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## RECONCILIATION OF SPATIAL AND FUNCTIONAL TRANSFORMATION - LOKANANTA AND RUMAH ATSIRI ADAPTIVE REUSE

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**ABSTRACT**

Buildings are constructed for a variety of different purposes according to the human activities within them. However, with the changing times, the function of buildings can become out of line with current needs. As a result, some buildings are abandoned, becoming neglected, or even damaged. Adaptive reuse can be one of the strategies to 'revive' abandoned buildings. This strategy is an important process in maintaining historic buildings because it can maintain, repair, replace, change, add to dismantle building elements while still avoiding damage to parts that have important value. This process is influenced by several factors, including the cultural integrity and architectural integrity of the building. Therefore, the purpose of this research is to understand the concept of adaptive reuse, in terms of spatial and functional adjustments based on the cultural and architectural integrity of a building. In this research, two museums, namely Lokananta and Rumah Atsiri became case studies. The research method used is the qualitative comparative method, which is to collect data based on existing data and direct observation such as documentation, interviews, and questionnaires. The results of the data from these two buildings were then analyzed by comparing the buildings before and after adaptive reuse to determine the effect of cultural and architectural integrity on changes in space and building functions.

**KEYWORDS:** adaptive reuse, cultural integrity, architectural integrity, Lokananta, Rumah Atsiri

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*Bangunan dibangun dengan berbagai tujuan yang berbeda sesuai dengan aktivitas manusia di dalamnya. Namun, seiring dengan pergantian zaman, fungsi dari bangunan dapat menjadi tidak sejalan dengan kebutuhan saat ini. Akibatnya, beberapa bangunan ditinggalkan, hingga menjadi terbengkalai, atau bahkan rusak. Adaptive reuse dapat menjadi salah satu strategi untuk 'menghidupkan' kembali bangunan yang mulai ditinggalkan. Strategi ini menjadi proses penting dalam memelihara bangunan bersejarah karena dapat mempertahankan, memperbaiki, mengganti, mengubah, menambah hingga membongkar elemen bangunan namun tetap menghindari kerusakan pada bagian yang memiliki nilai penting. Proses ini dipengaruhi oleh beberapa faktor, di antaranya seperti integritas kultural dan integritas arsitektural dari bangunan tersebut. Oleh karena itu, tujuan dari penelitian ini adalah untuk memahami konsep adaptive reuse, dalam hal penyesuaian spasial dan fungsional berdasarkan integritas kultural dan arsitektural suatu bangunan. Dalam penelitian ini, dua museum, yaitu Lokananta dan Rumah Atsiri menjadi studi kasus. Metode penelitian yang dilakukan adalah menggunakan metode komparatif kualitatif yaitu melakukan pengumpulan data berdasarkan data yang sudah ada dan observasi secara langsung seperti dokumentasi, wawancara, dan kuesioner. Hasil data dari kedua bangunan ini kemudian dianalisis dengan cara membandingkan bangunan sebelum dan sesudah adaptive reuse untuk mengetahui pengaruh integritas kultural dan arsitekturalnya terhadap perubahan ruang dan fungsi bangunan.*

**KATA KUNCI:** adaptive reuse, integritas kultural, integritas arsitektural, Lokananta, Rumah Atsiri

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**INTRODUCTION**

Each building has a history and different functions reflected in the building form. An example of a valuable building is a factory that aims to produce a product that meets the needs of society. However, many factories, especially in Indonesia, cannot survive and become abandoned because

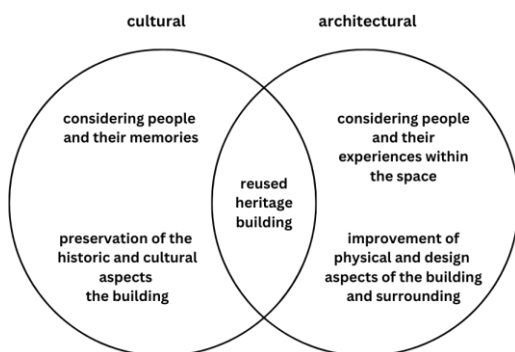
they no longer function. Those abandoned buildings have become an urban problem. Some abandoned factories in Indonesia are the Rangkah Kidul Factory in Sidoarjo, the Gondang Winangoen Sugar Factory in Klaten, the Engsun Building in Tasikmalaya, and many more. However, there have been some successful reuse stories of several abandoned factories. The successful revitalization of two former factory buildings, Lokananta and Rumah Atsiri,

makes these two buildings an intriguing subject for further exploration.

Reconciliation is required to solve problems in abandoned or obsolete buildings. It includes harmonizing and integrating disparate architectural elements or styles to create a cohesive and balanced design. In architecture, it is a way to bridge the gap between the old and the new, preserving the past while adapting to present and future needs. Adaptive reuse has been considered not just a strategy, but a responsibility, to protect historical buildings in the present and future. It is a strategy to repurpose historical buildings and shield them from damage, injecting new materials and ideas while at the same time retaining the original structure and fabric. Preserving and reusing the building is essential for maintaining the culture and history of societies while adapting to meet contemporary needs (Leeuwarden Declaration, 2018).

Adaptive reuse of old buildings presents several complex challenges, including building integrity. This integrity is further divided into four categories: architectural integrity, constructional integrity, structural integrity, and cultural integrity (Douglas, 2006). Each of these aspects poses unique challenges, underscoring the intricacies of preserving historical buildings' cultural and architectural integrity during adaptive reuse.

Therefore, this research will focus on cultural and architectural integrity. Cultural aspects relate to preserving heritage buildings' culture, history, and authenticity. Architectural aspects are more about spatial interventions or assigning suitable functions to improve the qualities of heritage buildings.



**Figure 1.** Bilateral Relationship of Cultural and Architectural Aspects in Adaptive Reuse (Source: Arfa et al., 2022)

Preserving cultural integrity involves ensuring that the new use complements the previous one, acknowledging historic buildings' evolving roles and functions within their communities. This statement is supported by Chandrakar & Singh,

(2022) "To maintain the integrity and cultural significance of building while reusing the historic site must not impact its original cultural significance. Even if different materials are used, buildings should not lose their original significance".

In terms of architectural integrity, adaptive reuse may alter the interior of a building significantly while preserving its exterior. Using original building materials whenever possible helps to define and maintain the authenticity and architectural integrity of the building. Therefore, the adaptation should respect the building's historical context and surroundings.

Adaptive reuse should consider the cultural integrity aspect of its building. The focus in reuse selection should not be the new function's sustainability but rather the building's sustainability that constitutes a cultural property. In sum, the more valuable elements lost, the less successful the adaptive reuse project becomes (ICOMOS, 2010, as cited in Haroun et al., 2019). So, based on this statement, the number of elements that can be maintained measures the success of adaptive reuse on the cultural integrity of a building. When interpreted in architecture, cultural integrity can take the form of the authentic identity of a building itself, such as the original building style and symbolic ornaments. "Other success factors for reuse of heritage buildings, such as making a positive aesthetic contribution to the streetscape, maintaining the feel and appearance of the heritage building, preserving the structural clarification and spaces, creating and providing a unique visitor experience" (Murtagh et al., 2006 as cited in Haroun et al., 2019).

Evaluation criteria (R)	Sub criteria	Evaluation focus
Heritage value (R1)	Protection and enhancement heritage significant (R1)	Depending on a statement of significance of heritage buildings - Whether the proposed use conserve what is left of the heritage fabric, the original building material, the features that produces character and integrity to the building, functional singularity, such as (design of the spaces), the construction singularity - Whether the proposed use safeguard intangible heritage value. For example, purpose use which continue practices and celebrations that contribute to the cultural significance of the place.
Architectural value (R2)	Compatibility (new functional appropriateness to original layout) (R21)	The level of compatibility of the new function with spatio-physical characteristics of the heritage building. (evaluating the new functional requirements to the original design). What is desired to what is actually achieved, in order to be objective in evaluating new functional appropriateness to original layout
	Recognizability of heritage and new function (R22)	The proposed function of a heritage building did not cause the community to forget the past and original functions of the building. For instance, the proposed use should preserve layout, sizing of space
	The respectability of building 's system (R23)	The new use should respect the function of the building's original features and their reciprocal relationships
	Building's physical stability (R24)	The proposed use of the heritage enhances structural durability of the building, and also the feasibility to enhance the structural conditions for the new use

**Figure 2.** Integration of Heritage and Architectural Values with Cultural and Architectural Integrity (Source: Haroun et al., 2022)

According to Douglas, J. (2006), adaptive reuse operates on three distinct scales of adaptation. The small scale involves minor improvements such as repainting, changing the placement of architectural elements, forming new openings, re-flooring, and re-roofing. The medium scale signifies a significant upgrade of surface and components, including a change of building function, improved thermal qualities, and new systems such as an elevator. On the other hand, large-scale remodeling entails extensive work, such as modifying internal and

external structures and reconstructing a new building using a facade retention scheme. Spatial modification is a key aspect of the adaptive reuse method, which can include combining spaces, adding additional space, increasing accommodation, and changing the function of spaces. This analysis reveals three levels of the adaptation scales based on Douglas' criteria (2006), and they suit the architectural integrity category.

**Table 1.** Architectural Integrity Adaptation Scale

Adaptation Scale		
Small	Medium	Large
Minor improvements	Major upgrade of surface and elements	Extensive remodeling
-Repainting -Replacements -New openings -Re-flooring -Re-roofing	-Change of building function -Improved qualities -Add new systems (example: lift)	-Modification of internal and external -Construction of a new building

(Source: Douglas, 2006)

Based on all the literature reviews, we summarized two main aspects of this research, cultural and architectural integrity, which will be used as guidelines in the analysis process.

**Table 2.** Tangible and Intangible Aspect of Cultural and Architectural Integrity

Cultural Integrity		Architectural integrity	
Tangible Aspect	Intangible Aspect	Tangible Aspect	Intangible Aspect
Symbolic ornament	Old activity/behavior	The existing building respects the historical context and surroundings	People's experience of the new space
Original building style	People's memories of the place	Performance improvement in building Iconic/historic building material	

(Source: Murtagh et.al, 2006; Douglas, 2006; Arfa et al. 2022)

In Indonesia, several old factories implemented the adaptive reuse approach. Those are Lokananta and Rumah Atsiri. Lokananta in Surakarta, established in 1956, was originally known as the Radio Republik Indonesia (RRI) Studio. It expanded its services to music recording in the early 1960s, becoming one of Indonesia's pioneering recording studios. RRI later marketed vinyl records produced under the Lokananta trademark. Beyond its recording studio role,

Lokananta archives Indonesia's music history, housing rare and invaluable historical recordings as well as serving researchers, musicians, and enthusiasts.

On the other hand, Rumah Atsiri in Tawangmangu, once an essential oil cultivation and processing factory, faced a halt in operations in 2015 due to the dwindling availability of raw materials. However, in 2018, the factory underwent a transformative revitalization. It was reborn as a building with an educational tourism function, offering various facilities such as a museum, kids lab, restaurant, souvenir shop, essential oil shop, aromatic garden, and Meeting, Incentive, Convention, and Exhibition (MICE) spaces. This adaptive reuse has not only breathed new life into the factory but also significantly contributed to Indonesia's economy, culture, and the preservation of traditional knowledge related to essential oil production, a beacon of hope for the local communities.

Both places have undergone adaptive reuse. Lokananta is now a place for creativity, commerce, and educational tourism. Rumah Atsiri has shifted from an essential oil production factory into a tourism and educational center, preserving its historical and cultural significance. These adaptations allow both factory buildings to continue their roles as cultural and educational destinations. Therefore, this research aims to understand the impact of their artistic and architectural integrity on the spatial and functional use of the buildings or vice versa.

**RESEARCH METHODS**

**Data Collecting Method**

This research used a comparative qualitative approach. It is a data-collecting method in the form of comparisons between existing data and direct observations. The direct observations compared the differences between Lokananta and Rumah Atsiri, especially the spatial organization and room function changes. The observations also collected data from direct interviews with the staff and online surveys with the visitors who experienced the adaptive reuse results from the buildings. The questionnaire collected data on visitors' experience with adaptive reuse through Google Forms. The questions attached are on a scale and have paragraphs with limitations based on the time visits until 2021 due to considerations related to the adaptive reuse process of Lokananta that started in 2021. Feedback was obtained from the five respondents at each location using the Google Forms distributed.

**Data Analysis Method**

This methodology will present a transformation image of the spatial function of these two buildings. The comparative qualitative method will also be conducted by comparing two research studies with distinct historical backgrounds, namely Lokananta and Rumah Atsiri. This

approach allows us to gain a comprehensive understanding of each building's adaptive reuse. The research results will be presented in paragraphs and tables, offering unique insights into the adaptive reuse process. Using and combining these data collection techniques reduced the level of subjectivity in the data analyses, which revealed positive relations between observational findings and questionnaire responses.

## RESULTS AND DISCUSSION

Previous studies, such as 'Revitalization Lokananta Surakarta' and 'Abandoned Building and Revitalization Efforts: Rumah Atsiri Indonesia', have discussed Lokananta and Rumah Atsiri as case studies. However, these studies have not adequately addressed the key aspects of building integrity, as highlighted by Douglas, J. (2006), particularly architectural and cultural integrity. This paper aims to bridge this gap by providing a comprehensive discussion on these crucial aspects, thereby making a significant contribution to the existing body of knowledge on adaptive reuse.

Cultural aspects consider people and their memories. They embrace aspects of preserving heritage buildings' culture, history, and authenticity. Adaptive reuse should respect the building's historical context and surroundings. Architectural aspects in adaptive reuse mean improving the physical and design elements of the building and the surroundings. It considers people and their experiences within the space, so it is more about spatial interventions or assigning suitable functions to improve the quality of the buildings. In terms of architectural integrity, adaptive reuse may alter the interior of buildings significantly while preserving their exterior.

### Cultural Integrity

#### Symbolic Ornament

Symbolic ornaments refer to decorations or ornaments that have representative meaning. The inscription 'Lokananta' is located at the upper part of the museum's entrance. It has been preserved during the adaptive reuse because it holds significant value related to Lokananta's history.



Figure 3. Lokananta in 1956 and 2023  
(Source: <https://surakarta.go.id/> and Author Documentation, 2023)

In the case of Rumah Atsiri, the rosters on the walls are not just decorative elements but symbols of architectural revitalization. As Majid (2022) explains, the choice of the roster shape for the logo was inspired by the rosters on the facade of the Citronella Factory's main building. This choice reflects the spirit of architectural revitalization and the commitment to preserving the old ideals of the factory, demonstrating the role of symbolic ornaments in architectural rejuvenation.



Figure 4. Logo and Roster Shape of Rumah Atsiri  
(Source: rumahatsiri and Author Documentation, 2023)

### Original Building Style

At Lokananta, they preserved the original square-shaped building in an Art Deco style. Geometric shapes, curves, and simple forms with vibrant colors characterize this architectural style (Kinandi, 2018).



Figure 5. Original Square-Shaped Lokananta Museum  
(Source: [instagram.com/lokanantabloc](https://www.instagram.com/lokanantabloc))

Meanwhile, Rumah Atsiri retained its original industrial style in its buildings, demonstrated by the use of unfinished concrete material on the building's facade, the criteria highlighted by Amini et al. (2019, as cited in Pratama, 2021).



Figure 6. Rumah Atsiri in 1999 and 2023  
(Source: [facebook.com/rumahatsiri](https://www.facebook.com/rumahatsiri) and Author Documentation, 2023)

### Old Activity

Museum Lokananta was a recording studio transformed into a museum. Despite the change in function, Lokananta

still produces music, even today. However, the production scale is less extensive than before. The largest music recording room still exists and is located in the northeast direction of the museum building. Sometimes, music rehearsal and performance use the recording room.



**Figure 7.** Music Recording Room Lokananta in 2012 and 2023

(Source: Author Documentation from Archive in Lokananta and [instagram.com/lokanantabloc](https://www.instagram.com/lokanantabloc))

Rumah Atsiri still considers running the essential oil production process an old activity. However, they continue to produce and sell essential oils in the provided shop area, even though the production scale is not as large as before.

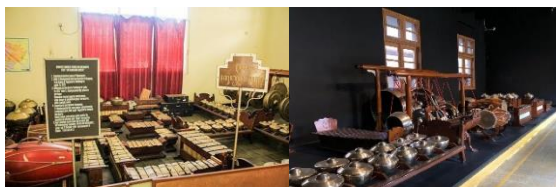


**Figure 8.** Rumah Atsiri in 1999 Became Shop Area in 2023

(Source: [facebook.com/rumahatsiri](https://www.facebook.com/rumahatsiri) and Author Documentation, 2023)

Thus, from both places, we can see that they still maintain activities that have been ongoing since the past, although on a smaller scale.

### People's Memories of the Place



**Figure 9.** Gamelan Room Before and After Revitalized (Source: [www.mymagz.net](http://www.mymagz.net) and Author Documentation, 2023)

As we delve into the history of Lokananta, Indonesia's pioneering recording studio, we find a profound respect for its past in the adaptive reuse process. The main building, once a hub of musical creation, has now been transformed into a museum. Each room is a testament to Lokananta's rich history, housing items such as vinyl records, roll tapes, and gamelan instruments, all carefully preserved for future generations to appreciate.

Internal and external modifications were made to transform Lokananta into a cultural center. The interior was reconfigured to accommodate exhibition spaces, performance areas, and workshops, while the exterior underwent restoration to maintain its iconic architectural features.

Additionally, the adaptation included the installation of modern amenities such as sound and lighting systems to support the diverse cultural activities held within the space. Lokananta maintains the ambiance of a vinyl factory by installing record shelves and recording equipment in its galleries. Many old records are displayed on the ceiling-high shelves.

At Rumah Atsiri, a similar transformation occurred, turning a factory into a museum. Inside, once in use, various oil production tools now stand as silent witnesses to the past. This transformation underscores the importance of preserving cultural heritage and the memories associated with these places. Therefore the authenticity of the identity form of the building must be maintained so that the building is able to communicate through an impression to the user (Artha et al, 2022)



**Figure 10.** Boiler Room Before and After Revitalized (Source: [facebook.com/rumahatsiri](https://www.facebook.com/rumahatsiri) and Author Documentation, 2023)

### Architectural Integrity

#### The Existing Building Respects the Historical Context and Surroundings

The pre-existing structure acknowledges and preserves the historical and environmental context. It indicates that, in the construction or renovation process, attention is given to maintaining or honoring the character and historical context of the location while also considering the surrounding environmental elements. This approach aims to preserve the building's harmony and connection with its location's history and environment.

At Lokananta, the building shape remained unchanged except for modifying the materials on the facade. They altered the lower part of the wall by changing the paint colors and replacing the ceramic materials with natural stone. When old buildings are used as orientation or design resources, they serve as reference points, anchor points, or points of interest (Nugrahani et al., 2017).



**Figure 11.** Lokananta’s Facade in 1956 and 2023  
(Source: <https://surakarta.go.id/> and Author Documentation, 2023)

Based on Lokananta's existence and its relation to the surroundings, the adaptive reuse process led to the construction of new buildings as additional facilities. These new structures respect the historical context and support the new functions that emerged after the adaptive reuse process. At Lokananta, a new area was built on the left side of the main building, with several outlets serving as shops and cafes, complemented by a large field with a tribune that can be used for various events, showcasing the innovative and adaptable nature of adaptive reuse.



**Figure 12.** Outlet and Tribune in Lokananta  
(Source: Author Documentation, 2023)

The facade form of Rumah Atsiri has remained unchanged since its initial construction. It retains the original shape of the building. The characteristics of the roster or concrete material as the primary material on the walls also remain the same. This can be called preventive conservation, in which the actions are indirect and they do not interfere with the structure and materials of objects, it best preserves the items’ authenticity and integrity (Wirilander, 2012)



**Figure 13.** Rumah Atsiri in 1999 and 2023  
(Source: [www.kompasiana.com](http://www.kompasiana.com) and Author Documentation, 2023)

Similar to Lokananta, stakeholders transformed the Rumah Atsiri into a tourist destination with a variety of new attractions and facilities, which involved constructing new buildings to support modern functions, such as a restaurant and an aromatic garden adjacent to the main building (Musfiratun et al., 2021)



**Figure 14.** Restaurant and Aromatic Garden in Rumah Atsiri  
(Source: [missnidy.com](http://missnidy.com) and [kompas.com](http://kompas.com), 2019)

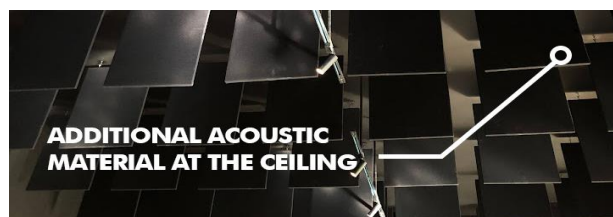
### Performance Improvement in Building

The improvements in the Lokananta Museum are more focused on the interior design and the space's ambiance, like the addition of lighting that suits the needs of each room. Each room in this museum has a different theme. For example, the Bengawan Solo room requires low light intensity to accommodate a projector. Another example is the transformation of the inner yard: the circular pool in the center was changed into a square-shaped one on one side. A large green area in the middle of the building compound is a free open space, supporting visitors' needs to gather and relax.



**Figure 15.** Inner Yard Changes of Museum Lokananta  
(Source: Author Documentation, 2023)

Some additional materials meet the museum's interior needs for the new building, which, in this case, were found in the gamelan room. In this room, acoustic materials were installed on the ceiling to dampen the sound from the gamelan music performance.



**Figure 16.** Additional Acoustic at Gamelan Room Museum Lokananta  
(Source: Author Documentation, 2023)

Rumah Atsiri, in its transformation into a museum, has undergone innovative modifications. The building, originally featuring roster material walls with numerous openings, has been adapted by adding glass or acrylic to the roster holes at a 45° angle. This ingenious solution prevents rainwater ingress while preserving the building's original aesthetic.



**Figure 17.** Modification of the roster in Rumah Atsiri (Source: Author Documentation, 2023)

The building has undergone significant structural improvements, a testament to the meticulous engineering involved in its adaptation. The addition of steel beams and columns has not only enhanced the structure's strength but also demonstrated the professional expertise that went into adapting the building for its new function. Modifying a building's use as fundamental aspects, which involves refurbishing and adapting the building to accommodate changing requirements for use and different types of occupancy, within the same dominant use class, perhaps adding ancillary uses (Kincaid, 2022).



**Figure 18.** Performance Improvement and Ramp as New Access (Source: Author Documentation, 2023)

With the addition of ramps for inter-floor access and the integration of supporting materials such as wood into the museum's floor, the Rumah Atsiri Museum has successfully integrated materials from old and new structures. This additive approach has not only improved the structure and materials but also maintained the overall coherence of the building.

#### Iconic or Historic Building Material

Historic building materials are the original materials in the existing building. There are several

possibilities in adaptive reuse: maintaining, modifying, or replacing these authentic materials. In the case of Lokananta Museum, the original architectural elements identified are the building materials of floors, door frames, and window frames. However, the door and window frames were repainted despite their original materials. Due to their damaged condition, some of the glass in the door and window frames were also replaced. The floor still retains its original material.



**Figure 19.** Architectural Element Maintain and Changes at Museum Lokananta (Source: Author Documentation, 2023)

Meanwhile, in Rumah Atsiri, the original architectural elements can be easily identified on the facade of the main building. The roster material on the facade is highly maintained both in terms of shape and color. There is no repainting or permanent modification of the roster material, especially on the main facade of the building.



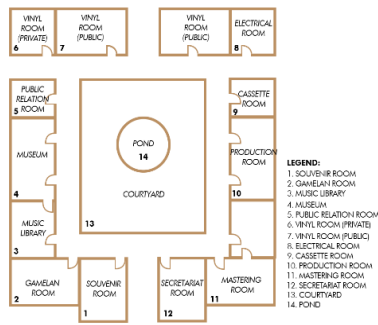
**Figure 20.** Architectural Element Maintain at Rumah Atsiri Facade (Source: Author Documentation, 2023)

#### People's Experience of the New Space

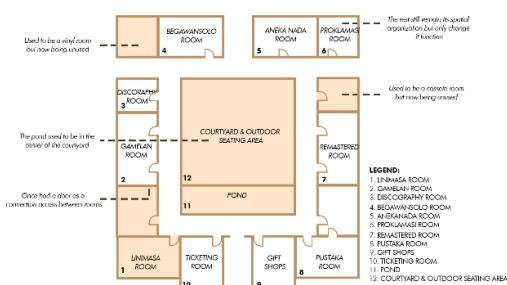
Previously, each room in the Lokananta building had a different function. Spatial organization was irregular, determined by category and accessibility. During the adaptive reuse, there were changes in function and circulation access. The entire building was transformed into a thematic museum with different themes in each room. Adjustments related to space requirements were made to fulfill the new function.

An example is the merging of two rooms into one for space requirements. Formerly a music library, Room One was merged with Room Two, which used to be a mini museum. These rooms originally had direct access, but

due to the transformation, they were either removed or permanently closed off by walls.



**Figure 21.** Spatial Layout of Lokananta in 2019  
(Source: Author Documentation based on <https://www.kompas.id>, 2023)



**Figure 22.** Spatial Layout of Lokananta in 2023  
(Source: Author Documentation based on Information Board, 2023)



**Figure 23.** Closed Door Access to Adjust New Function as Exhibition Permanent Thematic Room  
(Source: Author Documentation, 2023)

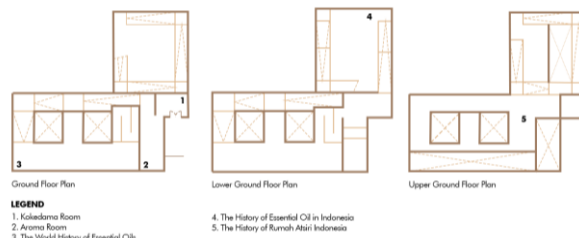
Arfa et al. (2022) stated, “Having flexibility and joinable or dividable spaces is considered evidence of effectiveness.” So, the transformation of the spatial organization during adaptive reuse in Lokananta can be considered effective, as it still maintains the original form of an existing spatial organization while only utilizing new access between rooms and new functions.



**Figure 24.** Aneka Nada and Bengawan Solo Room in Lokananta  
(Source: Author Documentation, 2023)

In terms of interior design, adapting to the thematic exhibition, all room has different concepts. As shown in the image above, there are floor-to-ceiling shelves filled with a collection of vinyl records. Some rooms use interactive projectors, adding an engaging experience for visitors. These additions in the interior spaces effectively convey the history of Lokananta to visitors.

In Rumah Atsiri, one of the buildings in the area that used to be a factory has now completely changed its function to become a museum. Inside the museum, several thematic rooms explain the history of Rumah Atsiri. In this regard, Rumah Atsiri has undergone many changes in its spatial organization.



**Figure 25.** Spatial Layout of Museum Rumah Atsiri in 2023  
(Source: Author Documentation based on Kesumasari, 2020)

The building, which originally consisted of only one floor, now consists of three floors with steel and wood structures to support it. Spaces were reorganized to adjust to their new functions. In each room, there are different installations according to the room's theme. In the Kokedama and aroma rooms, some installations allow visitors to smell and experience the scent of essential oils which gives adventurous feeling and resulting “Learning for Fun” as the visitors got richer experiences because of the freedom in exploring essential oil plants (Kesumasari D, 2020). Meanwhile, in other rooms, visitors are treated with projector rooms as a fun place for taking photos.



**Figure 26.** Aroma Room and Projector Room in Rumah Atsiri  
(Source: Author Documentation, 2023)

The summary of the findings on various aspects of cultural and architectural integrity in Lokananta Museum and Rumah Atsiri is shown in the table 3.



**Table 3.** Cultural and Architectural Integrity Identified after Adaptive Reuse Process at Lokananta Museum

Cultural and Architectural Integrity identified after the Adaptive Reuse Process at Lokananta Museum			
Cultural Integrity		Architectural Integrity	
Tangible Aspect	Intangible Aspect	Tangible Aspect	Intangible Aspect
<b>Symbolic ornament</b> -Symbolic ornament in the form of an inscription that was written as "Lokananta" above the main entrance	<b>Old activity or behavior</b> -From a music production transformed into a museum -The music studio still exists and is being used, not only as a recording studio but also as music rehearsal and performance	<b>The existing building respects the surroundings</b> -The facade of the building has the same shape as the original building. - Construction of new buildings as additional facilities to support the new functions	<b>People's experiences</b> -The transformation of the new function of the room (Aneka Nada Room) offers visitors some experiences like listening to music using cassette tape and vinyl, which is the signature of several Lokananta collections. -Bengawan Solo Room interior used interactive projectors to engage visitor's experience
<b>Building style</b> -The original building style has an Art Deco style, which can be seen from the use of geometric shapes and building forms.	<b>People's memories of the place</b> - Interior room filled with items related to the function of the old building	<b>Performance improvement on building</b> - Modifications of some architectural elements on the facade -The building being repaired, such as changing the broken glass of the window - Remodeling the inner yard into an open space as a sitting area -Addition of specific architectural	

al elements such as lights and soundproofing
<b>Iconic/historic building material</b>
-Some of the original materials are still used in this building such as floor material, door frame, and window frame materials.

(Source: Based on Findings and Literature Review)

**Table 4.** Cultural and Architectural Integrity Identified after Adaptive Reuse Process at Rumah Atsiri

Cultural and Architectural Integrity identified after the Adaptive Reuse Process at Rumah Atsiri			
Cultural Integrity		Architectural Integrity	
Tangible Aspect	Intangible Aspect	Tangible Aspect	Intangible Aspect
<b>Symbolic ornament</b> - The shape of the roster material on the facade becomes a symbolic ornament in the form of a museum logo.	<b>Old activity or behavior</b> - From an essential oil factory transform into a museum and other commercial functions. -The essential oil manufacturing room is still operating and producing even though it is on a smaller scale than before	<b>The existing building respects the surroundings</b> - The facade of the building has the same shape and material as the original building. - Construction of new other buildings as additional facilities to support the new functions	<b>People's experiences</b> - Visitors can learn about essential oils in the museum while experiencing the history of the building that was once used as a factory. -Installation of museums that are interesting and also educate visitors about various essential oils in Indonesia, such as the existing example in the aroma room
<b>Building style</b> - The original building style features an industrial design	<b>People's memories of the place</b> - Interior room filled with items related to	<b>Performance improvement on building</b> - The buildings were repaired as	

supported by the use of its materials	the function of the old building	well as the addition of supporting buildings  - Maintain the main material (roster) but modified with additional glass in some areas  - Addition of new materials to the building such as steel, wood, and glass.  - Adding new floor and the use of new structure.
		<b>Iconic/historic building material</b> -Some of the original materials are still used in this building, especially on the building facade

(Source: Based on Findings and Literature Review)

Based on the tables 2 and table 3, Lokananta Museum and Rumah Atsiri were formerly utilized as factories. Both experienced a period of decline in activities, leading to temporary abandonment. However, due to their deemed historical importance, the stakeholders decided to undertake adaptive reuse of the buildings by preserving, modifying, or adding cultural and architectural aspects with limitations to avoid damage to parts that hold significant values.

Both Lokananta Museum and Rumah Atsiri have diligently preserved symbolic ornaments integral to their history from the inception of their construction. This commitment extends to maintaining their distinctive building styles as a demonstration of respect for cultural integrity. In addressing intangible cultural aspects, both places focus on preserving historical activities, behaviors, and community memories by transforming their functions into thematic museums. Architectural integrity is upheld through the simultaneous preservation of facade structures and main building materials, supplemented by new constructions outside the main buildings to

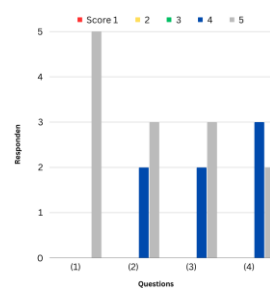
accommodate their roles as museums. Notably, these new constructions adhere to specific limitations in terms of location. Several enhancements, such as window improvement and architectural elements addition like lighting and soundproofing, are implemented to elevate the overall functionality of the buildings. It means the juxtaposition of the new elements in the building enhances the building characteristic without erasing the history of a place (Rakhmanty et al., 2020) The incorporation of diverse room facilities contributes significantly to crafting an immersive historical experience for visitors. These findings are substantiated by questionnaire results from both locations, with respondents, primarily students, providing insights into their recent visits and perceptions related to cultural and architectural integrity aspects.

**Table 5.** List of Questions Regarding Cultural Integrity from Visitors' Point of View

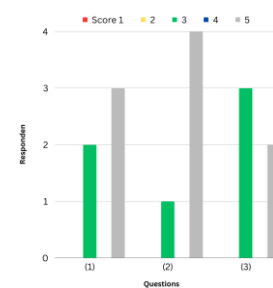
No	Question
1	Is the role of history in preserving a building important?
2	How successful do you think the building has been in adaptively reusing a previous function into a museum?
3	How influential do you think the concept of adaptive reuse is in providing more attraction to visitors?
4	How successful do you think the building has been in maintaining its history?

**Table 6.** List of Questions regarding Architectural Integrity from Visitors' Point of View

No	Question
1	According to you, does the current building still retain its former function?
2	Do you think the spatial layout inside the building is in accordance with its function?
3	Do you think the spatial layout inside still expresses the elements of history in terms of interior and materials?



**Chart 1.** Cultural Integrity in Lokananta from Respondents



**Chart 2.** Architectural Integrity in Lokananta from Respondents

From the analysis of the two tables above, it is evident that all respondents consistently express a high

level of agreement regarding the crucial role of history in preservation efforts. In particular, the historical significance of Lokananta within Indonesia's music industry generates interest among visitors, whether they are looking to explore the country's musical history deeply or enjoy the available facilities. Most respondents also concur that implementing adaptive reuse has successfully adapted the buildings to new functions without eliminating their original distinctive features that define their identity. The museum's spatial layout is also deemed appropriate for its function, and some agree that it effectively expresses historical elements in interior design and materials. This is observed by including historical installations and retaining the original main materials, where the adaptive reuse process creates a 'new' building while maintaining an old ambiance.

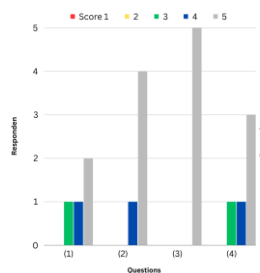


Chart 3. Cultural Integrity in Rumah Atsiri from Respondents

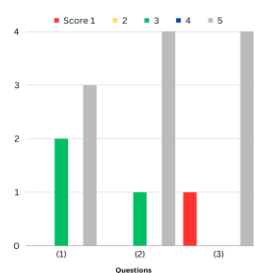


Chart 4. Architectural Integrity in Rumah Atsiri from Respondents

From the respondents' feedback on Rumah Atsiri, it is evident that some agree while others strongly agree on the importance of history in conservation. Based on their responses, some needed more knowledge about Rumah Atsiri's history before visiting it. Some visitors came for tourism or were solely interested in the fragrance products. They became aware of Rumah Atsiri's history after visiting the location. Nevertheless, all respondents unanimously agree that the applied concept of adaptive reuse at Rumah Atsiri attracts visitors, mainly due to the various appealing facilities and activities.

While most respondents agree that the spatial organization within the Rumah Atsiri Museum is suitable for its function, a respondent has raised a valid concern. They argue that the changes in the museum's layout, including the addition of several floors and the rearrangement of spaces, have altered the original form of the building, once an essential oil production factory. This feedback is important as it reflects the need to balance the preservation of historical integrity with the demands of modern functionality.

Therefore, all the findings can be used to establish the adaptation scales in adaptive reuse according to specific criteria, as Douglas (2006) explained.

Table 7. Architectural Integrity Adaptation Scale at Lokananta Museum and Rumah Atsiri

		Adaptation Scale			
Scale	Aspects	Lokananta		Rumah Atsiri	
		In	Ex	In	Ex
Small scale	Repainting	✓	✓	✓	-
	Replacements	✓	✓	✓	-
	New Openings	-	-	✓	-
	Re-flooring	-	-	✓	-
	Re-roofing	-	-	-	-
Medium scale	Change of building function	✓	✓	✓	✓
	Improved qualities	✓	✓	✓	✓
	Add new systems	-	-	✓	-
Large scale	Modification of the building	✓	✓	✓	✓
	Construction of new building	-	✓	✓	✓

In = internal

Ex = external

Source: Based on Findings and Literature Review

In conclusion, based on the table, both Lokananta and Rumah Atsiri have experienced **large-scale** adaptation. They have implemented all aspects on a large scale, such as internal and external modifications and new building construction to support new functions. Internal modifications are measures conducted in the interior spaces of the buildings, while external modifications are improvements and alterations in their exteriors. Lokananta Museum experienced major changes to its external appearance; meanwhile, Rumah Atsiri experienced major changes to its internal appearance.

It is important to note that the results of the large-scale adaptations do not imply a failure to preserve cultural and architectural integrity. The original buildings remain intact, even though they added some new elements inside and construction outside the main structure. Crucially, the latest activities or functions have been carefully chosen to align with the previous ones, maintaining a strong and reassuring connection with the old building's rich history.

## CONCLUSION

Through adaptive reuse, Lokananta Museum, and Rumah Atsiri have preserved tangible and intangible aspects of

cultural integrity: symbolic ornaments, building style, old activities, and people's memories of the place. Both buildings have maintained tangible and intangible aspects of architectural identity: respect for the surroundings, building performance improvement, and visitor experiences.

This transformation offers an immersive historical experience, highlighting how adaptive reuse enhances the functionality and relevance of historical buildings. According to Douglas, J. (2006), building integrity is closely linked to adaptive reuse, suggesting its feasibility for other abandoned historical sites.

This research offers crucial insights for heritage conservation, recommending the preservation of architectural elements and advocating for adaptive reuse strategies that respect cultural contexts, ensuring the long-term viability of sites like Rumah Atsiri and Lokananta as models for cultural and architectural heritage preservation.

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