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ASSESSING THE PHYSICAL AND FUNCTIONAL CONDITIONS OF MELATI

Noventya Satri Damanik [1], Beny OY. Marpaung [2]

1 Department of Architecture, faculty of engineering, Universitas Sumatera Utara, Medan, 20155, Indonesia

2 Department of Architecture, faculty of engineering, Universitas Sumatera Utara, Medan, 20155, Indonesia

*Corresponding Author: noventyadamanik@gmail.com

Abstract

Traditional markets remain critical socio-economic infrastructures in rapidly urbanizing cities across Southeast Asia; however, many face functional decline due to spatial inefficiencies, deteriorating physical conditions, and competition from modern retail systems. Despite increasing revitalization initiatives, limited empirical research systematically links physical and functional performance assessments to evidence-based revitalization strategies. This study addresses this gap by assessing the physical and functional conditions of Melati Traditional Market in Medan City and examining how these conditions influence its performance as a socio-economic public space. Using a mixed-method approach, the research integrates site analysis, spatial configuration assessment, environmental performance observation, activity mapping, and stakeholder interviews. The findings reveal three interrelated structural challenges: (1) fragmented spatial organization and circulation conflicts between pedestrians, vendors, and logistics flows; (2) inadequate environmental quality, including poor sanitation, ventilation, and lighting; and (3) limited provision of inclusive public space that constrains social interaction and community engagement. These conditions significantly reduce operational efficiency, user comfort, and the market's competitiveness within the urban retail landscape. The study contributes to the literature by proposing a performance-based evaluation framework that links physical-spatial diagnostics with socio-economic functionality, offering a transferable assessment model for traditional market revitalization in emerging cities. The findings provide evidence-informed directions for integrated revitalization strategies that prioritize spatial restructuring, environmental

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1.Introduction

Traditional markets in Indonesia, such as Pajak Melati in Medan, are far more than mere commercial sites; they are the backbone of the grassroots economy and vibrant loci of cultural and social exchange. They operate as essential distribution nodes for goods, providing livelihoods for thousands of micro and small enterprises (MSMEs) and sustaining local food systems. However, in the face of rapid urbanization and the proliferation of modern retail (supermarkets and convenience stores), these traditional institutions face a severe identity crisis.

The existing structure of Pajak Melati, located on Jalan Bunga Sakura, Tanjung Selamat, exemplifies the chronic challenges plaguing many traditional markets across the country. The market's current physical state is characterized by structural deterioration, poor spatial organization, and systemic infrastructure failures. Critically, these failures lead to issues that directly impact public health and quality of life: chronic odor problems, blocked and open drainage systems, limited access to clean water, and unhygienic conditions in the wet goods section. Furthermore, the lack of designated public and social areas means the market primarily functions as a transactional zone, failing to capitalize on its potential as a community gathering point.

The market's decline in appeal is directly linked to these spatial and functional deficiencies. Customers increasingly prioritize the comfort, cleanliness, and organized layout offered by modern retailers. For Pajak Melati to remain competitive and relevant—and to continue supporting the local economy—a fundamental and holistic architectural transformation is necessary. This transformation must look beyond simple renovation. It demands a sophisticated dual-function revitalization strategy: first, addressing infrastructural deficiencies to ensure operational efficiency and hygiene (the economic function); and second, deliberately integrating high-quality, comfortable communal areas to restore the market's vital social role (the public function).

2.Literatur Review

2.1 Analysis of Traditional Market Architectural Theory and Functional Characteristics

The market is defined as the essential mechanism where sellers and buyers meet to conduct transactions, serving as a means for sociocultural interaction, and functioning as a price setter and product organizer, consistent with the Regulation of the Minister of Home Affairs and the view of Said Sa'ad Marthon. Generally, markets are classified as traditional and modern. Traditional markets are built and managed by various parties (from government to self-help groups), characterized by small-scale traders, low capital, and a process of bargaining (tawar menawar). Historically, traditional markets have existed since the era of kingdoms (such as Majapahit) and were initially in the form of open fields without permanent structures before evolving into permanent structures (kios), semi-permanent structures (los), and open areas (oprokan). The traditional market carries a dual function: it not only serves as a medium for distribution and price setting economically, but also as a center for gatherings, information exchange, social activities, and even recreation, making it a regional economic asset as well as a social relationship unifier (Pamardhi, 1997). The distinct characteristic that sets it apart is the humanistic, friendly, and familial relationship between sellers and buyers, which is a sociocultural legacy and a key element in maintaining customer loyalty**.**

2.2 The Concept of Integrating Public and Economic Functions in Market Design

The Concept of Integrating Public and Economic Functions in traditional market design is an essential architectural and urban planning approach, emphasizing that the market must serve a dual role, not only as an efficient transaction center (Economic Function) – where it acts as a distribution node, price setter, and engine for job creation – but also as a vital Public Space for social interaction, cultural exchange, and community service. The Public Function demands that the market be designed to provide comfort, cleanliness, health, and security, preserving humanistic relationships among users. This integration is realized through comprehensive strategies, including: Site Development (such as providing open spaces/plazas as buffer zones and designing efficient circulation), implementing Sustainable Architecture (optimizing natural air and light), and ensuring Public Participation from vendors and the community in the design process, all aimed at creating a market infrastructure that is robust economically and integral socially-spatially.

2.3 Principles of Traditional Market Design for Economic and Social Sustainability

The sustainability of traditional markets—both economically and socially—rests upon three main pillars of architectural design. For Economic Sustainability, the design must prioritize the Flexibility and Modularity of the Sales Space so that stalls can easily adapt to varying business scales and fluctuating demands, thereby maximizing land utilization. This principle is reinforced by Operational Efficiency, where the use of passive/vernacular design (cross-ventilation and optimal natural lighting) and low-maintenance materials can drastically reduce operational costs (OPEX) for vendors. Finally, efficient Logistics Accessibility (separated loading dock facilities) and Transportation Integration must be ensured to smooth the supply chain and increase customer traffic.

Meanwhile, to ensure Social Sustainability, the design focus is on creating optimal Thermal Comfort and Internal Environmental Quality through Vernacular Architecture and adequate sanitation/waste systems to eliminate odors and create a hygienic environment. Furthermore, the market must be transformed into a Communal Space (or a third place) by strategically inserting plazas or rest areas to encourage social interaction and strengthen community bonds. The entire design must adopt the principles of Inclusivity and Universal Safety (Universal Design, ramps, and even lighting) so that the market is accessible and comfortable for all user groups.

2.4 Strategy for Management and Architectural Redesign of Traditional Markets

The strategy for restoring the competitiveness of traditional markets requires a holistic approach across two main dimensions. Physical Revitalization focuses on transforming the market's image into a healthy, hygienic, and ergonomic space, achieved through strict commodity zoning (separating wet and dry areas), perfect drainage design, optimizing natural lighting and cross-ventilation, and widening circulation paths (minimum 1.5 meters) for inclusive accessibility. Architecturally, a contextual/Neo-Vernacular approach is necessary to blend local identity with modern function, while simultaneously expanding the market's role into an Inclusive Public Space by inserting social facilities (co-working spaces, rest areas). On the side of Non-Physical Management Strategy, physical revitalization must be balanced with management professionalization (cleanliness, security, integrated waste management), economic empowerment of vendors (managerial training and digital adaptation such as non-cash payments), and ensuring social-participatory involvement from vendors and the community from the beginning of planning, while preserving the cultural value of bargaining

3. Method

The architectural redesign approach is strategically structured into a comprehensive three-phase methodology—comprising Data Collection, Analysis, and Concept Exploration—all of which are meticulously designed to transform the market into a facility that is not only highly functional and environmentally resilient but also deeply integrated into the local socio-economic fabric.

The initial phase, Data Collection, adopts a multi-dimensional investigative strategy by utilizing rigorous techniques such as Direct Observation, Visual Documentation, and precise Field Measurements to establish a baseline of the current environment, which is vital for identifying and diagnosing critical systemic failures such as inefficient circulation, inadequate sanitation, parking congestion, and a pervasive lack of social interaction space.

The process then transitions into a sophisticated six-stage Analysis Method, ranging from an evaluation of Existing Conditions through Site Analysis and Space Syntax to a detailed User Needs Analysis and Comparative Analysis of successful market benchmarks. These findings are then synthesized through SWOT analysis and Problem–Solution Mapping to formulate the specific design criteria required for the intervention.

In the final phase, Concept Exploration, the study integrates an extensive literature review with the development of a comprehensive site plan that focuses specifically on defining critical spatial zoning, ensuring that the layout effectively delineates and optimizes the areas dedicated to vendors, public access, and logistics operations.

4. Results and Discussion

4.1 Physical and Spatial Diagnostics of Melati Market

Based on in-depth observations and field mapping, a significant discrepancy was identified between the high intensity of economic activity and the quality of physical infrastructure, which continues to undergo systematic degradation. The current spatial configuration of Melati Market reflects unplanned organic growth, where the boundaries

between public space, private space (stalls), and circulation areas have become severely blurred due to the encroachment of informal vendors.

Picture 1 Circulation and Accessibility in pajak melati
Source: Personal (2025)

Circulation and Accessibility Analysis: Utilizing a Space Syntax approach, this study identifies that the market's internal connectivity is at a critical level. Primary corridors, which should function as the lifelines of human movement, have narrowed to a mere 1.0 – 1.5 meters due to the utilization of hallway areas as display spaces for merchandise. This creates severe pedestrian congestion points, particularly during peak morning hours. Furthermore, the external interface along Jalan Bunga Sakura experiences a chronic "bottleneck" phenomenon. The absence of integrated loading dock facilities forces large logistics vehicles to conduct loading and unloading activities directly on the main roadside. The impact is not limited to local congestion but also drastically reduces the Level of Service (LoS) of the urban road network in the Medan Tuntungan region.

Picture 2 Infrastructure Degradation and Sanitation Crisis in pajak melati
Source: Personal (2025)

Infrastructure Degradation and Sanitation Crisis: Structurally, the majority of stalls in Melati Market exhibit signs of "structural fatigue." The use of temporary materials combined with a lack of periodic maintenance has led to a decline in both the visual quality and the structural safety of the buildings. The most critical issue was found within the drainage system; open channels within the market area are clogged by an accumulation of solid waste and decaying organic sediment. Consequently, the hydrological performance of the area is extremely poor. During moderate to high-intensity rainfall—which is very common in Medan—the market area immediately suffers from localized flooding. Stagnant water mixed with market waste creates an unhygienic (slum-like) environment, which directly threatens public health standards and diminishes the dignity of the market as an economic public space.

4.2 Evaluation of Public Space Performance and User Comfort

Melati Market is currently experiencing what can be described as a "functional vacuum," where the traditional market's role as a center for social interaction has been eroded by a narrow focus on economic transactions alone.

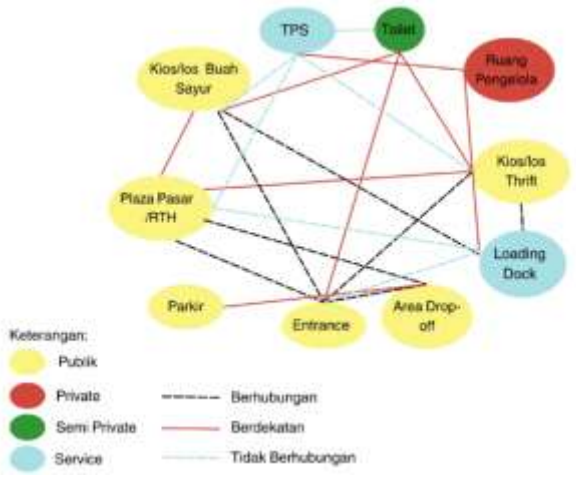
Absence of Third Space: Activity mapping results indicate a critical lack of adequate communal space for visitors and vendors to interact outside of a buying-and-selling context. The absence of green open spaces or public seating areas results in a very short consumer visit cycle, characterized as "transactional-only visits." This deficiency undermines the market ecosystem as a whole, as the facility loses its appeal as an urban social destination.

Thermal Comfort and Environmental Analysis: In terms of microclimate, the current market structures exhibit poor environmental performance. Low-slung corrugated metal roofing without thermal insulation, combined with a lack of openings for cross-ventilation, leads to significant heat accumulation within the buildings. Measurement data shows that the market's interior temperature averages 3°C higher than the ambient outdoor air. High humidity and static air circulation create "heat stress" conditions for users, posing a major obstacle for the traditional market in competing with modern retail outlets that offer controlled comfort through air conditioning.

4.3. Redesign Strategy Synthesis: Manifestation of the "Ruang Sambung" Concept

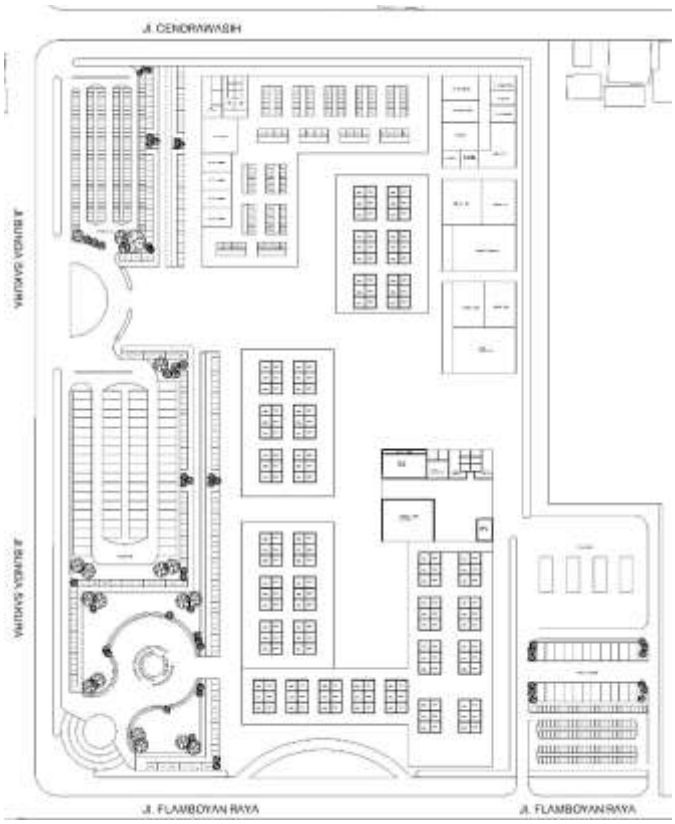
As a comprehensive response to the identified physical, social, and environmental complexities, the redesign of Melati Market proposes an architectural vision titled "Ruang Sambung" (The Connected Hub). This concept transcends conventional cosmetic renovation by offering functional integration through strategic architectural interventions that link economic dimensions with high-quality public space.

Spatial Restructuring and Efficient Zoning Optimization: The redesign strategy implements a hierarchical zoning system based on commodity characteristics and hygiene requirements. A strict separation is established between "wet zones" (meat and fish) and "dry zones" as well as "culinary zones" to prevent cross-contamination and unpleasant odors. The primary circulation paths are re-engineered into linear and radial corridors with a 4-meter width, utilizing non-porous, easy-to-clean flooring materials to ensure smooth human flow and internal logistics mobility. To address external circulation conflicts, parking areas are consolidated into the building structure (utilizing a semi-basement or multi-story parking approach). This step aims to liberate the sidewalks of Jalan Bunga Sakura from vehicle occupation, thereby reclaiming pedestrian rights and enhancing the district's aesthetic and functional quality.



Picture 3 Zonning Program in pajak melati
Source: Personal (2026)

Public Plaza Integration as a Community Catalyst: The design innovatively inserts a "Market Plaza" and an open amphitheater that functions as a functional transition zone between the bustling main road and the core commercial area. This communal space is designed as a flexible vessel for non-economic activities, ranging from MSME exhibitions and local cultural performances to comfortable waiting areas for visitors. By providing an inclusive "third space," the market no longer functions solely as a place for commodity exchange but returns to its role as the social heart of the Medan community, capable of attracting diverse demographic layers, including the younger generation.



Picture 4 Groundplan in pajak melati
Source: Personal (2026)

Sustainable Tropical Architecture and Passive Performance Systems: To mitigate crucial thermal issues, the building is designed using a modern tropical architectural approach. The use of a high-pitch roof system with a double-roof configuration allows for natural ventilation through the stack effect, effectively drawing hot air out of the building's interior. The building envelope is enhanced with a "secondary skin" made from local materials, functioning as a sun-shading device that reduces direct solar radiation while still allowing free air circulation. Furthermore, natural lighting optimization is achieved through strategic skylight placement along primary corridors, minimizing daytime electrical consumption. This approach aims to create a market environment that is healthy, low-emission, and comfortable without relying on expensive mechanical cooling systems, ensuring long-term economic sustainability through operational cost efficiency.

5. Conclusion

The architectural redesign of Pajak Melati serves as a transformative strategy to address systemic spatial degradation, ranging from severe hygiene issues and drainage failures to the erosion of the market's social role due to an exclusive focus on economic transactions. Through

the architectural vision titled "Ruang Sambung" (The Connected Hub), this transformation transcends mere physical renovation by integrating economic dimensions with high-quality public spaces to restore the market's competitiveness against modern retail. The primary strategy involves a rigorous hierarchical zoning system to separate wet and dry commodities, preventing cross-contamination and unpleasant odors, while re-engineering internal circulation paths to a width of 4 meters to ensure inclusive mobility for both visitors and logistics.

Furthermore, the design innovatively incorporates a Market Plaza and an open amphitheater, functioning as a "third space" that encourages social interaction, MSME exhibitions, and cultural performances, thereby reclaiming the market's status as the social heart of the Medan community. To mitigate external traffic conflicts, parking facilities are consolidated within the building structure, effectively liberating the sidewalks of Jalan Bunga Sakura from vehicle occupation and enhancing pedestrian rights. From a sustainability perspective, the application of modern tropical architecture—utilizing high-pitch double-roof systems for natural ventilation and local materials for solar shading—addresses critical thermal comfort issues. By optimizing natural lighting and passive cooling, the redesign creates a healthy, low-emission environment that ensures long-term economic and social sustainability through operational efficiency.

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