

Sustainability Practices in Lebanese Wineries and Their Impact on Tourism Development and Economic Growth

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Abstract: The aim of this study is to examine how sustainability practices adopted by Lebanese wineries influence tourism development and contribute to broader economic growth. Lebanese wineries have increasingly integrated environmental initiatives into their operations in response to both local and global challenges. Such initiatives include reducing paper waste and transform wine corks into renewable energy, reforestation initiatives, energy-efficient practices, and green architecture. A variety of sustainability practices are implemented by wineries in Lebanon; however, an investigation deems necessary to evaluate their impact. Methodologically, this study employed open-ended exploratory interviews with two groups of stakeholders: (a) winery managers and owners, and (b) tourism stakeholders and community representatives. This approach was necessary in order to investigate how winery practices enhance destination attractiveness, support community development and employment, influence Lebanon's image as a sustainable tourism hub, and contribute to long-term economic growth while preserving environmental and cultural heritage. The findings of this study are particularly important for winery stakeholders by offering insights into strengthening competitiveness and innovation, while tourism and community stakeholders could gain a deeper understanding of how sustainability-driven wine tourism can create employment, support local economies, and enhance Lebanon's global tourism profile.

Keywords: Sustainability, Lebanese Wineries, Wine Tourism, Economic Growth, Community Development

1. Introduction

1.1 Background of the Study

Winemaking in Lebanon dates back thousands of years, with evidence of early technology in the north and biblical associations in the southern village of Qana (Barnard et al., 2011; Royster, 1999). Since the Phoenicians settled in Lebanon, the country's wine production has undergone significant development (El Chami & El Moujabber, 2014). In 1993, only three major wine producers existed in the country: Château Musar, Ksara, and Kefraya (Saleh, 2014). Currently, 24 wineries are registered with the Lebanese Wine Union, with more than 40 unregistered (Lebanon Wines, 2025). Furthermore, the Lebanese winemaking industry is expected to grow by about \$86.3 million from 2025 to 2030 (Strategy Helix Group, 2025).

Lebanon produces around 9 million wine bottles annually, with a significant impact on the Lebanese economy (Kattar, 2020). Annually, according to the FAO (2024), wine sales contribute \$50-\$60 million, with 40% of the sales being exported.

Several global sustainability initiatives have been introduced and implemented in wineries, including initiatives focused on oak planting, cork management, and energy conservation. In Lebanon, wineries are progressing inconsistently (Château Ksara, 2022; Ixsir, 2025).

1.2 Research Gap

Despite the growing global focus on sustainable winemaking, there is limited empirical research exploring how such practices influence Lebanon's tourism and economic development. The Lebanese wine industry's sustainability initiatives have received little attention from the scientific community (El Chami & El Moujabber, 2014); thus, wineries are increasingly focusing on environmental responsibility (Boiko, 2025). Current research in Lebanon primarily focuses on the history and heritage of Lebanese wineries, as well as their economic contributions to the country. However, there is a lack of empirical evidence on the impact of sustainability initiatives on the economic and tourist growth of Lebanese wineries. Furthermore, according to Milich (2012), it

is crucial to integrate sustainable wine initiatives in Lebanon to benefit the tourism industry. Therefore, it is vital to conduct this study to investigate and recommend more sustainable practices for Lebanese wineries, thereby contributing to the development of Lebanese tourism and the economy. This, in turn, plays a positive role in rural development, destination promotion, and employment opportunities, while supporting the Lebanese image as a contributor to sustainability.

1.3 Research Objectives, Questions, and Method

This research aims to examine how sustainability practices adopted by Lebanese wineries influence tourism development and contribute to broader economic growth. To address the research gap and reach the research objectives, the following research questions will be kept in mind:

- What sustainability practices are currently implemented by the Lebanese wineries?
- How do these practices contribute to tourism development?
- In what ways can these practices contribute to local community development and employment opportunities?
- How do stakeholders perceive the role of sustainability practices of the Lebanese wineries?

To achieve the research objectives, qualitative, exploratory, semi-structured interviews were conducted with winery owners or managers, as well as tourism and community stakeholders. These interviews were conducted online via Zoom and analysed after summarizing the key ideas discussed during the interviews.

In-depth interviews were carried out to extract the inner meaning and understand how the sustainability topic is interpreted from different perspectives within the winery industry context, aligning with Creswell's and Poth's (2018) interpretive paradigm. Furthermore, the purpose of this research isn't about testing a hypothesis, but is more about investigating and exploring the impact of sustainability practices on the Lebanese tourism and economy from the perspective of winery experts. Regarding sample selection, triangulation was employed across the sample categories; therefore, more than one sample was selected for each category. In this case, the first sample consisted of winery general managers in Lebanon, while the second category comprised stakeholders in the Lebanese winery industry.

2. Sustainability Practices in Lebanese Wineries

Sustainability awareness has increased in Lebanon over the last decade, while its application across industries remains limited. In the Lebanese winemaking industry, several winemakers have implemented innovative sustainability practices to preserve the environment, conserve natural resources, and enhance profitability.

Château Ksara has implemented multiple sustainability initiatives. In collaboration with Sicomo, the winery converts used wine corks into renewable energy (Château Ksara, 2022). Moreover, for every 500 corks collected, Château Ksara and Sicomo plant one oak tree in parallel. These initiatives resulted in 3.5 Hectares of land in the West Bekaa area have been newly planted from 2022 to the present.

At Ixsir winery, 75% less energy consumption than global wineries have been achieved through fermentation, which requires minimal pumping and consequently minimal energy consumption. Then, the winery's cellars are located 12 meters underground, which protects them from the soil and, in turn, reduces the need for an electrical refrigerator (Ixsir, 2025). Combined with roof planting, Ixsir Winery was recognized by CNN as one of the world's greenest buildings. To benefit the community, Ixsir conducts long-term contracts with farmers and provides an exceptional workplace for its employees.

At Château Musar, aligning with UN Sustainable Goal 12 (sustainable production and consumption), the winery utilizes organic materials and composites instead of chemicals in its planting practices, thereby supporting natural life. Furthermore, Château Musar reduces its carbon footprint through manual pruning and harvesting, rather than relying on heavy machinery, which has a negative environmental impact. In this case, bottles with the minimum weight are selected, local cardboard boxes are used for shipping instead of wooden boxes, and shipments are consolidated to reduce the number of shipments. In line with their sustainable use of natural resources, water consumption is minimized. Natural corks are used instead of plastic ones, and labels and the wood used are certified by the FSC (Forest Stewardship Council). Additionally, old barrels are not discarded but repurposed for use as furniture.

Moving to the Domaine des Tourelles, they limit exposure to sunlight, utilize thick walls, and employ natural river water pumping, all of which eliminate the need for refrigeration (Domaine des Tourelles, 2025).

Furthermore, the winery employs an old filtration technique, utilizing dried thistle rose plants as a filter. The winery employs organic farming practices with minimal intervention, utilizing locally produced sugar, solar energy, recycled wine bottles, natural fertilizers, and lighter-weight glass bottles. Socially, the winery employs locals and supports artisans.

Overall, many Lebanese wineries are integrating sustainability initiatives into their operations, reflecting a growing awareness about their importance, including environmental, social, and cultural preservation initiatives. However, these initiatives remain implicit and less formalized, since the main motivators for the wineries are ethical considerations only. The upcoming table provides an overview of the main sustainability practices implemented by the discussed Lebanese wineries.

Table 1: Comparative Overview of Best Sustainability Practices Among Selected Lebanese Wineries

Winery	Env. Sustainability	Soc. Sustainability	Eco. /Ops. Sustainability
Château Ksara	Recycles corks via Sicomo, planting one oak per 500; promotes eco-awareness.	Engages community in environmental awareness.	Cuts costs through recycling and renewables.
Ixsir Winery	Uses gravity fermentation (~75% energy); underground cellars; green roof.	Supports local farmers via land contracts; ensures safe workplaces.	Energy-efficient design recognized globally.
Château Musar	No chemicals; manual harvesting; FSC materials; aligns with SDG 12.	Fosters stewardship among staff/community.	Saves costs via local sourcing and waste minimization.
Domaine des Tourelles	Uses solar energy, organic fertilizers; recycles bottles; light glass.	Employs villagers; promotes local crafts and food.	Low costs via natural energy and sustainable operations.
Château Kefraya	Limits preservatives; maintains biodiversity.	Promotes sustainable farming culture.	Ensures long-term ecological balance.
Clos de Phoenix	Produces organic, chemical-free wine.	Promotes awareness of sustainable consumption.	Differentiates in niche organic market.

Sources: Ksara (2022); Ixsir (2025); Musar (2025); Tourelles (2025); Kefraya (2025); Clos de Phoenix (2025).

3. Impact of Sustainability Practices in Lebanon

Lebanese winemaking has a range of positive impacts at various levels. In this section, the impact on tourism development, the local community, and investor attraction, as well as economic revitalization, will be discussed further.

3.1 Impact on Tourism Development

Wine tourism is a significant contributor to a country’s economic development in the modern economy, as it attracts investors and provides opportunities for export, while enriching the domestic tourism (Boiko, 2025). In Poland, the increase in the number of winemakers had a positive impact on the attractiveness of the regions where wineries are located (Haberla, 2024).

Previous research indicates that sustainability initiatives can enhance tourism development in Lebanon. As a result of these initiatives, wine exports have increased in Lebanon, which in turn boosts the country’s recognition, leading to increased interest among wine customers to learn more and visit Lebanon. Similarly, these initiatives also attract investors and stimulate local businesses. Additionally, the number of visitors to wineries has increased due to sustainability initiatives, which in turn boosts tourist activity in the area. However, effective marketing for these initiatives is needed in Lebanon to reach visitors, investors, and countries interested in importing Lebanese wine, specifically, and foreign wine in general.

3.2 Local Community Benefits

Winemaking in Lebanon is an employment generator in its operating areas. It provides jobs for thousands of people, from viticulturists and winemakers to winery staff and marketing workers (Villalon, 2025). Furthermore, winemakers create opportunities for local farmers to work, boosting their sense of belonging to their village and, as a result, enhancing local identity (Milich, 2012). An example of this is the emergence of several winemakers in the Bhamdoun area in Mount Lebanon, such as Château Cana and Iris Domain, which helped the local economy. This, in turn, helped Bhamdoun residents obtain job opportunities and increased their loyalty to their village.

In addition, wine-making encourages expatriates to return to their mother country and village, increasing their pride in them (The Daily Star, 2018). An example of this, as discussed by the Daily Star (2018), is the story of Maher Harb, who left Paris after living there and keeping his family's land since the Lebanese civil war. Mr. Harb developed his own winery on his family's land, which strengthened his sense of belonging to the homeland. Additionally, winemaking promotes the local heritage and culture of the area where the winery is located, supporting agricultural and tourism development (Haberla, 2024). In Moldova, the increase in the number of wineries led to a fivefold increase in employment needs, while benefiting local entrepreneurs and small businesses (Diana, 2025).

Building on previous research, it is evident that sustainability practices among Lebanese winemakers benefit the local community in various ways. From increasing employment opportunities, providing opportunities for local farmers and suppliers, emphasizing the Lebanese identity, and strengthening the sense of belonging to the homeland, winemaking can change the mindset and lifestyle of local communities, which in turn benefits the entire society. However, to achieve this, there is a legal responsibility on the rule makers and an ethical responsibility on the winery decision-makers to recruit and benefit the local community, rather than outsiders.

3.3 Investor Attraction and Economic Revitalization

According to Sanchez-Garcia et al. (2025), wine-making generates high-margin revenues and fosters local economic linkages, which, in turn, are attractive to investors. Similar to Poland and Moldova, Lebanon's wineries attract investors and foster economic growth through sustainability-oriented branding (Haberla, 2024; Diana, 2025).

In Lebanon, winemaking has been an attractive investment opportunity, driven by factors such as economic returns and emotional attachment to the homeland (The Daily Star, 2018). Winemaking development in Lebanon is also supported by institutional partnerships that strengthen coordination, sustainability, and promotional activities, supporting small local wineries. An example of this is the Comité National du Vin au Liban (CNTL), which supports training and certification programs, thereby contributing to a collective effort to promote Lebanese wine (L'Orient Le Jour, 2025). Furthermore, non-governmental organizations (NGOs) have also contributed to winemakers in Lebanon, mainly in addressing sustainability-related issues.

As a result, sustainability practices in Lebanon are beneficial from a financial perspective as well, not only from a touristic and cultural angle. The sustainability initiatives adopted by Lebanese wineries attract investors, boost exports, and are profitable. Because of this, wineries should consider investing in these initiatives to achieve higher financial returns. However, winery managers should not focus on the short-term impacts; instead, a long-term orientation for this investment is necessary.

3.4 Conclusion of the Literature

The literature discussed provides a clear understanding of the sustainability initiatives adopted by Lebanese wineries, as they are multidimensional in their effects, which means they impact tourism, the community, and the economy. However, it is explicitly clear that there is a lack of empirical assessment of how these initiatives translate into measurable contributions to the Lebanese tourism and economy, which aligns with the current research objectives.

Through collecting data from general managers and stakeholders in the winery industry, valuable opinions will be gathered from experts. This valuable opinion leads us to an evidence-based understanding of the impact of the sustainable initiatives in the Lebanese wineries and reinforces its position as a sustainable wine tourism destination.

The two main theories grounding this study are sustainable tourism development and stakeholder theories, both of which emphasize the interrelationship between environmental responsibility, community well-being, and economic performance. The findings indicate that ethically driven, informed sustainability practices benefit tourism, local communities, and the economy, even in the absence of strong institutional frameworks.

4. Findings and Data Analysis

After discussing the impact of winemaking in Lebanon based on the literature, this section will explore its impact through the primary data collected from winery managers and stakeholders in Lebanon. To collect data about the impact of sustainability practices in Lebanese wineries on tourism development and economic growth, six semi-structured interviews were conducted. Three of those interviews were conducted with general managers of Lebanese wineries, and the remaining three interviews were with concerned stakeholders.

4.1 Findings From Interviews with Winery Managers

The three general managers discussed the growing yet still limited integration of sustainability practices within the Lebanese winery industry. Despite differences in scale and resources, winery managers demonstrated strong awareness of sustainability importance for the environment, tourism, and the economy, as well as a strong commitment to implementing these practices.

4.1.1 Environmental Sustainability Practices

Environmental measures were the most common across all wineries. The large-scale wineries were more concerned and emphasized the importance of organized systems for energy, water, and compost through effective waste management systems, water recycling systems, renewable energy systems, and the production of compost or animal feed from grape and organic waste. For cooling, the large wineries also benefit from their natural architecture, which creates a natural cooling system. According to one of the managers (Manager 1), *“the building is literally inside the mountain... surrounded by rock. This allows us to have naturally cool temperatures and high humidity — a natural climate control — so we don’t need to use air conditioning or cooling systems... We have 65 solar panels, and we are about 95% energy autonomous”*. Another manager discussed their system in treating the wastewater for irrigation, glass grinding for repurposing, and recycling. In this sense, manager 3 stated that *“We also practice sustainable use of grape residues after pressing, such as seeds and skins, which are used either for agricultural compost or as feed for sheep and livestock.”*

Unlike larger-scale wineries in Lebanon, initiatives by smaller wineries continue to exist, despite existing obstacles, including the use of lightweight glass bottles, waste reduction, and the repurposing of grape leftovers into fertilizer. Although there is a difference between larger and smaller wineries in Lebanon regarding the implementation of sustainability practices, both still share a common environmental ethos, each according to its operational capacity.

4.1.2 Motivators and Strategic Alignment

General managers at the selected Lebanese wineries adopt sustainability initiatives due to their personal ethics and beliefs, rather than financial considerations. Those managers within Lebanese wineries emphasized the importance of moral practices and their significance to the Lebanese heritage, local communities, and the environment.

One manager (Manager 1) revealed that the main motivators for conducting such practices are intrinsic, and explained: *“It’s mainly my own personal conviction. I strongly believe in protecting the environment whenever we can. That’s my main motivation. Sometimes these practices cost us more, sometimes they save us money — but money is not the main driver.”* Another manager (Manager 3) stated that this returns to the philosophical roots of the winery: *“The winery should not be a source of pollution for the environment; rather, we must keep our surroundings as clean as possible. ... Building on this history, we realized that many materials we pay a high price for are discarded without benefit, so we had to rethink this approach.”*

However, although not explicitly stated as their primary objective, larger wineries still recognize the strategic importance of such practices in enhancing their brand recognition, meeting global market demands, and attracting eco-conscious customers.

4.1.3 Impact on Tourism and Competitiveness

Implementing sustainability initiatives in Lebanese wineries leads to positive feedback from the wineries' on-site visitors; however, there is no quantitative evidence of their positive impact on the number of visitors or tourists. During their on-site winery tours, it is evident that tourists appreciate the eco-friendly initiatives implemented by the wineries, and especially younger generations who are more involved in sustainability.

One of the managers (Manager 3) insisted on its importance for competitiveness through stating: *"When visitors come for a tour inside the winery, we include a visit to the wastewater treatment station... Visitors see all of this firsthand during the tour, leaving a deep impression of the company's commitment to sustainability."*

While smaller wineries prioritize authenticity and family tradition, larger wineries incorporate sustainability narratives into their export branding and tourism storytelling. One of the managers (Manager 2) stated that: *"Yes, of course. I tell them about it, show them the bottles, and explain the details, but we cannot do much beyond that."* This provides a clear image of the smaller wineries' storytelling for tourists about their initiatives. Winery managers in larger wineries consider those initiatives a crucial factor in increasing their competitive levels, especially in Europe, where consumers in the European market rely more on environmental certificates obtained and actions taken in their purchasing decisions.

4.1.4 Social and Cultural Dimension

In addition to improving the environment, sustainable practices have helped local communities by creating jobs, sharing resources such as solar energy, and indirectly boosting the local economy by supporting businesses in the area. For this sake, manager 1 mentioned: *"We use solar energy to extract water from our well — no diesel. And we provide free electricity from our solar system to nearby farmers so they can pump their water sustainably too. ... Because we use compost instead of chemical fertilizers, it's more labour-intensive — so that creates employment opportunities for local workers."* Additionally, managers connected sustainability to the preservation of Lebanese identity, agricultural traditions, and cultural heritage. Nonetheless, several obstacles remain, including Lebanon's inadequate recycling infrastructure, a lack of institutional support, and financial constraints.

4.1.5 Conclusion

Overall, interviews indicate that personal dedication outweighs institutional frameworks in driving sustainability. Leading wineries are developing integrated sustainability models; however, smaller wineries are still taking small steps toward this goal, even informally, and these efforts are still effective. Although several challenges and constraints exist for its effective implementation, sustainability practices in Lebanese wineries have promising potential to contribute to tourism, economic, and cultural development and preservation.

4.2 Findings from Interviews with Stakeholders

Three interviews were conducted with the winery industry stakeholders, including hospitality instructors, wine experts, and administrative members within this industry. All stakeholders emphasized the importance of sustainability initiatives in this industry, while highlighting various challenges that hinder their effective implementation.

4.2.1 Environmental Sustainability and Innovation

Various stakeholders have discussed the significance of the environmental initiatives conducted by Lebanese wineries, particularly those related to energy consumption, waste reduction, and recycling. One stakeholder (Stakeholder 1) stated *"Some wineries such as Château Ksara are producing, for example, energy from cork waste. They're trying to generate sustainable energy from this material—recycling it"*. Similarly, a winery administrative member (Stakeholder 2) mentioned that *"We don't plant every year... and we don't irrigate after the first two years—the vines become dry-farmed, because the less water, the more sugar—the better for wine"*. That evidence is not only beneficial to the Lebanese environment but to the global sustainability standards.

4.2.2 Community and Economic Development

Sustainability initiatives by Lebanese wineries benefit the local area where the wineries are located, particularly in terms of boosting the economy and creating employment opportunities. In this case, a hospitality instructor and professional (Stakeholder 1) mentioned that *"The local community benefits a lot from the wine production"*.

season because before production, there's grape harvesting... All of this provides employment opportunities, especially in rural areas like the Bekaa Valley". Furthermore, various stakeholders interviewed emphasized the positive impact of such initiatives on attracting wine tourists.

4.2.3 Governance and Industry Collaboration

Various stakeholders discussed the lack of awareness and government efforts to boost sustainability initiatives, as well as the lack of collaboration between wineries for this benefit. A wine expert (Stakeholder 2) stated, "In Lebanon... we don't have something like they do in France... Unfortunately, such a body does not exist. So, everything is just talk—no proper regulation". Poor collaboration limits large environmental projects and national sustainability goals.

4.2.4 Cultural and Global Positioning

Sustainability enhances the Lebanese local cultural prevenience, and markets the Lebanese heritage globally. One stakeholder (Stakeholder 3) stated, "When tourists come... if they see garbage and plastic bottles everywhere, they're discouraged. But when they visit wineries that follow good sustainable habits, they feel respect for the place and are encouraged to return".

4.2.5 Conclusion

Collectively, stakeholders of the winery sector in Lebanon agree that this sector initiates individual sustainability practices in the absence of any collaboration or governmental policies guiding this behaviour. However, stakeholders still hold hope for the future of this sector, particularly due to its positive economic and tourist impact.

5. Conclusion

This paper employed a qualitative approach to investigate the impact of sustainability practices implemented by Lebanese wineries on tourism and economic development. After conducting interviews with winery managers and stakeholders, the findings demonstrate a moral and strategic direction toward such practices, so as to increase their competitive advantage, increase destination attractiveness, and develop the local community.

5.1 Synthesis of Key Findings

The key findings in this research illustrate that the Lebanese wineries are adopting sustainability practices across environmental, social, and economic dimensions. Environmentally, wineries are adopting natural cooling and energy-saving practices, as well as recycling and organic farming, which reflect a growing environmental awareness. Socially, such practices enhance employment opportunities for locals, boost the business of local farmers, and boost the sense of belonging. Economically, sustainability enhances tourism, brand reputation, and attract eco-conscious customers. Despite their awareness and application, a considerable gap remains in the adoption of these practices between large and small wineries, primarily due to financial constraints and a lack of support.

5.1.1 Theoretical Implications

This research provides additional theoretical framework for researchers about the sustainability initiatives by wineries and its touristic and economic impact within the Lebanese context. Furthermore, it supports the view that sustainability-driven tourism requires not only a moral commitment but also a systematic alignment between ethical motivations, strategic objectives, and policy frameworks.

5.1.2 Policy Recommendations

An effective collaboration between Lebanese wineries and various stakeholders, including the government, should be demonstrated through an association that coordinates the activities of Lebanese wineries. The government should encourage such practices through tax reductions and funding for sustainable practices. The Ministry of Tourism should encourage those practices through foreign promotion of the wineries that adopt such practices. Educational institutions should integrate sustainability into wine and hospitality programs.

5.1.3 Research Gaps and Future Directions

Although this research provides a deep understanding of the role of sustainability practices in the Lebanese winery industry, several gaps exist. To overcome these gaps, quantitative research should be employed to measure the impact of those practices on the Lebanese economy and tourist numbers. Additionally, exploring consumer perceptions of sustainable Lebanese wines and the role of digital marketing in communicating eco-credentials represents a valuable direction for future inquiry.

Given its qualitative and context-specific nature, this study provided in-depth insights for sustainability practices within the Lebanese winery sector, without generalizing the findings statistically. Accordingly, comparative studies between Lebanon and other countries, as well as quantitative studies, are recommended in the future.

6. Limitations

In this research study, several limitations were encountered. First, the sample consisted of six interviewees, which limits the generalizability of the findings. Second, the lack of time restricted the ability to collect additional information. Third, difficulty in reaching the interviewees and taking an interview appointment reduced the breadth of the information collected. Despite these limitations, this study provides useful insights for researchers and policymakers to understand and enhance sustainability in Lebanon's wine sector.

Ethics Declaration

This study adhered to qualitative ethics guidelines to ensure the protection and integrity of participants. Before interviews, participants were informed of the study's purpose, their voluntary participation, and their right to withdraw at any time. During the literature review, proper in-text citations and references were employed.

During the interviews, the participants were informed about the confidentiality of their names. For this purpose, their names were coded during the analysis stage. Moreover, their recorded video and audio were stored on a password-protected device, accessible only by the researcher. Additionally, during the interview, participants were not enforced to provide answers.

After the interviews, the data were analysed without bias and without altering the meaning of the information collected. Finally, an ethical approval form was obtained from the institution to ensure adherence to ethical standards in data collection from humans.

AI Declaration

In this paper, AI was used to refine and edit the paper. To be more specific, OpenAI ChatGPT-5 was used to enhance clarity and coherence, refine language, and improve formatting. Additionally, Grammarly was used for grammar proofreading. However, all interpretations, expressions, and analyses were done by the author himself, and AI did not participate in the data collection or analysis phases.

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