



Case Study

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Environmental Analysis on Cruise Tourism: Case Study of Penang



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ABSTRACT: The case study titled "Environmental Analysis of Cruise Tourism: Case Study of Penang" provides an exploration of the cruise tourism sector in Malaysia, particularly focusing on Penang's pivotal role. The industry's pre-pandemic growth, propelled by rising disposable incomes and innovative offerings, faced significant disruptions due to COVID-19. The Economic Transformation Programme (ETP) outlines its strategic framework initiated in 2010 to elevate Malaysia's economic status, emphasizing cruise tourism as a key growth area through initiatives like the Straits Riviera project. The growth of international cruise tourism and cruise tourism in Penang highlights Penang's emergence as a major cruise hub, supported by enhanced infrastructure at Swettenham Pier Cruise Terminal and a notable increase in passenger arrivals post-pandemic. There is an urgent need for a comprehensive environmental analysis to address sustainability challenges amid rapid tourism expansion. The environmental analysis employs an advanced SWOT matrix evaluation to assess internal strengths and weaknesses alongside external opportunities and threats impacting cruise tourism, emphasizing the importance of sustainable practices. Strategic tools are used for analysis, ensuring a robust framework for evaluating the sector's dynamics. The analysis contributes to existing literature on sustainable tourism development, while the practical implications highlight actionable insights for stakeholders to enhance strategic decision-making and planning processes. The study emphasizes that while Penang has significant potential for recovery and growth in cruise tourism, effective stakeholder collaboration and careful planning are essential for ensuring long-term sustainability and economic viability. This case study serves as a vital resource for understanding the complexities of cruise tourism in Penang and offers insights into balancing economic development with environmental stewardship.

KEYWORDS: cruise tourism; environmental analysis; tourism development; SWOT; sustainability

Background

Before the Covid-19 pandemic, the cruise tourism industry thrived as a global travel force, offering all-inclusive voyages to exotic destinations and captivating millions (Florida Caribbean Cruise Association, 2018; CLIA, 2018; Captain, 2019; Perućić, 2019). The

industry saw remarkable growth through innovative ship designs, diverse onboard entertainment, and culinary experiences, attracting travellers from varied demographics. This boom boosted local economies, created jobs, and expanded the Asia Pacific region's prominence as a cruise hub with ports like Singapore, Hong Kong, Shanghai, and Sydney. Rising disposable incomes and improved accessibility encouraged middle-class Asians to embrace cruising, supported by homegrown cruise lines and government investments in infrastructure, excursions, and visa facilitation.

However, the Covid-19 pandemic in 2019 disrupted the industry, turning cruise ships into hotspots for virus transmission. Operations were suspended, leading to significant financial losses, layoffs, and reputational damage (Hu Zhang et al., 2022; Jingen Zhou et al., 2023; Jennifer Holland et al., 2021; Statista, 2023; Anton Smirnov et al., 2022). During the hiatus, the industry reevaluated its practices and cautiously resumed operations with advanced health protocols and vaccination campaigns.

Post-pandemic recovery strategies included prioritizing traveller safety with redesigned ships featuring enhanced ventilation, contactless services, and upgraded medical facilities. Digital adoption accelerated, enabling online bookings, mobile apps, and personalized virtual experiences. Communities and destination managers embraced sustainable practices, diversifying economic models while leveraging digital marketing to attract travellers.

In Penang, the period from 2022 marked a revival in cruise tourism, driven by health and safety measures, technological advancements, and sustainable tourism initiatives. Upgraded port infrastructure and diversified offerings, including cultural and wellness tourism, strengthened Penang's appeal in the Asia Pacific. Digital marketing played a critical role in reestablishing anticipation among travellers. The evolution of cruise tourism underscores its resilience and adaptability, now centred on health, safety, and sustainability. However, ensuring long-term success in Penang requires addressing internal and external challenges amidst Malaysia's broader cruise industry growth.

This case study is structured into an introduction outlining the post-pandemic challenges, an overview of Malaysia's economic transformation and cruise tourism growth, an environmental assessment matrix, a problem statement, a methodology, a theoretical framework, a discussion, theoretical and practical implications, and a conclusion.

Literature Review

Economic transformation programme and cruise tourism in Malaysia

Launched in 2010 under Malaysia's National Transformation Programme, the Economic Transformation Programme (NTP Annual Report, 2017) aims to elevate the nation to developed status through strategic investments and job creation. Centered on twelve National Key Economic Areas (NKEAs) and Entry Point Projects (EPPs), it drives economic diversification and targets high-growth industries like cruise tourism. Projects such as the Straits Riviera, which connects key ports, capitalize on Malaysia's geographical strengths to enhance its competitiveness as a cruise destination, aligning with the ETP's goal of boosting gross national income (GNI). In Malaysia, cruise tourism is a key focus under the Economic Transformation Programme (ETP), launched in 2010 to drive the country's development towards a Gross National Income (GNI) per capita of USD 15,000. The Tourism NKEA

includes Entry Point Projects (EPPs) aimed at enhancing Malaysia's position as a leading tourist destination, with EPP 6 focusing on developing cruise tourism. Malaysia's strategic location and infrastructure improvements, such as the Straits Riviera ports, aim to capitalize on the annual 14% growth in the Asian cruise passenger market (ETP Annual Report, 2014). By 2018, the country recorded 458 cruise calls, with most being transit stops, and Penang and Port Klang accounting for nearly half the market (Cruise Lines International Association, 2018).

Efforts to boost cruise tourism include homeporting initiatives, such as TUI Group's Langkawi operations in 2018 and Royal Caribbean's USD 155 million expansion of the Swettenham Pier Cruise Terminal in Penang to accommodate larger cruise ships (NTP Annual Report, 2017; Nambiar, 2018; Cruise Mapper, 2019). These investments enable dual docking of mega cruise liners, significantly increasing passenger capacity. Malaysia saw encouraging cruise passenger arrivals pre-pandemic, hosting luxury liners like Queen Mary II and Diamond Princess. In 2017 alone, 253 international cruise ships brought 405,554 passengers, marking an 18.51% increase compared to 2016 (Tourism Malaysia, 2017).

Cruise tourism, defined as all-inclusive vacations lasting at least 48 hours on a cruise ship with predetermined itineraries including multiple port stops, has significantly evolved over the years (Theobald, 2005; Klein, 2011). Initially a luxury for the elite, the industry surged in popularity from the 1980s, accommodating 30 million passengers by 2019, reflecting a 6.8% annual growth (CLIA, 2021). Prior to the COVID-19 pandemic, the sector supported 1.166 million jobs globally, generating wages of USD 50.53 billion. However, the pandemic caused an 80% drop in passenger volumes, leading to economic losses of over USD 77 billion, 518,000 jobs, and USD 23 billion in wages from March to September 2020 (CLIA, 2021). Despite these challenges, the industry began a gradual recovery in July 2020, supported by collaborations with governments and public health experts, and is expected to surpass 2019 passenger levels in 2023 (CLIA, 2023). The global cruise tourism market is projected to grow from USD 5.3 billion in 2022 to USD 17.4 billion by 2032, with a CAGR of 11.97% (Future Market Insights, 2022).

The pandemic has significantly impacted Malaysia's tourism sector, with receipts dropping by 85% from USD 22.2 billion in 2019 to USD 3.39 billion in 2020. Nonetheless, Malaysia remains an attractive destination, driven by infrastructure enhancements such as the Cruise & Ferry Integrated Seaport Infrastructure Blueprint, which aims to meet international standards. Post-pandemic, the Asian cruise market offers significant growth potential, supported by the expanding middle-class population and lower market saturation compared to regions like Europe and the Caribbean (The Star, 2022).

Growth of international cruise tourism and cruise tourism in Penang

Cruise tourism, particularly in Asia, has grown significantly due to rising disposable incomes and improved accessibility. Before COVID-19, the industry achieved an annual growth rate of 6.8%, serving over 30 million passengers globally by 2019 and contributing to local economies through jobs and tourism revenue. In Malaysia, Penang, known as the "Pearl of the Orient," has become a key cruise hub, leveraging its strategic location and upgraded Swettenham Pier Cruise Terminal to accommodate larger vessels and capitalize on the sector's growth. International cruise tourism has expanded significantly, with an average annual growth of 14% over the past decade, and Asia witnessing robust double-digit growth in capacity and passenger numbers. Between 2013 and 2015, cruise deployment in Asia grew

at a compound annual growth rate (CAGR) of 10%, while passenger capacity increased by 20%. In 2018, Asia recorded 4.24 million ocean cruise passengers, over half of whom cruised within mainland China, Hong Kong, and Taiwan. Meanwhile, Taiwanese and Singaporean passengers also showed steady growth. Destinations outside Asia, such as the Mediterranean and the Caribbean, continue to attract Asian travelers (TTR Weekly, 2019). Globally, the cruise market was valued at USD 7.25 billion in 2021 and is projected to expand at an 11% CAGR from 2022 to 2028, driven by affordability and onboard amenities (Grandview Research, 2022). Between 1990 and 2020, the ocean cruise industry achieved a passenger CAGR of 6.63%, bolstered by strategies such as larger ships, destination diversification, and fleet expansion. From 2018 to 2020, 37 new ships generated USD 11.7 billion in annual revenue. By 2027, global cruise revenue is expected to reach USD 4.73 billion, with online sales accounting for 25% of revenue (Statista, 2023).

Southeast Asia's cruise industry generated USD 1.6 billion in direct expenditure and created 34,000 jobs in 2014. The ASEAN region anticipates cruise passenger growth to 4.5 million by 2035, driven by rising middle-class affluence and increased regional visitor arrivals, which nearly doubled between 2007 and 2015. Asia's cruise capacity tripled between 2013 and 2018, although growth plateaued in 2018, with operating days increasing only by 2.6% compared to 2017. Short cruises of less than six nights dominate, comprising 79% of all regional cruises (CLIA, 2018a).

Penang has emerged as a key player in the region's cruise tourism. International arrivals surged by 51% in the first half of 2017 compared to 2016. The Swettenham Pier Cruise Terminal underwent a USD 155 million upgrade in 2018, enhancing its capacity to accommodate larger ships and up to 12,000 passengers. In 2022, the terminal hosted two mega-sized vessels simultaneously, attracting 35,000 passengers, primarily from Southeast Asia. Royal Caribbean Cruises' Spectrum of the Seas, with 50 visits scheduled in 2022, highlights the economic potential for Malaysia (Malay Mail, 2022; Nambiar, 2018). The recovery of Penang's cruise tourism hinges on vaccination rates, consumer confidence, and economic conditions. Key metrics include cruise arrivals, passenger volumes, economic contributions, and port capacity. Collaborative efforts with stakeholders are vital for sustainable growth. This involves marketing strategies, partnerships with cruise lines, and addressing internal strengths and weaknesses alongside external opportunities and threats. These measures aim to secure Penang's position as a leading cruise destination and uphold its status as the "Pearl of the Orient."

Malaysia's Economic Transformation Programme (ETP, 2012; ETP, 2013; ETP, 2014) prioritizes cruise tourism as a key growth driver. Investments in port infrastructure, such as the Straits Riviera and the upgraded Swettenham Pier Cruise Terminal in Penang, aim to attract larger ships and boost passenger capacity. The ETP leverages Malaysia's strategic location and the burgeoning Asian cruise market to enhance its tourism sector. Penang, with its upgraded facilities, has emerged as a key player, attracting major cruise lines and contributing significantly to the local economy. Despite the pandemic's impact, the industry is recovering, and Malaysia is well-positioned to capitalize on the growing demand for cruise travel in Asia.

Environmental analysis

Environmental analysis is a strategic tool used to identify and evaluate external and internal factors that can affect an organization's success. It examines industry trends, competition,

customers, economic conditions, technological advancements, labor supply, and political/legal circumstances. By understanding these factors, organizations can anticipate future challenges and opportunities and develop strategies to adapt and thrive. SWOT analysis has been widely used to assess tourism potential and development strategies in various contexts. It has been applied to evaluate ecotourism in Israel's Western Negev (Kniazeva & Baskin, 2019) and Anzali Wetland in Iran (Ganjali, 2014), as well as general tourism in Baoting, China (Wall, 2002). These studies demonstrate SWOT's versatility in identifying internal strengths and weaknesses, along with external opportunities and threats in the tourism sector. Common themes across the analyses include the importance of natural and cultural resources, government support, and infrastructure development as strengths and opportunities. Weaknesses and threats often involve competition, safety concerns, and inadequate planning or management. While SWOT analysis is prevalent in business and planning, its application in academic tourism literature is less documented (Wall, 2002; Kniazeva & Baskin, 2019). These studies highlight SWOT's value in providing comprehensive assessments to guide strategic decision-making and planning in various tourism contexts.

Thorough environmental analysis is essential for sustainable growth in Penang's cruise tourism sector. This is crucial to mitigate potential negative impacts from increased tourist influx, aligning with global sustainability trends in tourism development. This research employs a SWOT analysis framework to comprehensively assess sustainable practices in Penang's cruise tourism sector. By evaluating internal strengths and weaknesses alongside external opportunities and threats, stakeholders can make informed decisions. This approach enhances strategic planning and contributes to the long-term sustainability of Penang as a leading cruise destination. External issues like technological changes or natural disasters are independent of the business. Emerging in the 1960s alongside strategic planning in business management, SWOT's origins are debated, with claims linking it to Harvard Business School and Stanford University. Albert Humphrey, leading a Stanford research project in the 1960s-1970s, is often credited with its development, evolving from *Satisfactory, Opening Opportunities, Fixing Faults, or Thwarting Threats* (SOFT) analysis (Humphrey, 2005; Gurel & Tat, 2017). However, limited academic references support Humphrey's claims. Influential contributors include Philip Selznick, Alfred DuPont Chandler, Kenneth Andrews, Harry Igor Ansoff, and others from Harvard Business School, alongside Heinz Weihrich, Richard Dealtry, Thomas L. Wheelen, and J. David Hunger.

SWOT is a simple yet powerful tool for evaluating organizational resources, market opportunities, and external threats (Thompson et al., 2007). Its versatility extends to business strategies, career decisions, and national planning. It has also been applied in environmental studies like forest management (Kurttila et al., 1999), waste management (Srivastava et al., 2004), and energy planning (Terrados et al., 2005). By aligning internal strengths and weaknesses with external opportunities and threats, organizations can optimize resources and navigate challenges effectively. Strengths and opportunities drive objectives, while weaknesses and threats require mitigation.

As Gierszewska and Romanowska (2002) argue, SWOT is not just a method but a "unique algorithm" for evaluating organizational status and growth potential (cited in Goranczewski & Puciato, 2010). Covering internal dynamics, competitive landscapes, and macro-environments, SWOT facilitates strategy development through continuous analysis of relevant information.

SWOT Matrix & Evaluation of the Matrix

SWOT analysis categorizes internal and external factors into four scenarios: **strengths** (internal positive), **weaknesses** (internal negative), **opportunities** (external positive), and **threats** (external negative). Strengths are critical resources, skills, and competencies that enhance competitive positioning, such as unique tourism assets, advanced infrastructure, qualified personnel, and strong destination branding. Weaknesses, such as poor financial health, inadequate infrastructure, or ineffective governance, hinder progress. Opportunities arise from favourable external conditions, like improved tourism legislation, economic growth, better transport links, or funding programs, while threats include changing tourist preferences, regional competition, economic downturns, or unexpected events like natural disasters or geopolitical crises.

The SWOT matrix is presented in Figure 1.



Figure 1: SWOT Matrix

The SWOT matrix is often divided further based on analysis depth. External factors may be categorized as macro-environmental or sectoral, and internal factors can include economic, legal, environmental, political, or organizational dimensions. While traditional SWOT analysis assumes equal weight for all factors, advanced SWOT analysis prioritizes factors by evaluating and assigning weights, ensuring key elements receive appropriate attention (Ommani, 2011). For internal factors, the Internal Factor Evaluation (IFE) matrix assesses importance, rating, and score. Importance reflects how critical a strength or weakness is to the organization's success, with weights ranging from 0.01 (least important) to 1.0 (most important), totalling 1.0 across all factors. Ratings (1 to 3) indicate whether a factor is minor or major, with scores derived by multiplying importance by rating. This allows prioritization of critical strengths and areas for improvement. For external factors, the External Factor Evaluation (EFE) matrix evaluates importance, probability, and score. Importance measures the potential impact of an opportunity or threat, also ranging from 0.01 to 1.0, with a cumulative total of 1.0 as in Table 1. Probability assesses the likelihood of occurrence, rated from 1 (low probability) to 3 (high probability). Scores are calculated by multiplying importance by probability, helping to identify the most significant opportunities and threats to address.

Table 1: Advanced SWOT Analysis Matrix (Ommami, 2011)

Factor	Description	Rating Scale
Internal Factor Evaluation (IFE)		
Importance	Assigns a weight from 0.01 (not important) to 1.0 (very important).	Total weight should equal 1.0
Rating	Scores the factor from 1 (minor) to 3 (major) based on significance.	1 = Minor, 3 = Major
Score	Importance $\times$ Rating to prioritize strengths and weaknesses.	Calculated by multiplying importance by rating
External Factor Evaluation (EFE)		
Importance	Assigns a weight from 0.01 (low impact) to 1.0 (high impact).	Total weight should equal 1.0
Probability	Rates likelihood of occurrence from 1 (low) to 3 (high).	1 = Low probability, 3 = High probability
Score	Importance $\times$ Probability to prioritize opportunities and threats.	Calculated by multiplying importance by probability

Scoring Interpretation:

- IFE: A low total score indicates organizational weaknesses.
- EFE: A low total score indicates poor strategic alignment with opportunities and threats.
- Total Score: 1.5 is considered an average score.

The total weighted score in both matrices ranges from 1 to 3, with 1.5 as the average. A low EFE score indicates that strategies may not effectively leverage opportunities or counter threats, while a low IFE score highlights internal weaknesses relative to competitors. By prioritizing factors, advanced SWOT analysis ensures strategic planning focuses on the most critical elements, improving organizational outcomes.

Problem statement

Despite the significant growth potential of cruise tourism in Penang, driven by the Economic Transformation Programme (ETP, 2012; ETP, 2013; ETP, 2014) and an increase in international cruise passenger arrivals, there is a pressing need for a comprehensive environmental analysis to address the sustainability challenges associated with this rapid expansion. The COVID-19 pandemic has further complicated the recovery efforts, necessitating a careful evaluation of both internal factors, such as infrastructure and governance, and external factors, including market competition and changing consumer preferences. Without a meticulous assessment of these dynamics, stakeholders risk undermining the long-term viability of Penang as a premier cruise destination, potentially leading to negative economic and environmental consequences. Therefore, this case study

aims to provide insights into strategic decision-making that balances economic growth with sustainable practices in cruise tourism.

Methodology

This case study employed secondary research methods using literature review on cruise tourism, environmental analysis, and sustainable tourism practices, involving analyzing government data, industry reports, past literature, and media coverage to understand the context of cruise tourism in Penang. Additionally, this case study also examined existing cruise tourism destinations to identify best practices and challenges. These methods provided a foundation for understanding the key issues in the case study.

Theoretical framework

The theoretical framework of the case study is anchored in the Economic Transformation Programme (ETP, 2012) and the application of SWOT analysis. The ETP serves as a strategic guideline for enhancing Malaysia's cruise tourism sector by prioritizing investments in key areas that bolster economic growth and competitiveness. It focuses on leveraging Malaysia's strategic geographical position to attract cruise passengers and improve infrastructure, particularly through initiatives like the Straits Riviera. Concurrently, the SWOT analysis provides a structured approach to evaluate internal strengths and weaknesses alongside external opportunities and threats, enabling stakeholders to make informed decisions regarding sustainable practices in cruise tourism. This dual framework emphasizes the importance of strategic planning and environmental assessment in fostering long-term sustainability and growth within Penang's cruise tourism industry.

The Advanced SWOT Matrix Evaluation, as advocated by Ommani (2011), provides a robust framework for prioritizing factors in strategic planning by evaluating and assigning weights to strengths, weaknesses, opportunities, and threats. This systematic approach begins with the Internal Factor Evaluation (IFE) matrix, where each internal factor is assessed for its importance to the organization's success, with weights ranging from 0.01 (least important) to 1.0 (most important), totaling 1.0 across all factors. Ratings on a scale from 1 to 3 indicate the significance of each factor, with scores calculated by multiplying the weight by the rating, allowing for the prioritization of critical strengths and areas for improvement. Similarly, the External Factor Evaluation (EFE) matrix assesses external factors by measuring their importance and probability of occurrence. Importance scores are assigned in the same manner as the IFE matrix, while probability ratings range from 1 (low probability) to 3 (high probability). Scores are derived by multiplying importance by probability, helping to identify significant opportunities and threats that require attention. This evaluation process ensures that key elements are highlighted and addressed effectively, enhancing strategic decision-making for cruise tourism in Penang.

Discussion

Managing growth impacts of cruise tourism: An environmental analysis

Leisure cruising has evolved since the 1970s from a niche segment of oceanic passenger transport to a global vacation industry integrating multiple travel sectors. Early cruises lacked

features like casinos, shore excursions, and spa services, but by the 1990s, cruise tourism expanded worldwide, encompassing Europe, Asia, and Oceania, driving significant growth (Kester, 2002). The industry generates \$38 billion annually, with a passenger growth rate of 7.4% between 1990 and 2008 (Brida & Zapata, 2010). Market value projections indicate growth from \$5.3 billion in 2022 to \$17.8 billion by 2033, at a 12% compound annual growth rate (Future Market Insights, 2023). Contributing 2% of global tourist arrivals and 3% of international tourism receipts, the cruise industry is a key player in tourism (Kester, 2002; Klein, 2005).

In 2019, global tourist arrivals surpassed 1.5 billion, underscoring the sector's resilience (UNWTO, 2020). With over 27 million cruisers and 27 new ships launched in 2018, competition drives constant innovation (Harpaz, 2018). The industry offers diverse itineraries, including Iceland, Senegal, and Vietnam, and ships now range from mega-resorts to small exploration vessels (Baker, n.d.). Post-9/11, drive market cruises gained popularity, catering to travelers preferring nearby embarkation ports. Theme cruises offering yoga, music, or history have further diversified experiences. The Asian market, especially China, represents a critical growth area, driven by an expanding middle class. China is investing in homeports and cruise ship development, aiming to compete globally (Sun & Zuo, 2023). Asia's cruise market sees double-digit growth, increased port investments, and regional ship deployments, cementing its prominence in the industry's future.

Despite its benefits, cruise tourism presents challenges. Ships are becoming larger, carrying over 2,000 passengers and 1,000 crew members, while smaller vessels explore previously inaccessible destinations. These dynamics often lead to environmental degradation, overcrowding, and economic imbalances, threatening destination sustainability and competitiveness. Roehl and Fesenmaier (1992) highlight the uncertainty of such risks, emphasizing the importance of informed decision-making. Overtourism exacerbates these issues, particularly in popular coastal and heritage sites. Cruise tourism brings large passenger numbers who often spend minimally, relying on onboard amenities. For instance, Venice, with 529 cruise calls in 2016, has faced overcrowding, rising rents, and displacement of residents and businesses (Grey, 2017). Similar concerns in Barcelona have disrupted public spaces and diluted local heritage. Without intervention, other heritage sites like George Town in Penang could face similar threats.

Sustaining cruise tourism requires addressing key factors. Stakeholder engagement is vital, as cruise ship arrivals often necessitate significant community adjustments. Early involvement of all parties ensures diverse concerns are addressed, fostering a unified approach. Assessing a destination's assets, including cultural and natural attractions, proximity to other ports, and overall security, is essential. Port facility location influences economic and environmental impacts, with some preferring town-adjacent ports for economic benefits, while others prioritize environmental preservation. Infrastructure readiness, including transportation, guides, and public amenities, is critical for accommodating tourist influxes. Additionally, port costs affect cruise line choices, as high fees may lead operators to competing destinations. Destinations must evaluate these aspects to align cruise tourism growth with community goals and sustainable development. Balancing benefits and risks ensure long-term success in this rapidly evolving industry.

Case of cruise tourism in Penang – Environmental analysis

Strengths of Penang as a Strategic Tourism and Cruise Destination

Penang Port is a vital gateway to Malaysia and a critical link on the Middle East–Far East shipping route. As the country's oldest and most established port, its strategic position at the entrance of the Malacca Strait—a globally significant shipping lane—has made it a pivotal hub for regional and international trade. Initially serving Malaysia's northern states and southern Thailand, the port now attracts major shipping companies such as Taiwan's Yang Ming Marine Transport Co. and China's Cosco Group for mainline services to India and the Middle East (Maierbrugger, 2015). Enhancements like the Swettenham Pier Cruise Terminal, which accommodates some of the largest cruise vessels, further underscore its importance. Located within George Town's UNESCO Heritage Site, the terminal also stimulates local and international tourism (International Cruise & Ferry Review, 2013; Penang Port Commission, 2018).

Malaysia's geographical advantages bolster its cruise tourism appeal. Proximity to over 25,000 Southeast Asian islands, a 4,600 km coastline, and idyllic beaches position it strongly in the expanding cruise market (Chin, 2013). Its location along the Strait of Malacca, a key route connecting the Far East to Europe and the Middle East, enhances accessibility. Penang's transport network, including international airlines and local connections, ensures seamless travel for tourists. Additionally, Malaysia's relative safety from severe natural disasters makes it an attractive destination for cruise operators and passengers.

George Town, the capital of Penang, is a UNESCO World Heritage Site celebrated for its cultural and architectural heritage blending Eastern and Western influences. Attractions like Fort Cornwallis, the Cheong Fatt Tze Mansion, and the clan jetties offer rich cultural experiences, both tangible and intangible. The city combines a heritage-rich environment with modern amenities and a vibrant expat community, maintaining its colonial charm (NESCO, 2018).

Renowned for its street food, Penang is a top gastronomic destination recognized by Time, CNN Travel, and Lonely Planet. Its hawker stalls reflect Penang's multicultural heritage, offering Malay, Chinese, and Indian cuisines that attract locals and tourists alike. Food tourism significantly contributes to Penang's destination branding and visitor experiences (Hjalager & Corigliano, 2000; McKercher et al., 2008). This culinary reputation, combined with Penang's cultural and historical strengths, makes it a must-visit destination, although strategic attention is needed to address inherent challenges and solidify its global standing.

Weaknesses of the cruise industry

The cruise industry operates under a monopolistic structure dominated by a few conglomerates, hindering competition and innovation. Three corporations—Carnival Corporation, Royal Caribbean, and Star Cruises Group—control nearly 80% of the global market (Wood, 2004; Lekakou et al., 2009). Carnival owns brands like Costa Cruises and Holland America, Royal Caribbean owns Celebrity Cruises and Azamara Cruises, and Star Cruises Group operates Norwegian Cruise Line and NCL America (World's Leading Cruise Lines, 2014; Royal Caribbean International, 2014; NCL, 2014). This market consolidation results in homogenous offerings, limiting the industry's growth potential both globally and in Malaysia.

Labor shortages and exploitation present another significant challenge. The cruise industry often lacks skilled senior personnel and chefs, hiring from five-star hotels without maritime experience (Seatrade UBM, 2017). Many crew members, particularly from the Philippines, India, and Indonesia, endure harsh conditions, including long hours, low pay, and limited time off. These issues persist due to cruise lines registering ships in third-world nations with lax labor laws, such as the Bahamas, and incorporating in countries like Liberia and Panama (Walker, 2016; Gibson, 2008; Terry, 2011; Larsen et al., 2012). Failure to address these issues threatens service quality and reputation.

Tourism pressures also strain destinations like George Town, a UNESCO World Heritage Site. Annual vehicle numbers exceeding 600,000 in Malaysia exacerbate congestion, while inadequate public transportation worsens the problem (Chan, 2023; Jensen & Rienamn, 2015). Overcrowding from cruise tourists risks degrading heritage sites, disrupting local communities, and exceeding carrying capacities—the maximum visitors a site can handle without cultural or environmental harm. Sustainable strategies like visitor flow management, admission fees, and restricted access to sensitive areas are essential.

Additionally, gambling on cruise ships raises ethical and regulatory concerns. While gambling is prohibited for Muslims in Malaysia and tightly regulated elsewhere, cruise operators capitalize on international waters to host casinos, beyond governmental jurisdiction (Clarke, 1999; Kili, 2014). Though lucrative, this practice complicates regulatory frameworks and poses challenges for Malaysian stakeholders. Addressing these challenges requires fostering competition, improving labor conditions, managing tourism pressures, and addressing gambling regulations. Strategic interventions are crucial to ensure the sustainable development of Malaysia's cruise industry.

Opportunities in the cruise industry

The cruise tourism industry in Malaysia is poised for significant growth, driven by several key opportunities. The TUI Group, a leading global tourism player, is targeting Malaysia for its fly-cruiser market. With Langkawi as its homeport, TUI plans direct fortnightly flights from Britain and a 14-night cruise itinerary covering Penang, Port Klang, Melaka, and other Southeast Asian destinations. This initiative is expected to boost European tourist arrivals and promote Malaysia as a cruise destination (Ooi, 2018). Complementing this, Star Cruises and Genting Cruise Lines have homeported vessels like SuperStar Libra and SuperStar Gemini in Penang and other regional ports, offering short holiday options and extensive onboard amenities. This development has stimulated tourist arrivals, contributed significantly to Malaysia's economy, and reaffirmed the country's commitment to growing the cruise industry (Chua, 2017; Liew, 2022).

Spending on luxury cruises is also on the rise, reflecting a broader societal shift towards experiential travel. Luxury cruise spending increased by 14% in 2017, with baby boomers being the primary market segment. The industry, which achieved \$18 billion in revenue in 2022, is projected to reach \$25.1 billion by 2023, indicating robust growth potential and substantial employment opportunities worldwide (Travel Weekly Asia, 2018; Cyprus Shipping News, 2023).

At the regional level, ASEAN's collaborative efforts are transforming Southeast Asia into a premier cruise destination. The region's diverse attractions and a growing middle class have led to significant growth in cruise tourism, with projections of passenger numbers increasing

tenfold by 2035. ASEAN's initiatives, including infrastructure development, improved onshore activities, and staff training, aim to enhance the cruise experience under the tagline "Feel the warmth" (Lin, 2017).

In Malaysia, the cruise industry is a key component of the Economic Transformation Programme (ETP), introduced in 2010. It is recognized as a National Key Economic Area, supported by a public-private advisory committee to shape policies and frameworks for industry growth (ETP, 2012). Additionally, the Malaysian government's exemption of international cruises from the cabotage policy has been instrumental. This exemption allows international cruise ships to operate freely between Malaysian ports, enhancing the country's appeal as a cruise destination (Malaysiakini, 2009; ETP, 2012). Together, these developments underscore Malaysia's strategic positioning in the global cruise tourism market, leveraging government initiatives, regional collaboration, and private sector investment to drive sustainable growth.

Threats in cruise tourism

Piracy remains a significant threat to cruise tourism, particularly in regions like the Gulf of Aden, the Straits of Malacca, and Southeast Asian waters. These areas are key international shipping routes but are notorious for piracy, with Southeast Asia alone accounting for 41% of global pirate attacks between 1995 and 2013 (Williams, 2018). The Gulf of Aden, situated between Yemen and Somalia, is especially dangerous, with cruise ships like *Mariner of the Seas* adopting heightened safety measures when traversing this region. Piracy costs the global economy \$7 to \$12 billion annually, with well-armed and organized groups increasingly targeting high-value vessels such as oil tankers (Mccauley, 2014). Opportunistic attacks on anchored ships remain common, but large-scale, coordinated assaults continue to pose serious risks to the cruise industry.

Overcrowded cruise berths and port clashes are logistical challenges impacting many destinations, including George Town. The rapid growth of the cruise industry and the increasing size of mega-ships exacerbate these issues. As Atherley (2003) notes, ports require at least two mega-ship berths to meet industry demands effectively. Overcrowding not only disrupts port operations but also affects visitor experience and revenue generation, requiring careful balancing of capacity and demand (Farquharson, 2006).

Environmental concerns are a persistent threat to cruise tourism. Despite cruise ships comprising less than 20% of the world's ocean-going fleet, they face intense scrutiny for their waste management practices (Nilsson et al., 2005; Brida & Aguirre, 2008). While standards like the International Council of Cruise Lines' waste management practices aim to regulate disposal, even the perception of harm can damage the reputation of port destinations and local communities. Environmental pollution underscores the need for stricter regulations and sustainable practices to address public concerns effectively.



Figure 2: SWOT Matrix of Cruise Tourism in Penang

Advanced SWOT matrix evaluation of cruise tourism in Penang

The SWOT analysis of cruise tourism in Penang highlights the interplay between internal and external factors. These factors, though categorized into four quadrants—strengths, weaknesses, opportunities, and threats—are interdependent and subject to change due to volatile external influences, including political, economic, social, technological, legal, and environmental factors. Positive factors may shift to negative over time, emphasizing the dynamic nature of the industry environment. An advanced SWOT evaluation tool can prioritize significant factors by assigning weightage and ratings (Ommani, 2011). A high internal score for strengths indicates readiness to counter weaknesses, such as the industry's monopolistic nature and congestion issues. Rating of Penang's strengths in cruise tourism, including its robust ports infrastructure (0.27), strategic location (0.27), UNESCO World Heritage status of George Town (0.24), and recognition as a gastronomic city (0.24), collectively results in a strong total score of 1.02, positioning it as a preferred cruise destination. These strengths significantly outweigh the weaknesses, which include the monopolistic nature of the cruise industry (0.05), labour demand-supply mismatch (0.06), traffic congestion and carrying capacity issues (0.24), and gambling on board cruises (0.04). With a lower total weakness score of 0.39, Penang demonstrates a strong ability to manage its challenges effectively, further solidifying its appeal as a leading cruise destination.

Table 2: Internal Factor Evaluation Matrix Score

Evaluation	Importance (0.01-1.0) 00.1-not important to 1- very important	Rating (3 – major, 1 – minor)	Score
Internal Positive Factors – Strength			
Ports Infrastructure	0.09	3	0.27
Strategic Location	0.09	3	0.27
George Town – A World Heritage Site	0.08	3	0.24
George Town – A Gastronomic City	0.08	3	0.24
Total			1.02
Internal Negative Factors - Weaknesses			
Monopolistic Nature of Cruise Industry	0.05	1	0.05
Mismatch between Demand and Supply of Labour	0.06	1	0.06
Traffic congestion and carrying capacity	0.08	3	0.24
Gambling on Board Cruise in International Waters	0.04	1	0.04
Total			0.39

Penang has substantial growth potential, with key external opportunities such as the fly-cruiser market (0.27), home-grown cruise companies (0.27), increased spending in travel and cruising (0.21), ASEAN collaboration in cruise tourism (0.21), government initiatives (0.08), and relief from cabotage policies (0.05), resulting in a total opportunity score of 1.09, reflecting a strong strategic direction and readiness to capitalize on these factors. On the other hand, external threats like pirate attacks (0.15), port clashes, mega-ship challenges (0.18), and environmental pollution (0.18) pose risks, but the total threat score of 0.51 is relatively low, suggesting these challenges are manageable within the current framework.

Table 3: External Factor Evaluation Matrix Score

Evaluation	Importance (0.01-1.0) 00.1-no impact to 1-very high impact	Probability (3 – high probability, 1 – low probability))	Score
External Positive Factors – Opportunity			
New Cruise Arrival – Fly Cruiser Market	0.09	3	0.27
Home Grown Cruise Company	0.09	3	0.27
Increase in spending in travel and cruising	0.07	3	0.21
ASEAN Collaboration in Cruise Tourism	0.07	3	0.21
Malaysian Government Initiatives	0.08	1	0.08
Relieved from Cabotage Policies	0.05	1	0.05
Total			1.09
External Negative Factors – Threats			
Pirate attack	0.05	3	0.15
Port Clashes and Mega Ship	0.06	3	0.18
Environmental Pollutions	0.06	3	0.18
Total			0.51

Despite these challenges, external opportunities outweigh internal weaknesses. Penang's strategic initiatives, such as the Economic Transformation Programme (ETP), the homeporting decision of a local cruise company, and the RM155 million Swettenham Pier Cruise Terminal upgrade in partnership with Royal Caribbean Cruises Limited (RCCL), reflect the readiness to accommodate larger ships and more passengers.

Moreover, the low score for external threats suggests these risks are unlikely to hinder the growth of cruise tourism in Penang. The high opportunity score in the external evaluation confirms that Penang's strategies are well-aligned to leverage opportunities and mitigate threats. Nonetheless, sustainable practices supported by robust policies and legislation are essential to manage the negative impacts of growth and development on the destination.

Theoretical Implications

The case study on cruise tourism in Penang contributes to the theoretical understanding of sustainable tourism development by integrating the Economic Transformation Programme (ETP) framework and the SWOT analysis methodology. By applying the ETP, the study illustrates how national policies can effectively drive local tourism growth and enhance competitive positioning within the global cruise market. The use of SWOT analysis provides a structured approach to evaluate internal strengths and weaknesses alongside external opportunities and threats, offering insights into strategic decision-making processes. This dual theoretical framework emphasizes the importance of aligning economic objectives with sustainable practices, thereby enriching existing literature on tourism management and policy implementation.

Practical Implications

Practically, the findings of the case study offer valuable recommendations for stakeholders involved in Penang's cruise tourism sector. The emphasis on conducting thorough environmental assessments highlights the need for sustainable practices that mitigate potential negative impacts associated with increased tourist influx. Stakeholders, including local government, cruise operators, and community organizations, can utilize the insights from the SWOT analysis to identify critical areas for improvement and leverage strengths effectively. Furthermore, the study underscores the importance of collaboration among stakeholders to enhance marketing strategies, improve infrastructure, and address challenges posed by regional competition. By implementing these practical recommendations, Penang can secure its position as a leading cruise destination while promoting long-term sustainability in its tourism industry.

Conclusion

The SWOT matrix outlines four strategic approaches for Penang to gain a competitive edge in cruise tourism. First, leveraging strengths to exploit opportunities allows Penang to use its strategic location and attractions to drive growth and counter threats. Second, mitigating weaknesses through opportunities helps address external challenges, with long-term concerns like congestion and carrying capacity in mind. Third, utilizing strengths to mitigate threats shows Penang's readiness to attract more cruise ships, potentially supported by government incentives. Lastly, addressing weaknesses that could lead to threats allows Penang to minimize their impact, with a focus on sustainable cruise tourism development through local initiatives and infrastructure plans.

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