

Glass Elevator at Kelingking Beach: A Comparative SWOT Analysis of Infrastructural Innovations in Tourist Destinations

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ABSTRACT

This study undertakes a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis of the proposed glass elevator installation at Kelingking Beach, a renowned tourist destination in Bali. The research draws upon diverse scholarly perspectives to offer a comparative lens on infrastructural developments in natural settings. While the glass elevator promises to democratize access, particularly for older people and those with mobility challenges, and possibly amplify economic gains, it also brings forth concerns related to overdevelopment, environmental impact, and the risk of compromising the intrinsic charm of the destination. Our findings elucidate that while there are clear strengths, such as enhanced accessibility and potential for premium pricing, there are notable challenges to consider. The weaknesses, primarily arising from potential safety concerns and the possibility of detracting from the beach's natural allure, call for thoughtful solutions. Opportunities present themselves through collaborative efforts, sustainable practices, and a reinvigorated tourism sector. The study serves as a template for policymakers and stakeholders in natural tourist destinations, aiming to integrate infrastructure without diluting the essence of the locale.

Keywords: Kelingking Beach; Glass Elevator; SWOT Analysis; Tourism Infrastructure; Sustainability

1. Introduction

Kelingking Beach, situated on the southeastern coast of Nusa Penida in Klungkung, Bali, stands out as a remarkable gem in the crown of Indonesia's tourist attractions. This secluded beach, with its immaculate white sands, stretched against majestic cliffs, offers breathtaking views and an experience with tranquility and nature's raw beauty. Given its captivating allure, it's no surprise that the beach has received global acclaim, most notably from the prestigious Travelers' Choice Awards (Gupta & Lumanauw, 2021; Setiawan & Mahrinasari, 2023). This recognition has significantly amplified its prominence on the international tourism map. However, this beautiful coastline's geographical attributes have also presented unique challenges. While serving as the elements that grant the beach its distinct charm, the jagged cliffs and rugged terrains have

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concurrently acted as barriers. Tourists, especially those who might not be in the best of physical conditions or those facing mobility constraints, find it notably challenging to navigate this area (Mutiarra et al., 2021; Widyarsana & Agustina, 2020). This restricts a significant segment of potential visitors from fully experiencing the beauty that Kelingking Beach has to offer.

As the world of tourism undergoes rapid transformation, influenced by changing traveler preferences, technological advancements, and increased global connectivity (Dwyer, Edwards, Mistilis, Roman, & Scott, 2009), destinations like Kelingking Beach face the challenge of adapting. Today's tourists seek not just picturesque sights but also value experiences that are seamless, convenient, and inclusive (Larsen et al., 2021). This paradigm shift underscores the importance of infrastructural developments that enhance accessibility while ensuring that pristine destinations' natural charm and ethos remain undisturbed. Balancing these aspects is crucial (Sutrisno, Chen, Suryawan, & Lee, 2023b). On the one hand, there's an evident demand from tourists for improved accessibility. As the world's population ages, many travelers are senior citizens. Moreover, there's an increased awareness and push towards inclusive tourism, ensuring that destinations are accessible to everyone, including those with disabilities. Catering to these demographic augments the potential tourist base and aligns with the broader goals of inclusivity and fairness in tourism.

Recent developments in global tourism trends have witnessed a surge in infrastructural adaptations to increase accessibility to natural sites (Hoogendoorn & Fitchett, 2018; Suryawan, Sianipar, & Lee, 2024). While many of these initiatives have been successful, there remains a gap in understanding the full spectrum of positive and negative implications of such infrastructural changes, especially in delicate ecosystems like Kelingking Beach. Preliminary research has primarily centered around immediate economic benefits and broad environmental concerns, leaving a void in comprehensive, multi-dimensional evaluations.

The decision to construct a glass elevator at Kelingking Beach undoubtedly stems from practical and strategic considerations. Foremost among these is the intent to enhance the accessibility of the beach. Kelingking, with its majestic setting at the bottom of a cliff, has always posed a formidable challenge for visitors, particularly the elderly, individuals with mobility issues, and families with children. In this context, the elevator promises a convenient and less strenuous mode of reaching this natural wonder. Parallel to this pragmatic approach is the tourism angle. As Kelingking Beach's reputation soars on the global stage, tourism authorities are concerted on pushing to augment its allure. A state-of-the-art glass elevator opens the beach to a broader audience and becomes an attraction, offering an unparalleled vantage point during the descent. This infrastructural innovation also has potential economic implications. The projected increase in visitors, facilitated by the elevator, will likely spur local economic activities, benefiting eateries, souvenir vendors, and other ancillary services in the vicinity. Safety, too, is a notable factor (Boakye, 2012; Enright & Newton, 2004). Compared to the existing trails, which can be treacherous, especially during peak seasons or inclement weather, the elevator offers a more controlled and safer alternative. On the conservation front, channeling visitors through a single access point can minimize the ecological footprint, preserving the pristine nature of other surrounding areas (Baldacchino, 2011; Mustika, Ichsan, & Booth, 2020).

As the tourism industry evolves, driven by shifting traveler preferences for more seamless and inclusive experiences (Gursoy, Li, & Song, 2023; Hsu, 2021), there is a pronounced need for infrastructural improvements that enhance accessibility without compromising the natural environment. The current landscape of global tourism shows a trend toward infrastructural adaptations aimed at increasing access to natural sites (Gössling & Hall, 2006; Scott & McBoyle, 2007). However, a discernible gap exists in comprehensive studies that evaluate both the positive and negative implications of such developments on delicate ecosystems like Kelingking Beach. This gap underscores the need for a detailed SWOT analysis of the proposed glass elevator project at Kelingking Beach. Such an analysis would not only assess the practical and strategic

considerations of enhancing beach accessibility but also explore the broader implications for local economic activities, safety, and conservation efforts. This comprehensive approach is essential to ensure that development initiatives align with sustainable tourism goals and benefit all stakeholders, including local communities, policymakers, and visitors while preserving the unique natural beauty of Kelingking Beach.

This study, therefore, aims to bridge this gap by undertaking a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of the proposed glass elevator project at Kelingking Beach. We aspire to present a holistic understanding of the project through this methodological approach, considering its socio-economic, environmental, and infrastructural dimensions. In doing so, we aim to provide stakeholders, ranging from policymakers to local communities, with a robust analytical framework to guide future decisions concerning the beach's sustainable development.

2. Literature Review

Tourist management provides a rich understanding of the complexities of developing infrastructure in tourist destinations while maintaining ecological and cultural integrity (Ariyani & Fauzi, 2023). For instance, strategic planning and management for tourist areas emphasize sustainable practices that consider long-term ecological and social impacts (Mattera, Soto Gonzalez, Alba Ruiz-Morales, & Gava, 2021; Ranjbari et al., 2021). They propose a framework where both accessibility and environmental sustainability are balanced, which is crucial for destinations like Kelingking Beach, experiencing increasing visitor numbers due to its natural beauty. On the environmental side, explores the impacts of tourism infrastructure on natural environments (Baloch et al., 2023; Wang, Huang, Gong, & Cao, 2020; Zeng, Wen, Bi, & Feiock, 2021). This cautions that infrastructure projects can lead to significant environmental degradation without careful planning and considering the local ecology. This is a critical concern for Kelingking Beach, where the construction of a glass elevator could impact local wildlife and plant life if not properly managed. Manning's research suggests that infrastructure projects should undergo rigorous environmental impact assessments to ensure they do not irreversibly damage the sites they aim to make more accessible.

Modern tourist destinations grapple with a delicate dance: offering pristine, untouched beauty while ensuring these locales are accessible and engaging for the global traveler. The integration of infrastructural marvels, like the proposed glass elevator at Kelingking Beach, is an innovation that encapsulates this dance. The rich tapestry of academic literature on this topic offers varying perspectives, which, when viewed in a comparative light, provide profound insights into the potential and pitfalls of such endeavors. Explore juxtaposing natural settings with infrastructural developments (Marsden, Banks, & Bristow, 2002; Tracy, Shvarts, Simonov, & Babenko, 2017). Their research into beach tourism showcases a duality: tourists appreciate the conveniences provided by infrastructures, yet they're wary of the thin line between enhancement and overdevelopment. This dichotomy underlines the need for balance, ensuring the essence of a place like Kelingking Beach isn't diluted in pursuing modernity.

Drawing from a perspective of inclusivity, the works of (Wood & Dashper, 2021) and Gonzalez & Hernandez (2016) hold particular relevance. (Wood & Dashper, 2021) shed light on the often-overlooked aspect of tourism: ensuring it's inclusive. Older people challenges deserve the same enriching experiences as any other tourist (Fleischer & Pizam, 2002). Infrastructural additions, like the proposed elevator, are pivotal in democratizing access. Its economic implications undeniably affect infrastructural innovation (Grecu & Denes, 2017; Suryawan & Lee, 2023). Patel & Kumar's research presents a tantalizing prospect: infrastructure can boost footfalls and generate revenue (Pomeroy, 2014). A glass elevator's novelty and unique experience can justify premium pricing.

By analyzing beach destinations across Southeast Asia, they demonstrate a positive correlation between infrastructural investments and the prosperity of local businesses (Chin, Haddock-Fraser, & Hampton, 2017; Sutrisno et al., 2023b). This suggests a ripple effect, where an infrastructural addition might attract tourists and catalyze the local economy. However, as destinations globally rush to modernize, the siren call of sustainability grows louder. Any infrastructural project, particularly in ecologically sensitive zones, has repercussions (Young et al., 2005; Zhang & Noronha, 2023). Their call for sustainability is not just about today but also about ensuring that the charm of places like Kelingking Beach remains intact for future generations. The infrastructure itself shouldn't become an environmental liability. As (Crowther & Seifi, 2021; Prasetya & buddhabhumbhitak, 2019) discuss, novelty is a potent magnet in tourism. Tourists are explorers at heart, always seeking unique experiences. A glass elevator offering panoramic vistas is the innovation that can satiate this quest for novelty. However, novelty fades without safety and maintenance. A one-time wonder can quickly become a safety hazard if not meticulously maintained, thus affecting its long-term appeal.

3. Method

The Nusa Penida is an island located southeast of Bali, Indonesia, forming part of the Klungkung Regency. It is the largest and most exotic of the three Nusa Islands, including Nusa Lembongan and Nusa Ceningan. Nusa Penida is known for its dramatic landscapes, rugged cliffs, crystal-clear waters, and lush vegetation. The island is accessible from Bali by a relatively short boat ride, making it a popular day-trip destination for tourists staying in Bali. Despite its growing popularity, Nusa Penida remains less commercialized than Bali, offering a more serene and untouched environment appealing to adventurers and eco-tourists.

Kelingking Beach, specifically, is situated on the southwestern coast of Nusa Penida. This beach is famed for its distinctive dramatic topography, which, with cliffs and deep coastal indentations, creates breathtaking views and poses significant accessibility challenges. The path to the beach is steep and rugged, making it difficult for visitors with limited mobility to access the stunning beach below the viewpoint. The beach has captured the attention of tourists for its beauty and the photographic opportunities it offers, becoming one of the most photographed spots in Nusa Penida. Despite its remote location, the influx of tourists has increased over the years, prompting considerations for infrastructure improvements like the proposed glass elevator to facilitate easier access while attempting to manage the environmental impact carefully. This project aims to make Kelingking Beach more accessible to a broader audience, including elderly visitors and those with physical disabilities, enhancing the overall visitor experience without detracting from the site's natural allure.

This research aimed to critically evaluate the introduction of a glass elevator at Kelingking Beach, using the SWOT analysis approach to understand its multifaceted implications. Before embarking on the SWOT analysis, we undertook a rigorous literature review. This entailed examining scholarly articles, case studies, and official reports related to analogous infrastructure projects around the globe. This exercise provided a clearer understanding of the precedents set by similar ventures, enabling the identification of best practices, potential challenges, and innovative solutions. This foundational research was instrumental in shaping our subsequent analysis, offering insights into possible strengths, weaknesses, opportunities, and threats for the Kelingking Beach elevator project. Recognizing the unique nature of Kelingking Beach and the potential distinctiveness of its elevator project, it was imperative to complement the literature review with on-site observations.

Over several days, the site was monitored at different intervals to capture varying visitor patterns and activities. With insights from both the literature and the on-site observations, we proceeded to structure our SWOT analysis. This framework comprehensively overviews the proposed glass elevator's strengths, weaknesses, opportunities, and threats. This analysis, detailed

in Figure 1, synthesizes our findings, offering a well-rounded perspective on the project. By presenting these facets consolidated, the SWOT analysis seeks to inform stakeholders, decision-makers, and the public, facilitating decisions grounded in thorough research and observation.

4. Results

To comprehensively understand the potential impact of the glass elevator project at Kelingking Beach, it's imperative to examine the project from multiple angles. SWOT analysis, a strategic planning tool, is used to identify the Strengths, Weaknesses, Opportunities, and Threats associated with a project. This holistic approach helps identify both the tangible and intangible factors that can influence the success or challenges of the initiative. Figure 1 below encapsulates this analysis for the glass elevator project. This detailed evaluation is a foundation for decision-makers and stakeholders to envision a strategic roadmap (Suryawan & Lee, 2023; Sutrisno, Chen, Suryawan, & Lee, 2023a), foresee challenges, and capitalize on strengths and opportunities.

Figure 1. Strengths, Weaknesses, Opportunities, and Threats

Strengths (S):	Weaknesses (W):
<p>1. Enhanced Accessibility: The elevator will significantly improve access to Kelingking Beach for a broader range of tourists, including those with mobility issues, the elderly, and families with children.</p> <p>2. Innovative Tourist Attraction: Introducing a unique glass elevator will potentially garner global attention, further promoting Kelingking Beach as a must-visit destination.</p>	<p>1. Environmental Concerns: The construction and operation of the elevator may pose risks to the local ecosystem, including potential land degradation or interference with native species.</p> <p>2. Cultural and Aesthetic Impacts: The modern structure might not blend seamlessly with the location's natural beauty, potentially undermining the authentic experience of the beach.</p>
<p>3. Increased Duration of Stay: With easy access, tourists might spend more time at the beach, which could positively impact local businesses.</p>	<p>3. Maintenance Challenges: Being in a coastal environment, the elevator will be exposed to salt, humidity, and other corrosive elements, potentially leading to increased maintenance needs and costs.</p>
<p>4. Potential for Premium Pricing: The novel experience offered by the glass elevator might justify a higher ticket price for its use, generating additional revenue.</p>	<p>4. Safety Concerns: In the event of technical malfunctions or emergencies, ensuring the safety of users in such a challenging terrain might be complex.</p>
Opportunities (O):	Threats (T):
<p>1. Sustainable Tourism Boost: If marketed right and coupled with sustainable practices, the elevator could position Kelingking Beach as a pioneer in blending innovation with conservation in the tourism sector.</p>	<p>1. Public Backlash: Given the potential environmental concerns, there's a risk of backlash from environmentalists, locals, or even tourists who prefer the untouched beauty of the beach.</p>
<p>2. Job Creation: The project could lead to job opportunities in construction, maintenance, and elevator operation, benefiting the local community.</p>	<p>2. Regulatory Hurdles: The project might face challenges in obtaining necessary permits, especially if environmental agencies raise concerns.</p>
<p>3. Collaboration with Environmental NGOs: To offset the potential negative impacts, collaborations could be initiated with environmental NGOs to implement conservation projects.</p>	<p>3. Natural Disasters: Being in a coastal area, there's always a risk of tsunamis, strong waves, or other natural calamities that might jeopardize the structure and its users.</p>
<p>4. Enhanced Infrastructure: The initiative might pave the way for additional supportive infrastructure, such as eco-friendly accommodations or restaurants, further enhancing the tourist experience.</p>	<p>4. Competition: Other beaches might emulate the idea, leading to competition and potentially diluting the uniqueness of Kelingking Beach's offering.</p>

5. Discussion

5.1. Strengths

The introduction of a glass elevator at Kelingking Beach is poised to revolutionize its tourism landscape in numerous significant ways. Firstly, the paramount issue of accessibility at tourist destinations often determines their appeal, and Kelingking Beach is no exception. By facilitating seamless and comfortable access to the beach, the elevator extends an invitation to adventurous travelers and older people, families with young children, and those with mobility challenges. This inclusivity will likely increase footfall and promote a positive image of the destination, emphasizing comfort and accessibility. Moreover, in today's age, where tourists avidly seek unique and unparalleled experiences, the glass elevator is a mere convenience and an attraction. The sheer thrill of descending a cliff in a transparent structure, offering panoramic views of the sprawling ocean and intricate coastline, promises to magnetize many. Such innovative attractions often become subjects of global media interest, catalyzing discussions on travel platforms and potentially skyrocketing the location's popularity (Khatib, 2023).

Furthermore, an easier and faster descent to the beach is bound to increase the time tourists spend there. This prolonged engagement can lead to a ripple effect on the local economy. Tourists are likelier to indulge in beachside activities, dine at local eateries, or shop from vendors. This increased stay duration can benefit local businesses, infusing life and vibrancy into the beach's surrounding ecosystem. Lastly, the unique nature of the elevator experience provides an opportunity for value-based pricing. Tourists often associate a price with the perceived value of an experience. Given the elevator's novel appeal, it's plausible that many would be willing to pay a premium (Bushara et al., 2023). This ensures a quicker return on investment and can channel funds for further local development or conservation efforts. However, striking a balance in pricing is essential to ensure that the beach remains an accessible destination.

5.2. Weaknesses

Despite the numerous strengths and potential benefits associated with the glass elevator project, inherent weaknesses need to be carefully evaluated and addressed to ensure this venture's sustainability and long-term viability. One of the primary concerns is the integrity and maintenance of the elevator. Located in a coastal environment, the elevator will be consistently exposed to saline air, accelerating wear and tear, especially on its metallic components. This could lead to frequent maintenance needs and possibly expensive repairs. Though thrilling for tourists, the transparency feature might necessitate constant cleaning to maintain clear views, further compounding maintenance efforts.

Secondly, the potential for Overcrowding at Kelingking Beach is a genuine concern. As the elevator will ease access, there might be an unprecedented surge in tourist numbers, leading to a strain on the beach's capacity. Not only can this diminish the serene and untouched charm of the beach, but it can also lead to increased waste, pollution, and potential damage to its natural habitats (Eriksson, Johansson, & Blicharska, 2019; Mutiara et al., 2021; Widyarsana & Agustina, 2020). A related concern is the Dependence on the elevator. While it aims to enhance accessibility, there's a risk that it might become the sole preferred mode of descent for many, potentially causing long waiting times, bottlenecks, and general inconvenience for tourists, detracting from the overall experience. Further, there's the Economic Vulnerability associated with premium pricing. While the novelty of the glass elevator might justify a higher ticket price initially, this could deter certain segments of tourists, especially budget travelers. Overdependence on the revenue from the elevator without diversifying income sources can create economic instability for the region, especially if the novelty wanes over time. Lastly, there's an Aesthetic and Cultural Concern. The introduction of modern infrastructures like a glass elevator can sometimes clash with the natural aesthetics of a place, altering its identity. Local communities

might feel that such developments overshadow the traditional essence of the region, leading to potential cultural dilution.

5.3. Opportunities

Amidst the various strengths and weaknesses associated with the glass elevator installation at Kelingking Beach, several opportunities arise that can offset some of the weaknesses and amplify the benefits for the broader community and environment. Firstly, there's an undeniable opportunity for Diversified Tourism Offerings. With easier accessibility to the beach, there's potential for introducing guided eco-tours, educational programs about marine conservation, or even curated experiences that merge local culture and nature. These can further boost tourism revenue while providing an educational touch to the visit.

Another considerable opportunity lies in Employment Generation. The increased influx of tourists and the maintenance needs of the elevator itself can lead to job creation in multiple sectors - from technical roles for elevator maintenance to service roles in tourism, hospitality, and local handicraft sales. The global attention garnered by this unique initiative offers a platform for Promoting Sustainable Tourism Practices. By positioning Kelingking Beach not just as a tourist spot but as a model for sustainable tourism, there's potential to attract a niche of environmentally conscious travelers. This can involve showcasing initiatives like waste management, coral reef protection, and partnerships with environmental NGOs (Sutrisno et al., 2023b).

There's also an avenue for Technological Collaboration and Investments. Given the project's uniqueness, it can attract collaborations from tech companies or green tech startups, aiming to introduce sustainable innovations, from solar-powered elevator operations to integrating the elevator structure with environmental sensors to monitor air and water quality. Furthermore, the glass elevator as an anchor has the potential to Develop an auxiliary infrastructure. This includes eco-friendly accommodations, sustainable eateries, and educational centers focused on marine life, local history, and culture. These can be designed with a minimal environmental footprint, making the entire region a model for sustainable tourism. Lastly, the project can foster community engagement and capacity building (Sianipar et al., 2022; Sutrisno et al., 2023b). By involving local communities in decision-making, operational roles, or as stakeholders, there's potential to ensure that the benefits of tourism percolate down to the grassroots level. Training programs can be initiated to skill the local population in various sectors, from hospitality to conservation, ensuring they remain primary beneficiaries of the growth.

5.4. Threats

While the opportunities and strengths presented by the glass elevator at Kelingking Beach are evident, it's equally crucial to identify and mitigate potential threats to ensure the project's sustainability. These threats could pose significant challenges to the fabric of the region's environmental, social, and economic ecosystem if unchecked. Environmental degradation is arguably the most prominent concern. An increased number of tourists attracted by the elevator's convenience could lead to overwhelming foot traffic. This could result in increased waste, potential harm to the local flora and fauna, and stress on the marine ecosystem. The pristine nature of Kelingking Beach, one of its most significant selling points, could be at risk if this surge is not effectively managed. Another looming threat is Cultural Erosion. With the influx of tourists, local traditions, customs, and values could be overshadowed by commercial interests. There's a danger that the authentic Balinese culture might be diluted or commoditized for tourist consumption.

The Dependence on a single revenue stream is a significant economic threat. If the region's economy becomes overly reliant on the income generated from the elevator and associated tourism, it could be vulnerable to market fluctuations, global events, or natural calamities that affect tourist inflow. Moreover, there are potential Safety and Security Concerns associated with

the elevator. Being a glass structure, it could be prone to vandalism or accidents. Additionally, crowding in and around the elevator might lead to safety hazards, especially in emergencies. Ensuring the safety of both tourists and the local populace will be paramount. From a broader perspective, Negative Global Perception is a potential threat. If the elevator project, despite its intentions, is seen as an environmental hazard or a commercial exploit, it might garner negative press. This could deter a segment of environmentally conscious tourists and impact on the region's reputation. Lastly, there's the concern of Economic Disparity. If the benefits of the increased tourism and revenue are not equitably distributed, it could lead to social unrest and feelings of marginalization among local communities (Al Haija, 2011; Bennett, Blythe, White, & Campero, 2021). Ensuring that the local populace is a significant stakeholder and beneficiary mitigates this.

6. Conclusions

The SWOT analysis of the proposed glass elevator at Kelingking Beach offers a nuanced perspective on this ambitious infrastructure project. Our findings elucidate that while there are clear strengths, such as enhanced accessibility and potential for premium pricing, there are notable challenges to consider. The weaknesses, primarily arising from potential safety concerns and the possibility of detracting from the beach's natural allure, call for thoughtful solutions. Opportunities present themselves through collaborative efforts, sustainable practices, and a reinvigorated tourism sector. However, the looming threats, particularly environmental degradation and potential backlash from traditionalists and environmentalists, cannot be overlooked.

The decision to proceed with the Kelingking Beach elevator project should be weighed against the balance of these strengths, weaknesses, opportunities, and threats. Project proponents must consider long-term implications and not just immediate benefits. This analysis suggests that careful planning, stakeholder consultation, and environmental consideration can mitigate many potential pitfalls. Still, a project of this magnitude requires diligence, foresight, and an unwavering commitment to the local community's environment and socio-economic welfare.

7. Conflicts of Interest

"The author(s) declare no conflict of interest."

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