SHIHAB JOURNAL OF HUMANITIES
Volume (2), Issue (4) (October, 2026)
ISSN: 3136-2958

مجلة الشهاب للعلوم الإنسانية
المجلد (2) العدد(4) اكتوبر 2026
عدد خاص بالمؤتمر الدولي الأول لسلاسل الامداد والتوريد والإدارة اللوجستية في ليبيا
26-27 أغسطس 2026

logistics challenges in the restoration of historical building in Libya

Sumaya Abdallah Al-Sarrar,[1]Libyan Academy for Postgraduate Studies, Libya
sumaya.sarrar@gmail.com
Mohammed S.Maddi, [2] Senior Researcher Libyan Authority for Scientific Research, Libya
Muhammed.maddi2@gmail.com

Received: 10/6/2026 Revised: 02/7/2026 Accepted: 30/7/2026 Publication: 7/10/2026

ABSTRACT
The historical buildings of Tripoli old city represent an important part of Libya's cultural and architectural heritage. These buildings reflect the influence of different civilizations, including Phoenician, Roman, Islamic, Ottoman, and Qaramanli periods. However, many of these structures are currently facing serious deterioration due to age, neglect, environmental conditions, and lack of maintenance.
The reconstruction and restoration process faces several major challenges. One of the main challenges is the lack of financial resources and investment required for conservation projects. In addition, the shortage of technical expertise and skilled labor specialized in traditional restoration techniques affects the quality and sustainability of rehabilitation works. Urban expansion and modern construction activities also threaten the historical identity of the old city.
Another challenge is the deterioration of original construction materials caused by humidity, climate changes, and long-term abandonment. Furthermore, the absence of comprehensive documentation and historical records makes it difficult to preserve the authentic architectural character during reconstruction.
Despite these difficulties, A recent restoration campaign in Tripoli old city has contributed significantly to the revitalization of several historic buildings and as a case study, this research focuses on the Galleria De Bono, one of the most prominent Italian colonial-era architectural landmarks in Tripoli. This case study provides an opportunity to assess the challenges and effectiveness of reconstruction and restoration efforts in the historical buildings of Tripoli's old city.
Keywords : Historical building, Reconstruction challenges, Restoration and Rehabilitation, Sustainability, Urban development, Tripoli old city.

INTRRODUCTION

Reconstructing historical buildings presents significant logistical challenges due to the need to balance strict heritage preservation requirements with modern construction demands. Projects often involve fragile, aging structures that require stabilization while integrating contemporary amenities without compromising their historical integrity. Additional complexities include limited access for heavy machinery, reliance on specialized labor and bespoke materials, complex supply chains, and the need to adapt to unpredictable site conditions, all while complying with rigorous preservation regulations.

Studying the logistics challenges involved in the restoration of historical buildings is essential to prevent budget overruns, reduce the risk of structural damage, and minimize project delays. It also enables project stakeholders to address complex issues such as restricted site access, the procurement of rare and authentic materials, the coordination of specialized labor, and compliance with heritage conservation regulations.

Based on these considerations, this research focuses on selected logistics challenges through a case study of the **Galleria De Bono** project. This building was chosen because of its strategic location in the heart of Tripoli Old City, one of the most historically and culturally significant areas in Libya. As a prominent landmark within the city's historic urban fabric, Galleria De Bono provides an appropriate case for investigating the logistical issues associated with the restoration of heritage buildings while preserving their historical and architectural value.



Figure '1' The Photos show the building before starting the restoration
https://compustition.com

If one wishes to point out the research problem, it can be stated that studying the logistics challenges associated with the restoration of historical buildings in Libya is constrained by several factors, including fragmented data, inadequate record-keeping, and ongoing security concerns. Furthermore, the absence of centralized public archives limits access to reliable historical and project documentation. Research in this field is also affected by a shortage of specialists with expertise in heritage conservation and historic building restoration, making it difficult to obtain comprehensive technical knowledge and consistent professional insights. These challenges highlight the need for further research to improve understanding of the logistical issues involved in restoring Libya's historical buildings.

This research adopts a descriptive and analytical research approach. The descriptive approach is used to document the current condition of historical buildings and to examine the restoration process in Libya. This process requires a systematic approach that balances heritage conservation principles with engineering, architectural, legal, and logistical requirements. The analytical approach is employed to compare the recommended restoration process with the actual practices and logistical challenges encountered during the implementation of the selected case study, Galleria De Bono. Through this comparison, the study aims to identify gaps between established restoration

procedures and real-world practice, and to assess how these challenges affect the successful restoration of historical buildings in Libya.

LITERATURE REVIEW

The value of architectural heritage is not only in its appearance, but also in the integrity of all its components as a unique product of the specific building technology of its time

https://www.researchgate.net/publication/390941339_From_'Objects'_to_'Sustainable_Development'_The_Evolution_of_Architectural_Heritage_Conservation_in_Theory_and_Practice

Restoration is an intervention undertaken when the objective is to return a historic building to its appearance during the most significant period of its history. According to established conservation standards, the restoration process begins with identifying the materials, architectural features, and finishes that belong to the selected restoration period. Once identified, these elements should be retained whenever possible through appropriate protection, maintenance, repair, and, where necessary, replacement.

The initial stage of restoration therefore focuses on preserving authentic historic fabric. Conservation measures include protecting existing materials from further deterioration and maintaining them in a stable condition. Where deterioration has occurred, repair is preferred over replacement and should be carried out through appropriate conservation techniques such as stabilization, consolidation, and repair of original materials.

In situations where a historic feature has deteriorated beyond repair, replacement may be justified. However, any replacement should accurately replicate the original feature in terms of design, materials, workmanship, and appearance, while preserving the building's historical authenticity.

Because historic buildings often undergo alterations throughout their lifetime, restoration may also require the removal or modification of features that were introduced during later periods and do not reflect the selected restoration period. Before any such alterations are removed, they should be thoroughly documented through drawings, photographs, and written records to preserve evidence for future research and conservation activities.

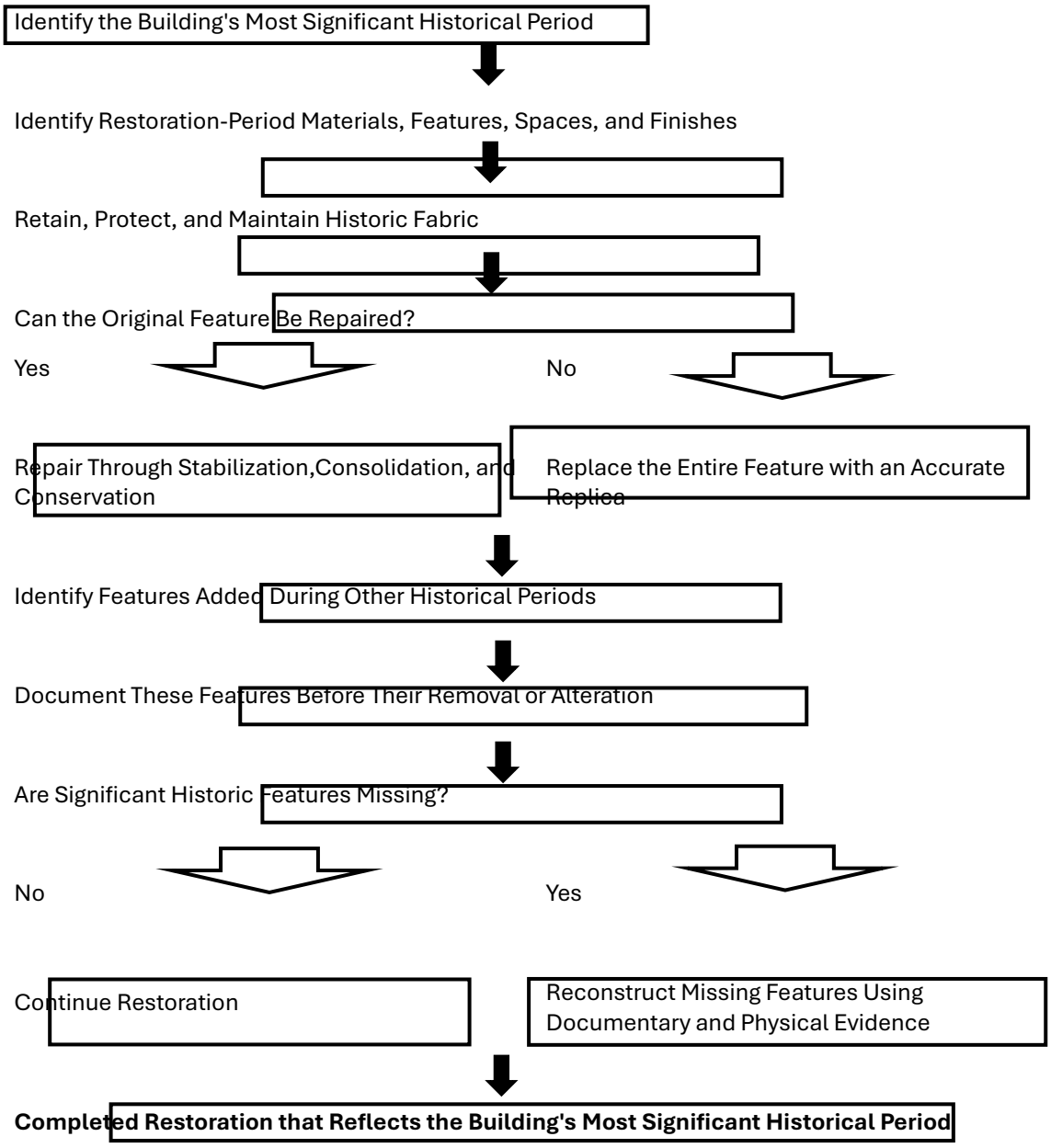
Many restoration projects also involve reconstructing missing architectural features that were historically significant but no longer exist. Such reconstruction should only be undertaken when supported by reliable documentary, photographic, archaeological, or physical evidence to ensure that the restored building accurately represents its historical appearance and maintains its cultural and architectural integrity.

METHODS AND MATERIAL

This study adopts a combination of **descriptive and analytical research designs** to examine the logistics challenges associated with the restoration of historical buildings and their impact on project implementation. The descriptive approach focuses on identifying

and documenting the key logistical challenges encountered during the restoration process, including transportation and site accessibility constraints, coordination among stakeholders, shortages of skilled labour, procurement of traditional construction materials, documentation limitations, and security-related issues. The analytical approach evaluates how these factors influence the efficiency, quality, cost, and timely completion of restoration projects.

Primary data were collected through field visits to the selected case study, **Galleria De Bono**, and by conducting interviews with professionals directly involved in the restoration



project, including engineers, technicians, site supervisors, and other relevant personnel. During these visits, participants were asked a series of semi-structured questions regarding the operational difficulties and logistical challenges they experienced throughout

Figure '2' Historical Building restoration process

the restoration process. The information gathered was then analyzed to identify recurring issues and assess their impact on project implementation.

RESULTS AND DISCUSSION

Based on the findings obtained from the interviews and discussions with the project team, the restoration of most historical buildings follows a series of fundamental stages. Although the sequence of activities may vary depending on the condition and significance of the building, the process generally follows the stages **outlined below**.

Although the restoration of historical buildings follows a systematic process (as mentioned in the previous chart) , each stage presents unique operational and logistical challenges that can affect the project's progress, cost, quality, and completion time. Based on the interviews conducted with engineers, technicians, and other professionals involved in the Galleria De Bono restoration project, some of these challenges can be as following :

1- Constrained Staging Areas: Historical sites often lack the space for large staging areas, material stockpiles, or site offices, requiring "just-in-time" supply chains to prevent on-site congestion.





Figure ‘3’ The project site is located in a highly congested area characterized by heavy traffic throughout the day. The continuous flow of vehicles and pedestrians limits site accessibility, complicates the transportation of construction materials and equipment, and restricts the movement of heavy machinery required for restoration activities.

2- Material Sourcing & Matching: Locating authentic, compatible materials (such as historical brick, timber, or lime mortar) that match the original composition and aesthetic is difficult, as many traditional techniques are no longer standard.

3- Weight Restrictions: Old masonry and wooden structures often cannot support the heavy cranes or transport vehicles required for standard construction, forcing project managers to use micro-cranes or manual labor

4- Specialized Labor: Reconstruction demands artisans, stone carvers, and heritage architects rather than general contractors. This limits the available labor pool and extends project timelines.

Figure 2 restoration of historical buildings process

5- Handling Fragile Artifacts: Dismantling, protecting, and moving existing historical elements (like carved wood or decorative masonry) for off-site restoration requires slow, manual processes, special packaging, and careful inventory tracking.



Figure '4' Handling Fragile Artifacts

6- Compliance Hurdles: Restorations require approvals from strict planning commissions, architectural review boards, and cultural heritage committees, which often slow down or alter the operational workflow.

7- Political Instability and Security: Historical and ongoing infrastructural projects are acutely vulnerable to political unrest, shifting governmental policies, and local militia interference.

8- Financial and Bureaucratic Constraints: Protracted delays are heavily driven by cash flow problems, including slow client payments and the absence of adequate credit. Additionally, excessive governmental bureaucracy often obstructs timely decision-making.

CONCLUSION

In summary, this research demonstrates that the restoration of historical buildings is a complex and demanding process that extends beyond the challenges associated with conventional construction projects. The restoration process is influenced by numerous logistical constraints, including limited site accessibility, strict heritage conservation requirements, the need for specialized materials and skilled labour, structural uncertainties, and complex regulatory procedures. Successfully addressing these challenges requires comprehensive planning, effective coordination among project stakeholders, and the implementation of restoration strategies that balance the preservation of cultural heritage with modern functional, structural, and safety requirements.

Furthermore, the findings indicate that logistics challenges in the restoration of historical buildings in Libya are intensified by the country's unique economic, administrative, and political conditions. Supply chain disruptions, limited availability of authentic restoration materials, shortages of specialized expertise, fragmented documentation, bureaucratic procedures, and ongoing security concerns contribute significantly to project delays, increased costs, and operational inefficiencies. The case study of Galleria De Bono highlights the importance of adopting context-specific logistics management practices, strengthening collaboration among stakeholders, improving documentation and planning

procedures, promoting the use of local resources where feasible, and implementing flexible risk management strategies. Addressing these issues will enhance the efficiency of future restoration projects and contribute to the sustainable preservation of Libya's valuable architectural and cultural heritage.

REFERENCES

1- Dakhil, A. (2013). The contribution of the construction industry to economic development in Libya
2- Doxiadis, A. (1964) Housing in Libya: problems, policies, programmes. Volume two. Athens: Doxiadis Associates.
3- Elmahmudi, A. (1996) The Islamic Cities in Libya: planning and architecture. Berlin: Peter Lang.
4- Khalil, A., Rathnasinghe, A. P., & Kulatunga, U. (2021). Challenges for the implementation of sustainable construction practices in Libya. Construction Economics and Building, 21(3), 243–261
5- Libya Ministry of Planning. (2024). Annual economic performance report 2023. Government of Libya
6- Shebob A. (2012) Development of a methodology for analysing and quantifying delay factors affecting construction projects in Libya. PhD thesis. Teesside University.
7- Wiedemann, A.; Hemmleb, M.; Albertz, J. Reconstruction of Historical Buildings Based on Images from The Meydenbauer Archives.
8- Yasser Korany (2011), Effective techniques for restoration of heritage masonry, International Journal of Materials and Structural Integrity (IJMSI), Vol. 5, No. 2/3, 2011.

Websites used :

9- https://whc.unesco.org/en/list/
10- https://www.tripadvisor.com/Attraction_Review-g293807-d23303345-Reviews-Galleria_De_Bono-Tripoli_Tripoli_District.html
11- https://archiqoo.com/sites/libya.php