the major pandemics and disease outbreaks of the twentieth and twenty-first centuries (Abrantes et al., 2021). However, as a crucial force in globalization, tourism has also contributed to the spread of the disease (Hall et al., 2020), and the COVID-19 pandemic was one the most significant examples of this relationship (Seabra et al., 2021).

According to the World Economic Situation Report (WESR) (2021), the COVID-19 pandemic was a once-in-a-century crisis, leading to a loss of 62 million jobs worldwide in the travel and tourism industry in 2021 alone. At the end of 2021, despite improvements in travel and tourism, the sector reported around 44 million fewer jobs compared to 2019 (Statista Research Department, 2022).

During these hard times, the hotel industry and the entire travel and tourism sector struggled to maintain operations; they took the opportunity to renew processes and reformulate their operations in order to become more robust, and they took steps to transform adversity into opportunity (Jiang & Wen, 2020; Sigala, 2020; Vaz Serra & Seabra, 2023). In fact, the recent pandemic was seen as a chance to restart the sector and contribute to a more resilient industry (Persson-Fischer & Liu, 2021).

Despite extensive research on the severe impacts of COVID-19 on the tourism industry, a critical gap exists: the predominance of studies focusing on negative outcomes and consumer perspectives. This oversight underestimates the importance of the insights of industry stakeholders, who navigate these challenges first-hand and play a pivotal role in shaping resilience and innovation within the sector. After these hard times, it is now time to focus on the positive changes that this pandemic brought about (Seabra & Bhatt, 2022), specifically directing research to the views and perspectives of managers and stakeholders, meaning the industry perspective. While this research emphasizes the positive transformations within the tourism sector in the post-pandemic phase, it does not overlook the profound challenges and losses experienced. Recognizing these dual realities allows for a balanced exploration of the impact of COVID-19, ensuring a nuanced understanding of its legacy for the industry.

This research is positioned within the wider body of current research on industry impact, in particular impact analyses in other industries. Researchers cannot use the knowledge gained though the studies of other industries and apply it to the tourism sector. This is why it is so important to make a specific analysis of the tourism industry, with its own needs and agenda. The purpose of this research work is to highlight important impacts of this crisis through the views of experts on it. Another aspect of the originality of this work is precisely to represent the industry through the perspectives of experts who are academics, managers, association presidents and people involved in governance. These professionals are part of decision-making and are part of the future of the tourism sector in Portugal.

This original research diagnoses the impacts of COVID-19 on the tourism and hospitality sector from the unique perspective of industry professionals. It has a four-part structure, beginning with a theoretical framework, followed by our methodology, findings, and concluding with implications and future research directions. The theoretical framework section delves into resilience and adaptation theories within the tourism industry, setting the stage for understanding how businesses have navigated the challenges posed by COVID-19. This framework is crucial for analysing the sector's capacity for innovation and recovery in the face of unprecedented disruptions. The methodology section details our mixed-methods approach, chosen for its robustness in capturing nuanced insights from a diverse range of industry stakeholders. This method facilitates a comprehensive understanding of the pandemic's multifaceted impacts, and directly addresses our research aim by leveraging both quantitative and qualitative data, with experiential evidence from professionals within the sector. The third part presents the findings and discussion. The fourth and last part presents the conclusion and the implications of the results, namely theoretical and practical implications, and directions for further research.

2. Literatura review

2.1. COVID-19 industry impacts

While tourism has rebounded remarkably, with visitor numbers now surpassing pre-pandemic levels, it remains crucial to reflect on the significant themes and lessons which the COVID-19 pandemic has imparted to the sector.

The pandemic not only severely impacted society and the tourism sector but also introduced economic and financial challenges which are distinct from previous crises, such as the Great Recession of 2007–2009 (Foroni et al., 2020; Bianchi et al., 2021). The systemic vulnerability of the world economy was exposed by the COVID-19 pandemic (UN, 2021). The significance of pursuing sustainable development – characterized by inclusive and equitable growth, inequality reduction, and enhanced environmental sustainability – has been underscored through resilience (UN, 2021).

Despite the different triggers, similarities exist in the form of uncertainty and the substantial demand and supply shocks, paralleling the impacts of the Great Recession. In December 2020, the unemployment rate reached 6.7% in the USA, compared to 10.8% post-World War II, and the peak of the 2007–2009 crisis at 10% (Bianchi et al., 2021).

From 2020 to 2022, tourism suffered its deepest crisis in recorded history, the COVID-19 pandemic generated a loss of 2.6 billion international arrivals in 2020, 2021 and 2022 combined (World Tourism Organization, 2023). The economic contribution of tourism, measured in tourism direct gross domestic product, was cut from about 4% of global GDP in 2019 to 25 in 2020 and 2021. In 2022 it grew to 2.5% according to the same report.

These figures underscore the decisive actions taken by various governments to mitigate economic and health risks, even as poverty and hunger escalated in low- and middle-income countries. As pointed out by Ahmad et al. (2023), as COVID-19 emerged in early 2020, many countries-imposed travel restrictions by March, despite some travellers' initial inclination to continue traveling. However, increased pandemic awareness made tourists more cautious in their travel decisions, which now depend on factors like low/zero case counts and high vaccination rates that instil confidence. Concerning travellers' choices, Sousa et al., (2023) in their research examined how the pandemic has affected tourists' travel behavior post-pandemic, focusing on how their perception of safety influences their travel decisions and the essential measures they deem necessary to resume traveling. Şengel (2021) at its research also described the impacts of COVID-19 on the restructuration of tourism.

Unemployment is referred to as one of the biggest economic problems. However, the unemployment rate underestimates the extent of economic contraction, as many potential workers remain without a job (Bianchi et al., 2021).

Organizational impacts came from the need for imposing social distancing. Supply impacts were identified: the insurance of business continuity and building resilience; the repurpose of resources, e.g., staff, space, and food-cleaning supplies; innovation from necessity, e.g., remote working; innovation of business models and acceleration of digital adoption; and the virtualization of experiences (Sigala, 2020). Social distancing increased the performance of virtual platforms, as they encourage dialogue with employees without the need for physical presence. Virtual platforms deliver synchronous and asynchronous communications at a low cost, thus facilitating knowledge sharing between members of the same company. With the pandemic, providing customers with socially distanced experiences turned into a pressing need. The increase in remote working and virtual social behaviours, e.g., virtual entertainment, virtual social drinks, virtual parties, virtual events/festivals, virtual dining and virtual visits to destinations and attractions were pinpointed as impacts by Sigala (2020). Hall et al. (2020) believe that the workforce was affected by profound transformations, namely the greater use of short-term, casual work and the gig economy. Woodcock and Graham (2019, p. 7) state that 'Up to 540 million people could benefit from online talent platforms by 2025', which will bring new transformations after this enormous crisis.

Having a strong internet presence became essential for tourism businesses. As a result, several service-oriented industries implemented digital marketing strategies to sustain their customer relationships, and throughout the pandemic, customer retention emerged as the most significant obstacle. After taking note of these conditions, travel-related enterprises concentrated on improving their online presence and switched from in-person sales to online and digital marketing techniques (Seshadri et al. 2023). Hence, technologies became more important than ever. These technologies can be used by guests, for example, to avoid contact with employees. Digital assistants, like Amazon's Alexa from or Apple's Siri, are used by the Wynn Hotel in Las Vegas and in Aloft Hotels to help guests order their services without touching anything. Conferences and meetings became virtual, and this trend is likely to continue in the future (Bilsland, Nagy & Smith, 2020).

Nonetheless, DeMicco et al., (2021, p. 914) state that '"virtual tourism" will not significantly affect the conventional kind until 2035, or even 2040. Instead, virtual tours will whet the consumer's appetite for in-person visits.

Ivan (2020) identifies some new technologies to guarantee the safety of guests and avoid interaction with hotel staff such as the IoT (internet of things) to control light and room temperature, artificial intelligence, augmented reality, biometrics to authenticate identities, and chatbots. From the destination perspective, Trunfio and Pasquinelli (2021) researched the impact of smart technologies during the COVID-19 crisis, with a detailed analysis of the smart-tech actions applied to the regulation, management, and marketing areas. The importance of technologies was evident during COVID-19, leading the whole world to use it (Buhalis et al., 2023). The use of different digital means like augmented reality, virtual reality or the metaverse offers an immersive, dynamic and different way for hotels to provide new products/services through immersive experiences (e.g., visiting a hotel with the help of a virtual universe) (Dwivedi et al., 2021).

Considering financial impacts, Sigala (2020) argues that financial markets, investors, cash liquidity and financial survival are pressing needs for both multinational and small tourism enterprises, who are expecting tourism research to help them resume operations based on the old paradigms and business models. Sigala also states that COVID-19 was converted from a biological virus contagion into a financial crisis contagion and, recently, into an economic race to rebuild our old financial competitiveness. In their pre-2020 research, Ding, Levine, Lin and Xie (2021) identify five traits of firms related to liquidity constraints and exposure to the pandemic through business connections. Market valuation and firm performance are influenced by the impact of the pandemic on cash-flow, global liquidity demands, and heterogeneity in firms' access to cash and credit (Giroud et al., 2017). Firms with more cash, less leverage, and greater access to credit will experience less severe decline in stock price than otherwise identical firms.

The COVID-19 pandemic has served as a significant learning experience for aviation managers regarding the industry's vulnerability over recent years (Su et al., 2023). To enhance efficiency and bolster traveller confidence in the safety of their journeys amid infection risks, airports implemented improved operational strategies. The introduction of self-service and touchless technologies for check-in and other airport services effectively reduced the potential for virus transmission during the boarding and arrival stages (Serrano & Kazda, 2020). Airline executives needed to acknowledge and address the emerging challenges proactively. Strategic, long-term planning for the growth of airlines was essential, incorporating financial stress tests to account for the uncertainties inherent in disruptive incidents (Su et al., 2023). Developing a rapid response plan to revise operational tactics and adapt to evolving scenarios became a critical necessity.

Restaurants and hotels had to adopt their operational procedures to convey confidence to potential guests and welcome them safely. Some technologies adopted in other sectors were transferred to the hospitality sector. For example, the Japanese chain FamilyMart teamed up with the Tokyo start-up Telexistence to test the idea of using a remotely controlled shelf-stocking robot to restock grocery shelves (Yirka, 2020). This type of technology could be used for stocking groceries or hotel amenities. Despite having severely affected the hospitality industry, COVID-19 is seen as a turning point (El-Said et al., 2023).

3. Methods

Data collection was carried out through an online survey (using the Google Docs platform) and invitations were sent by email in September 2020 to experts in the tourism sector in Portugal. The survey started with questions related to personal data (gender and age) and professional data (field, position within the organization, and years of experience in the tourism sector). A set of questions followed, which gathered respondents' perspectives on the impacts of the global pandemic of COVID-19 on tourism and hospitality in several domains of the businesses' daily operations, namely the economic (Almeida et al., 2022; Bianchi et al., 2021) financial (Ding, Levine, Lin & Xie, 2021), organizational (Sigala, 2020), operational (Hall et al., 2020; Yoon & Wang, 2020) and technological (Trunfio & Pasquinelli, 2021; Woodcock & Graham, 2019) levels. The survey included open-ended and closed questions.

There was also a section of questions concerning future changes in hospitality and customer service due to impacts (closed and open-ended questions). Each closed question required respondents to give their degree of agreement on a five-point Likert scale (from 1 – *total disagreement* to 5 – *total agreement*) and was followed by a corresponding open-ended question to gather respondents' opinion on other relevant impacts. Two open-ended questions addressed opportunities arising from the current crisis for the global and national tourism industries. The last question was related to new trends that might be expected to grow in hospitality after the COVID-19 period. A five-point Likert scale from 1 – *very unlikely* to 5 – *very likely* was followed by a corresponding open-ended question.

3.1. Sample characteristics

The panel included 36 experts (response rate of 75%); 20 were male and 16 were female, aged 31–67 years (M = 48.6; *SD* = 7.1). It comprised professionals in various areas of tourism and hospitality (e.g., economic, financial, organizational, operational, and technological fields), and researchers in the tourism and hospitality fields. Respondents' average years of experience in the tourism sector was 23.2 years (SD = 9.3). They occupied top positions, i.e., administrator (1), CEO (2) director (15), university teacher (7), manager (6), president and vice-president (3) and consultant (1). They were professionally linked to higher education institutions, hotel associations, tourism and hospitality companies, guest experience automation and management support, venture capital management companies, public tourism entities and/or travel magazines and public decision-making. The technique for identifying and selecting the sample was snowball sampling, a non-probability sampling technique where existing study participants recruit future participants from among their acquaintances (Chan, 2020). The criteria for choosing this sample were: (i) suggesting an expert from the tourism sector; (ii) the expert should have more than 10 years' work experience; and (iii) the expert must be in a decision-making position within the company.

3.2. Data analysis

This is a research study involving quantitative and qualitative data analysis. The statistical analysis was performed using the software SPSS 27: descriptive statistics, non-parametric categorical analysis, and paired t tests. Categorical principal component analysis (CATPCA) with ordinal scale and varimax rotation was used to establish the dimensions of impact and trend scales (Linting et al., 2007; Linting & van der Kooij, 2012). The small sample size may suggest limitations to the generalization of results. However, according to the theoretical framework of MacCallum et al. (1999), the average level of communality of variables in a factor is more important than the minimum sample size, or the ratio between sample size and the number of variables; in small samples, the impact of the sample size is reduced when the communalities of all variables are consistently greater than .60.

The factors dimension was based on Kaiser's scree plot elbow criteria and on its interpretability (Fabrigar et al., 1999). Factor structures were accepted if items' loading was at least .40 in the primary factor and twice as strong on the primary factor than on alternative factors (Hinkin, 1998), and presented communalities above .50 (Tabachnick & Fidell, 2013). Internal consistency was determined using Cronbach's alpha coefficient (Hair et al., 2014). The statistical level of significance was set at .05. Qualitative thematic analysis was performed on respondents' answers to the open-ended questions. Thematic analysis searches for common themes across the whole dataset (Braun & Clarke, 2006; Clarke & Braun, 2013). A theoretical thematic analysis was carried out, driven by the researchers' previous knowledge of this research field (Braun & Clarke, 2006), and considering the results obtained in the quantitative analysis. NVivo was used to organize and define the themes presented in Table 1.

4. Results

Respondents' answers concerning impacts (i.e., economic, financial, technological, organizational and operations) are presented and analysed in Table 1.

Most respondents (up to 60%) positively agreed with the economic impacts listed. The Economic Impact scale is unidimensional and presented satisfactory internal validity. The average scale score is high (4.28 ± 0.83, 95% CI [4.00, 4.56]), and 75% of the sample scored above 4.25. Thus, there was a positive and high mean agreement that the cessation of hotel operations, and consequently unemployment and lay-offs, would be impacts of the pandemic, and that the development of the

Table 1 | Main themes retrieved from qualitative analysis

Impacts	
Economic	Unemployment Lack of demand (more fear; less corporate tourism; less international tourism) Company closures Lay-off Opportunities (domestic market; new markets and opportunities) "Domino effect" in suppliers
Financial	Liquidity (loss of revenue, income, sales volume, profits, cash flow; ways to adapt) Investors (loss of investors; stoppage of investments; opportunities for investors; need for trust)
Technological	Opportunity to introduce new technologies Tech towards safety Artificial intelligence and other technologies
Organizational	New forms of organization (telework; planning; flexibility; safety procedures) Team management (value HR; training; lack of motivation)
Operational	New safety and hygiene procedures (reorganization; digitalization; "all procedures changed") Flexibility Broader adjustments (new business models; resizing)
Future	
Changes in hospitalit service	Service quality (staff; technology) Safety New products and trends
Crisis or opportunity	Opportunities for those who adapt Optimism over Portugal No opportunities/ does not know
Trends	More sustainable tourism, non-mass tourism More technology Safety, hygiene, and trust Focus on customer experience Domestic and near markets New products and destinations Less corporate tourism Longer stays More flexibility Others

Source: authors own

domestic market would be an opportunity to minimize those effects. Şengel (2021) also verified that the adverse impacts of COVID-19 escalate through the interaction of various economic entities.

The unprecedent lack of demand, coupled with fixed costs, placed businesses in an 'alarming' situation and 'paralyzed' the sector, according to participants' answers in the corresponding open-ended question. Respondents referred to unemployment not only because of the closing of borders and lockdown, but also as a phenomenon that might persist beyond the health emergency: for a few respondents, the lack of trust from customers might persist even after the pandemic is resolved, which coupled with customers' loss of purchasing power and increased use of robots might shrink employment opportunities in the sector while increasing precariousness. Five participants referred to lay-off as a measure that might have positive impacts in curbing unemployment and increasing businesses' 'chances of survival'. In fact, the idea of 'survival' was mentioned by six respondents. Several participants commented on company closures as an impact, particularly in relation to small and family businesses.

A 'domino effect in suppliers' was also mentioned. A few participants referred to a rise in customers' fear, a reduction of MICE and corporate markets, and a retraction in international tourism. In contrast, five respondents referred to a possible growth of the domestic market (which might require adaptations from businesses).

Considering financial impacts, half of the experts consulted fully agreed that the sector would have negative EBITDA (earnings before interest, taxes, depreciation, and amortization). The majority were divided between neutral and positive agreement concerning the reduction of investors in new hotel projects (66%) and the development of new financial systems (72%), and positively agreed that the health crisis would impact financial support by the government at regional, national, and EU levels (66%).

The results evidenced great concern regarding liquidity in the sector, encompassing the need for government support to mitigate the effects, and thus anticipating reduced interest from investors. Respondents' answers to the corresponding open-ended question concerned liquidity more than investors. Respondents referred to an 'abrupt loss' of revenue, income, and sales volume. A few also mentioned the lack of cash flow and the lower profit margins. Others mentioned the need to adapt to these circumstances by decreasing fixed costs, opting for outsourcing, or ceasing some business operations. Concerning investments, a few respondents mentioned impacts in terms of loss of investors and the slowing down or stoppage of investment projects. However, some respondents referred to the possible increase in foreign investment or investment funds (e.g., 'I foresee a strong opportunity for new investments from big international groups'). Joint ventures and fusions (particularly affecting smaller businesses) were predicted by two respondents. For respondents, high levels of trust in the sector would be needed so that business agreements could be closed.

Related to technological impacts, the majority positively agreed that, after the pandemic, new applications (72%) or new technologies (67%) would be developed. The results of this study show a greater propensity to use artificial intelligence – AI and touchless service delivery (67%), social distancing and crowd control technologies (64%), big data for fast, real-time decision-making (61%), augmented reality (58%), mobility tracing apps (56%), digital health passports and identity controls (53%).

Regarding organizational impacts, most participants agreed (positively) with the need for new competencies for employees (78%), new work practices (75%), less physical contact with employees and guests (72%), and new management systems or new business models (67% each). Only 28% disagreed/completely disagreed that the teleworking model would be adopted after the crisis by the hotel sector. The impacts in the organizational dimension were well represented by a unifactorial dimension with good internal consistency reliability and encompassed new strategies at various levels: business, management, and employees (flexible work, competencies, and behaviour).

Concerning the corresponding open-ended question, respondents' answers were grouped into two main overarching themes: new forms of organization and team management. Within 'new forms of organization', nine respondents mentioned telework. However, one respondent mentioned telework to state that it is 'an impossible concept for the hotel industry', while another stated that telework would have a greater impact on demand than on the hotel organization itself. Another respondent commented on the negative effects of telework in a sector characterized by high turnover such as the hospitality sector, where it can pose further obstacles to staff's emotional attachment to the company. The need for planning, specifically strategic planning, was also highlighted by some respondents. Some also referred to the need for more flexible structures that could be more easily adjusted to the market, while three respondents specifically referred to a reduction in teams, and a preference for more cross-functional teams instead. Impacts on internal safety procedures were also identified by a few respondents. Within the theme 'team management', some respondents reported the need to value human resources, and improve the stability of teams and boost staff's trust levels and involve them in the 'mission [. . .] to maintain their own jobs and contribute to the economy of the country'. Three respondents mentioned the importance of training, particularly in face of the new reality. Only two participants mentioned the lack of staff motivation leading to lower quality standards as a negative impact.

As for the post-pandemic impacts on hotel operations, there was a high level of positive agreement regarding the adoption of a new business model (64%), and new procedures, namely new health procedures (75%) and new procedures in restaurants (69%), as well as for check-in and check-out (67%). Only about 20% of experts disagreed that the way people book room nights (22%), or research information (19%) would impact the hotel sector after the pandemic. The impacts on the operational dimension were represented by a factorial structure with good internal consistency reliability and included the adoption of new business models, new security procedures for hotel guests (check-in and check-out, health, and restaurant) and changes in customer behaviour (information search and booking).

In the corresponding open-ended question, respondents mentioned new safety and hygiene procedures as an impact, including the way these new requirements led to the reorganization of services (e.g., disappearance of the buffet), the increased use of digital and contactless solutions, and new ways of setting up workplaces. Four respondents commented that 'all procedures have changed'. Some respondents highlighted the need for greater flexibility (e.g., flexible rates, conditions, cancellations, and more last-minute bookings). Seven participants mentioned that new business models were an impact of COVID-19 on the hospitality sector. Other respondents pointed out the need to resize business operations to adjust to existing demand.

4.1. Future changes and trends in hospitality and customer service

Regarding the standards of hospitality and customer service in the hotel sector, the majority positively agreed that these would change after the pandemic, specifically the adoption of new practices to attract guests or new digital services (72% each), and new loyalty programmes or new, more attractive packages (64% each). Only one in four disagreed that the sector would focus on virtual tourism. The dimension of crisis impacts on the hotel sector, Changes in Hospitality and Customer Service was unifactorial and presented good internal consistency reliability. The dimension involved new strategies for attracting and retaining customers (digital services, practices, packages, loyalty programmes) and emphasized virtual tourism. Half of the respondents scored above 4 and the average level of agreement was 3.59 (SD = 1.13, 95% CI [3.21, 3.98]). Significantly ($p < .001$) positive and large correlations were also found between this dimension and the Technological (Tech Towards Safety: r = 0.82, AI/AR Tech: $r = 0.66$), Organizational ($r = 0.85$) and Operational ($r = 0.90$) dimensions. The average of Economic Impacts was significantly higher than that of changes in hospitality and customer service ($t(35) = 2.80$, $p = .008$).

When answering the corresponding open-ended question, respondents highlighted the importance of service quality. Some respondents highlighted the role of staff expertise or investment in technology to improve customer experience. Four participants specifically referred to the increasing need to ensure customer safety.

4.2. Is COVID-19 a crisis or an opportunity?

Respondents were asked in an open-ended question whether the current crisis could be an opportunity for the tourism sector. Although several respondents had pointed out in other parts of the questionnaire that the future of tourism and hospitality was uncertain, only three respondents stated that they did not see any opportunity arising from the pandemic – yet even these three respondents identified areas where opportunities might emerge. Although all respondents recognized the profound impacts of COVID-19 on the hospitality sector, they nonetheless maintained some level of optimism regarding the recovery of the sector. For many respondents, opportunities would emerge for those who prepared and were willing to rethink their business models and adapt – which implies that some businesses or products would disappear. Many respondents also commented that Portugal might be particularly well positioned to benefit from the current crisis, not only due to the diversity and quality of the Portuguese tourism products, but also due to Portugal's image of safety.

4.3. Future trends

The responses about the hotel sector trends that are expected to grow in the post COVID-19 period revealed that the majority of respondents considered the following trends likely/extremely likely to happen: the reinforced use of digital media in research, reservations, and purchases (72%); the growth of experiences in less crowded destinations (72%); the reinforcement of the safety and hygiene regulations and standards (69%); the diversification and specialization of specific services and niches (67%); the intensification of the digital trends upping the industry's game (67%); and interregional travelling within countries and continents (53%). CATPCA suggested a one- or three-factor structure. The unidimensional structure was chosen. The item "Telework for back-office services" was not included since the communality value was less than .50. The factor had good internal consistency. This dimension included health procedures in the hotel sector, the choice of less populated destinations, the use of digital platforms by customers (in the pre-travel stage) and by the industry, the geographical limitation of trips, and the diversification of tourist services and niches. The median score was 4.33, and the average was 3.81 (SD = 1.22, 95% CI [3.39, 4.22]). The mean of Trend Impacts was significantly higher than that of Operational Impacts ($t(35) = 2.77$, $p = .009$) and Changes in Hospitality and Customer Service (it t(35) = 2.33, $p = .026$). Significantly ($p < .001$) positive and large correlations were found between Trends and Tech Towards Safety (r = 0.90), AI/AR Tech (r = 0.66), Organizational (r = 0.85), Operational (r = 0.94), and Changes in Hospitality and Customer Service (r = 0.90) dimensions as presented in Table 2.

The main theme in respondents' comments was related to the growth of sustainable forms of tourism and the preference for non-crowded destinations, alongside a decrease in mass tourism and overtourism. The second main theme that emerged was the growth of new technologies to improve the customer experience. The third theme was the increasing need to promote safety and hygiene in establishments to generate trust among guests. In the fourth theme, respondents mentioned an increased focus on enhancing the customer experience. The fifth theme concerned the opportunity to grow domestic tourism and the nearest markets, such as Spain. The sixth theme was related to the emergence of new destinations and products (e.g., greater focus on well-being and health care, co-working spaces, use of hotel spaces by locals, eco-resorts, and new types of restaurants and food). Although respondents did not provide many additional details, a few mentioned immersive cultural experiences as a future trend. Other minor themes were a shrinkage of the corporate market longer stays, the need for greater flexibility in hospitality services, and growth of the health trend. Differentiation, virtual experiences, and luxury products were only mentioned by one participant each.

Table 2 | Impacts after Covid first wave and trends in the hotel sector: items frequencies (%) and CATPCA results

Items	1	2	3	4	5	Factor loadings		Communalities
Economic impacts in the hotel sector [a]						F1		
Employment	5.56	0.00	2.78	13.89	77.78	.96		.91
Layoff	2.78	5.56	5.56	16.67	69.44	.97		.93
Ceased operation	0.00	8.33	11.11	19.44	61.11	.94		.88
Developed of domestic market	2.78	2.78	33.33	38.89	22.22	.96		.93
Eigenvalue						3.65		
Explained variance (%)						91.31		
Cronbach's alpha						.86		
Financial impacts in the hotel sector [a]						F1	F2	
Negative EBIDTA	5.56	2.78	19.44	22.22	50.00	.94		.88
New financial systems	2.78	19.44	36.11	36.11	5.56	.86		.78
Support from government: Regional level, National level, and EU level	8.33	2.78	22.22	36.11	30.56	.90		.83
Increase in foreign investment	8.33	22.22	27.78	22.22	19.44		.83	.69
Reduced investors in new hotel projects	0.00	8.33	33.33	33.33	25.00		.83	.71
New investors	2.78	30.56	36.11	13.89	16.67		.85	.73
Eigenvalue						2.48	2.15	
Explained variance (%)						41.32	35.82	
Cronbach's alpha						.66	.64	
Technological impacts in the hotel sector [a]						F1	F2	
New applications	8.33	11.11	8.33	30.56	41.67	.88		.83
Improve guest experience	11.11	13.89	25	16.67	33.33	.89		.84
New technologies	5.56	13.89	13.89	25.00	41.67	.92		.93
Digital health passports and identity controls	11.11	11.11	25.00	36.11	16.67	.84		.82
Social distancing and crowding control technologies	8.33	8.33	19.44	38.89	25.00	.95		.93
Big data for fast and real time decision making	2.78	13.89	22.22	44.44	16.67		.89	.95
Artificial intelligence robotized - AI touchless service delivery	2.78	11.11	19.44	50	16.67		.88	.89
Augmented reality	5.56	11.11	25.00	52.78	5.56		.90	.82
Eigenvalue						4.30	2.70	
Explained variance (%)						53.69	33.76	
Cronbach's alpha						.93	.83	
Organizational impacts in the hotel sector [a]						F1		
New work practices	16.67	0.00	8.33	33.33	41.67	.90		.81
Less physical contact with employees and guests	13.89	5.56	8.33	25.00	47.22	.95		.90
New needs of competencies for employees	8.33	5.56	8.33	33.33	44.44	.91		.82
New management systems	11.11	5.56	16.67	38.89	27.78	.98		.96
New business model	11.11	8.33	13.89	36.11	30.56	.98		.97
Tele-work model	16.67	11.11	22.22	30.56	19.44	.97		.95
Eigenvalue						5.40		
Explained variance (%)						9.06		
Cronbach's alpha						.94		

Operational impacts in the hotel sector [a]						F1	
The way how people research information	8.33	11.11	38.89	25.00	16.67	.85	.73
The way how people book room nights	5.56	16.67	38.89	19.44	19.44	.77	.60
Check in and check out procedures	11.11	5.56	16.67	25.00	41.67	.96	.92
Restaurant new procedures	16.67	2.78	11.11	27.78	41.67	.93	.87
New healthy procedures	16.67	2.78	5.56	27.78	47.22	.93	.87
New business model	11.11	5.56	19.44	36.11	27.78	.96	.93
Eigenvalue						4.92	
Explained variance (%)						82.02	
Cronbach's alpha						.91	
Changes in hospitality and customer service in the hotel sector [a]						F1	
New practices to attract guests	11.11	8.33	8.33	38.89	33.33	.96	.92
Focus on virtual tourism and hospitality	8.33	16.67	38.89	22.22	13.89	.88	.77
New digital services	13.89	8.33	5.56	33.33	38.89	.98	.96
New loyalty programs	8.33	8.33	19.44	41.67	22.22	.87	.76
New and more attractive packages	11.11	8.33	16.67	27.78	36.11	.96	.92
Eigenvalue						4.33	
Explained variance (%)						86.53	
Cronbach's alpha						.93	
Trends that are expected to grow in the post Covid-19 period in the hotel sector [b]						F1	
Reinforcement of the safety and hygiene regulations and standards	13.89	2.78	13.89	22.22	47.22	.96	.98
Intensification of the digital trends upping the industry's game	8.33	5.56	19.44	36.11	30.56	.94	.89
Reinforced the use of digital media, both in research and in reservations and purchases	8.33	8.33	11.11	27.78	44.44	.99	.99
Diversification and specialization of specific services and niches	13.89	0.00	19.44	19.44	47.22	.94	.88
Experiences in less crowed destinations	13.89	2.78	11.11	8.33	63.89	.97	.96
Intensification of interregional travelling within countries and continents	8.33	8.33	30.56	41.67	11.11	.97	.95
Eigenvalue						5.72	
Explained variance (%)						95.32	
Cronbach's alpha						.96	

Notes: [a] 1– completely disagree to 5– completely agree, [b] 1– extremely unlikely to 5– very likely.

5. Conclusion

COVID-19 has had profound consequences in the tourism and hospitality sector. According to participants in this study, the economic impacts have been the most impactful, unemployment in particular, with COVID-19 demonstrating the vulnerability of jobs in tourism (Sun et al., 2022). Although participants agreed that the economic impact dimension is significantly higher than that of any other dimension (i.e., financial/liquidity, operational, organizational, or technological impacts), they identified significant impacts in all these areas, which showed how they perceived COVID-19 to have been disruptive for the tourism industry.

Lack of liquidity was the main financial impact identified. Liquidity had also been identified as a pressing need in other studies on the impact of COVID-19 on tourism (Giroud et al., 2017; Ding et al., 2021; Sigala, 2020). In terms of organizational impacts, participants highlighted the emergence of new forms of organization, such as telework, and the need for greater flexibility in terms of staff. Concerning team management, participants emphasised the importance of valuing human resources and improving stability. Hence, participants expressed seemingly contradictory opinions concerning the simultaneous need for flexibility/team reduction, and stability/valuation of human resources. This highlights the importance of finding the right balance between flexibility, job security, and social protection to accommodate both businesses' need for structural changes and workers' need for security.

Concerning operational and technological impacts, the majority noted a complete shift in procedures and a 'race for technology'. As pinpointed by Sigala (2020), this pandemic presents opportunities for accelerating digital adoption through the virtualization of experiences and remote work (Hall et al., 2020; Ivan, 2020; Zemtsov, 2020). It is undeniable that COVID-19 led to technological advancements, as stated by Buhalis (2023). Also, about the application of technology, El Archi et al., (2023) stated in their research that smart tourism can enhance sustainability, but it is crucial to mitigate potential downsides and ensure responsible, equitable technology use.

Other impacts are related to the implementation of new safety and hygiene procedures, which partly resulted in new ways of setting up workplaces or, for example, organising buffets (Hameed et al., 2020). Similar conclusions were raised in the study of Almeida et al., (2022, p. 77), which stated: 'Participants' discourses also confirmed that adaptation is crucial for survival. This adaptation entails not only cutting costs, but also changing communication and motivational strategies, as well as operational procedures, including an increased rate of adoption of new technologies. Furthermore, de Sousa et al (2023) findings showed that continuing hygiene and health measures are crucial to enhance safety perception and encourage travel, expected to rise steadily in the coming years.

While recognising that this crisis was devastating for tourism, participants also identified opportunities that might emerge from the pandemic. It was considered that this crisis could turn into an opportunity for Portugal due to the quality of tourism products and the country's image of safety. In fact, Portugal was not only recognized as one of the safest countries in the world (Institute for Economics and Peace, 2021), but also won international praise for its rapid and effective response to the first wave of the pandemic (it should be noted that respondents answered the questionnaire before January 2021, when Portugal became the worst-hit country in the world for a relatively short period of time in terms of daily new cases and deaths – see Euronews, 2021). As stated by Seshadri et al. (2023), digital marketing played a crucial role, ensuring the strong internet presence which is essential for enterprises. The main future trend identified concerned sustainability and the decrease in mass tourism, which is in line with previous studies (Hall et al., 2020). Participants also estimated that domestic tourism would grow while borders remained closed in several countries. In the short term, domestic tourism might be a strategy to minimise losses during the pandemic. In the long term, it may become a trend in a context of decarbonization of tourism and reduction of the ecological footprint – as argued by Hall et al. (2020) – which is in line with the trend of sustainability also identified by participants.

Respondents identified some trends in the tourism sector, despite the impacts caused by the pandemic crisis, such as the reinforced use of digital media in searches, reservations, and purchases; the growth of experiences in less crowded destinations; the reinforcement of safety and hygiene regulations and standards; the diversification and specialization of specific services and niches; and the intensification of digital trends, upping the industry's game.

Implications for science

This study provides both theoretical and practical implications. From a theoretical point of view, this study contributes to enriching the body of literature about the impacts of COVID-19 on tourism by presenting the Portuguese case. Also, this research compared results from services, comparing the tourism industry with the banking, insurance, and educational sectors. One important economic impact was trust in the system. Not only because of unemployment, but the lack of trust generated by the fall in demand. Respondents expressed concerns about unemployment, attributing it not only to border closures and lockdown measures but also as a potential ongoing issue beyond the current health crisis.

In order to finalize business agreements, respondents would require a considerable level of trust in the sector. Similar results are identified by Wu (2020), who added that it is vital for the impacts on finances to improve intelligent risk control systems, so digital transformation could occur at a faster rate. Unemployment was emphasized as an economic impact. However, this impact was already referred to in previous crises. One solution for unemployment is to develop labour market policies as well as adjustments within firms while maintaining the employment relationship (Auer et al., 2005). According to DeMicco et al., (2021), the hospitality industry is projected to resume growth of at least 5% annually once the pandemic is effectively managed and economies start recovering.

Concerning the financial impacts, the findings revealed a significant apprehension about the liquidity of the sector, which includes a reliance on government support to alleviate the consequences, consequently anticipating a decline in investor interest. Some participants highlighted the necessity of adapting to the circumstances by reducing fixed costs, exploring outsourcing options, or discontinuing certain business operations. In terms of investments, a few respondents noted the repercussions, such as a loss of investors and a slowdown or halt in investment projects. Thinking about the future, and mostly regarding the importance of avoiding a future crisis through prevention, Wu (2020) concludes that for crisis prevention and control, credit support must be increased. So, the importan of key concepts are reliance on governance support and anticipating investors' interest in future crises, meaning that there is an assumption of the notion of prevention. Another clue identified by Ahmad et al. (2023) is the importance of government decisions in travellers' decisions. It leads travellers to choose one destination over another, for example by the influence of high vaccination rates.

Regarding technological effects, a majority of respondents expressed a positive agreement that new applications and new technologies would be developed following the pandemic.

Babuna et al. (2020) investigated the impact of COVID-19 on the insurance industry, studying a parallel comparison with previous pandemics such as SARS-CoV, H1N1 and MERS. The insurance industry is experiencing an economic recession with decreasing profits and increasing claims due to the cancellation of trips and events, with the same impacts occurring in tourism. Despite studying a different industry, they conclude that there will be a growth of technologies after this unparalleled crisis.

As operational impacts, our research results show telework and the development of online tasks are in line with the work of Tarkar (2020), who analysed the impact of COVID-19 pandemic on the education sector. The closure of educational institutions caused disruptions in students' learning and affected both internal and public assessments for qualifications. Traditional teaching methods were replaced by online teaching. These results are in line with the research of Babuna et al. (2020), who state that in the pandemic, insurers need to adapt to remote work, train staff for social distancing, improve cybersecurity, and streamline venture/premium claims with electronic payments. So, despite coming from different industries, the results are similar, with telework playing a special role in the labour work force in the future.

Implications for management

From a managerial perspective, the results obtained can provide valid support for managers and strategic decision-makers who have to deal with important future decisions. In addition, the results contribute to a more profound analysis of this pandemic through the views of tourism experts, strengthening the perspective of the tourism industry. It was found that different industries present similar results, so one important fact to reflect on after this analysis is: Are we prepared for a new crisis? What did we learn from this pandemic?

To reduce the financial impact, one of the measures suggested by Wu's (2020) research is to reduce interest rates on loans. The author researched the COVID-19 impacts on the bank industry in China, and regarding their findings, some respondents believe that future investment could be directed to other sectors.

Grasping the multifaceted impacts of COVID-19 on the tourism sector is crucial for stakeholders to devise and implement innovative and resilient strategies for effective crisis management. Another significant managerial contribution is enhancing the preparedness of individuals and companies for future crises. Many of the measures adapted for upcoming challenges draw on the strategies implemented during the current pandemic. This research confirms that experts are now better equipped to manage future crises, drawing on lessons learned from COVID-19. A notable finding is the shift in experts' perceptions regarding digital transformation, highlighting its critical role in enhancing customer experiences. An illustrative example is the increased use of QR codes in restaurants and spas. While not a new technology, its adoption surged during the pandemic, enabling customers to access menus digitally, thereby minimizing physical contact.

Limitations and further research

The small sample size may suggest limitations to the generalization of results. Despite the fact that our sample is limited, it is also very diverse, with different perspectives from industry, lecturers, researchers, governance, associations, and decision-makers. This is the main strength of this research; it is not just another article about COVID-19 and its threats but shows the perspective of the tourism experts and the tourism industry.

While the study provides valuable insights into the impacts of the COVID-19 pandemic on the tourism and hospitality sector from the perspective of industry professionals, certain limitations should be considered. Firstly, the research's reliance on a panel of experts introduces the potential for bias and may not fully represent the diversity of opinions within the industry. Additionally, the study's focus on the Portuguese tourism sector may limit the generalizability of findings to other geographical regions with distinct socio-economic contexts and tourism dynamics. Moreover, the survey methodology used in the research, while providing quantitative data, may overlook nuanced qualitative insights that could further enrich the understanding of the challenges and opportunities faced by the industry.

For future research, in-depth interviews could be carried out with tourism experts in order to enrich findings, as that will allow more detail on their perspectives and new ways of addressing the pandemic's impacts. Ertaș and Kırlar-Can (2022, p. 1) did interesting research about tourists' risk perception, travel behaviour and behavioural intention during the COVID-19 crisis. The authors' results show that there is no difference associated with past travel experience, which means that the higher the experience of tourists, the lower the risk perception. This topic – the relation between risk perception and travel intention and how it impacts on the managerial perspective – will be very interesting to research in greater detail in the future. Moreover, risk perceptions and post-pandemic travel intentions from the consumers' perspective should be further researched. Understanding the interplay between risk perception and travel intentions could help managers develop targeted strategies to boost consumer confidence and travel behaviour post-pandemic. Managers should be prepared, so knowledge and information are vital. Humanity must be ready for a new crisis; they are inevitable as has been shown, so to be successful, it is crucial to plan and above all learn from mistakes. Another crucial topic from this research is technology as an opportunity for these crises. So, a more in-depth exploration of specific technological trends, innovations, or challenges that emerged during this 'race for technology' are more than welcomed for future research.

To conclude, in this study there is an emphasis in the importance of a comprehensive approach to addressing the challenges and capitalizing on the opportunities presented by pandemics within the tourism industry. Also, the research underscores the imperative for continuous preparedness and learning from past errors, advocating for persistent research and strategic planning to fortify the tourism industry's resilience, not merely against COVID-19 but against all potential future crises. Our findings may reflect a snapshot of the industry during a specific time frame; they are aligned with emerging trends and discussions within the broader context of pandemic recovery. Concepts such as telework, digital transformation, and sustainability, identified in our study, resonate with ongoing discussions about reshaping industries for resilience and sustainability in the post-pandemic era.

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