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# Architectural Adaptation Strategy of Puri Agung Ubud, an Effort to Preserve Cultural Heritage

Nyoman Ratih Prajnyani Salain<sup>1</sup>, Ni Made Mitha Mahastuti<sup>2</sup>

<sup>1,2</sup> Department of Architecture, Faculty of Engineering, Udayana University, Bali

Correspondence: Nyoman Ratih Prajnyani Salain, Department of Architecture, Faculty of Engineering, Udayana University, Bali. E-mail: ratih\_prajnyani@unud.ac.id

## Abstract

Puri Agung Ubud is one of the traditional Balinese palaces that functions as a living cultural heritage (living monument) as well as an important cultural tourism attraction in Ubud, Gianyar. The pressure of modern tourism has encouraged various forms of architectural adaptation, both in spatial function, physical form, materials, and socio-cultural utilization patterns within the palace. This study aims to identify architectural adaptation strategies that occur at Puri Agung Ubud, analyze their impact on cultural values and traditional architecture, and formulate conservation directions that are integrated with the development of sustainable cultural tourism. The research method used is descriptive qualitative through field observations, physical measurements, visual documentation, in-depth interviews with puri administrators and cultural figures, and analysis of relevant documents. The analysis is carried out by linking the concepts of *Tri Mandala*, *Sanga Mandala*, and *Tri Hita Karana* to the puri's spatial system, and applying Schmidt & Austin's typology of adaptation strategies (adjustable, versatile, refitable, convertible, scalable, movable) to four main *palebahan*: *Ancak Saji*, *Semanggen*, *Rangki*, and *Saren Agung*. The results of this study indicate that Puri Agung Ubud is able to maintain its traditional spatial macrostructure and sacred-cosmological orientation, while selectively adapting through changes in spatial functions, hybrid construction techniques, and transformation of architectural elements to accommodate tourism needs, without completely eliminating its authentic value. The main findings indicate that controlled adaptation based on critical conservation has the potential to strengthen the palace's sustainability as a cultural heritage, on the one hand by maintaining traditional practices and on the other hand by opening economic and educational opportunities through cultural tourism. This article offers a framework for architectural adaptation strategies for similar cultural heritage sites in Bali that face similar pressures from global tourism.

**Keywords:** Architectural Adaptation, Puri Agung Ubud, Living Monument, Sustainable Cultural Tourism

## 1. Introduction

### 1.1 Background

Tourism in Bali is growing rapidly and making traditional spaces such as palaces, temples, and traditional villages an integral part of cultural attractions, including the Puri Agung Ubud located in the *catuspatha* of Ubud Village. This development has direct implications for the demands of space utilization, increasing the intensity of visits, and the need for supporting facilities that have the potential to shift the meaning of space and reduce the authenticity of traditional architecture. On the other hand, the Puri Agung Ubud also stands as a living monument that is still actively used as a residence, a center for traditional activities, and a ritual space for the local community, thus requiring an adaptive approach that maintains the continuity of traditional functions and responds to contemporary dynamics.

Traditional Balinese palace architecture is built on a strong cosmological and social value structure, including the concepts of *Tri Mandala*, *Sanga Mandala*, the *Kaja-Kelod* and *Hulu-Teben* orientations, and the harmonious principle of *Tri Hita Karana*. These concepts are manifested in the division of sacred and profane zones, the hierarchy of *palebahan*, the orientation of buildings to the *natah*, and the differentiation of elevations as a sign of the hierarchy of power and sanctity. When a palace must adapt as a tourist attraction, there is a continuous negotiation between the need to preserve sacred spatial arrangements and the demands of new functions such as performance areas, tourist accommodations, and public spaces, so that a careful architectural adaptation strategy is required.

The architectural adaptation of Puri Agung Ubud is not simply a technical matter of changing function and form, but a socio-cultural process that touches on community identity, the legitimacy of tradition, and the sustainability of cultural heritage. Without adequate conservation guidance, adaptation for tourism could lead to cultural commodification, the loss of the sacred meaning of the space, and the degradation of traditional architectural values that have been formed through a long history.

Normatively, the eligibility of Puri Agung Ubud as a cultural heritage is strengthened by Pearson and Sullivan's criteria (aesthetic, architectural, social-scientific, and historical values) as well as the cultural heritage criteria in Law Number 11 of 2010 which requires a certain age and style representation. Puri Agung Ubud fulfills its character as a cultural heritage through its continued social function, its connection to the *Kawitan Dalem Sukawati*, and its role as a medium for education on traditional Balinese architecture. Thus, formulating an architectural adaptation strategy that maintains these values is a priority need, both for local conservation and for the development of a sustainable cultural tourism model at the global level.

### 1.2 Problem Statement

The problems that are the focus of this research are: How is the process of adapting the architecture of Puri Agung Ubud in facing the demands of modern tourism?; How is the impact of this adaptation on the cultural values and traditional architecture of Puri Agung Ubud?; and How can conservation strategies be integrated with the development of sustainable cultural tourism in Ubud Palace?. These three problems are the focus because the existence of Puri Agung Ubud today as a living monument while also experiencing functional development into a cultural tourism attraction which certainly requires architectural adaptation.

### 1.3 Literature Review

Previous studies on Puri Agung Ubud have shown that the palace is an architectural artifact closely linked to systems of authority, cosmology, and traditional socio-political structures. Anak Agung Gde Djaja Bharuna S's dissertation (2020), for example, examines the relationship between the architectural form of Puri Agung Ubud and systems of authority through the perspectives of historical materialism, semiotics, hermeneutics, and deconstruction, and emphasizes the palace as an architectural text imbued with signs and meanings of power. This research demonstrates that changes in palace architecture are never neutral, but are always linked to configurations of power and symbolic meanings.

Another study by Budihardjo (2019) at Puri Saren Agung Ubud examined the influence of tourism on the adaptation of the palace's function, form, and space, and found that functional adaptation is closely linked to the *Tri Hita Karana* philosophy and traditional spatial concepts such as *pempatan agung* and *nawa sanga*. The study

also highlighted limited tourist access as a mechanism for protecting the palace's sacred and private areas. Unlike these two studies, the study on which this article is based focuses explicitly on architectural adaptation strategies, integrating critical conservation and sustainable cultural tourism theories, and operationalizing Schmidt & Austin's adaptation typology in the context of traditional palace spaces. This research can provide an in-depth understanding of the architectural adaptation process of Puri Saren Agung Ubud, identify best practices in the conservation of living cultural heritage, and generate recommendations for the development of sustainable cultural tourism that respects traditional values. The results of this study can serve as a reference for other traditional architectural preservation and adaptation efforts in Bali and other regions facing similar challenges.

#### *1.4 State Hypotheses and Their Correspondence to Research Design*

Based on these research gaps, this study has three main objectives: (1) to identify the architectural adaptation processes and strategies that have occurred at the Puri Agung Ubud in response to the demands of modern tourism; (2) to analyze the impact of adaptation on the palace's traditional cultural and architectural values; and (3) to formulate a conservation strategy that can be integrated with the development of sustainable cultural tourism. These objectives are formulated within a critical conservation framework that views interventions in cultural heritage not only as the preservation of form, but also as a continuous negotiation of meaning and function. Critical Conservation is a conceptual approach that evaluates and challenges the methods and assumptions behind universal conservation practices, initiated by Laurajane Smith. This theory emphasizes the importance of considering the social, cultural, and political contexts in conservation efforts, not only focusing on the physical aspects of heritage objects (Smith, 2022).

A descriptive qualitative research design was chosen to enable a deep understanding of the socio-cultural, symbolic, and spatial contexts of the adaptations. This approach allowed researchers to link empirical field observations with theoretical frameworks of architectural adaptation and critical conservation, and to see how the identified adaptation strategies could serve as models for other castle conservation practices.

## **2. Method**

### *2.1 Research Design*

This study uses a descriptive qualitative method with the researcher as the main instrument, which emphasizes understanding meaning and context for transferability rather than generalization. The descriptive approach is used to interpret the results of field observations, describe changes in space and buildings narratively, and relate them to cultural values and traditional architectural principles that apply at Puri Agung Ubud, especially in the four *palebahan* to be studied, namely *Palebahan Ancak Saji*, *Palebahan Semanggen*, *Palebahan Rangki*, and *Palebahan Saren Agung*.

### *2.2 Location and Object of Study*

The research location is Puri Agung Ubud, located at the *catuspatha* of Ubud Village, namely the intersection of Jalan Raya Ubud, Jalan Suweta, and the corridor to the Monkey Forest, which historically marks the position of the palace as the center of government and the spatial orientation of the village. The boundaries of Puri Agung Ubud are, to the north is *Pamerajan Agung*, to the east Restaurants and Cafes, to the south Ubud Art Market, and to the west Wantilan (Figure 1). The study focused on four *palebahan* that historically became the route of *Mijil Pang Empat*, namely *Ancak Saji*, *Semanggen*, *Rangki*, and *Saren Agung*, which are currently the main locus of adaptation of functions and forms related to tourism activities.

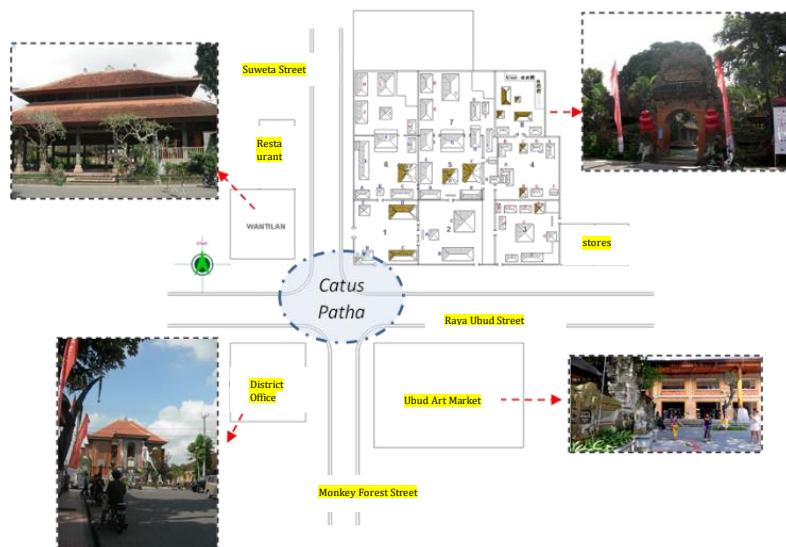


Figure 1: The location of Ubud Palace is at *Catuspatha* Ubud Village

### 2.3 Data and Data Collection Techniques

The data collected includes: (1) spatial-architectural data, in the form of plans, sketches, photographs, and measurements of the dimensions of rooms and buildings; (2) historical and regulatory data, in the form of cultural heritage literature and academic studies on Puri Agung Ubud; and (3) socio-cultural data, in the form of narratives on the use of space, perceptions of the *Penglingsir* and the community regarding adaptation, and patterns of tourism activities in the palace area. Data collection techniques used include field observation, visual documentation, in-depth interviews with *Penglingsir*, palace families, palace servants, historians, and cultural experts, as well as literature studies related to conservation and cultural tourism.

### 2.4 Data Analysis Techniques

Data analysis was conducted in stages using a descriptive-qualitative approach and thematic synthesis. First, the existing condition of the palace was mapped based on the concepts of *Tri Mandala*, *Sanga Mandala*, the *Kaja-Kelod* and *Hulu-Teben* orientations, and the hierarchy of *palebahan* and *bale*. Second, forms of adaptation were identified and classified into four main *palebahan*, using Schmidt & Austin's adaptation typology (adjustable, versatile, refitable, convertible, scalable, movable). Third, the level of adaptation of materials and construction techniques in each *bale* was weighted (scale 1–5 from “completely changed” to “not adapted”) to map the extent of transformation and how it affected cultural and architectural values.

### 2.5 Research Procedures

There are several things that are stages of this research, namely:

- Preliminary studies conducted by means of observation or initial surveys of selected objects/locations in order to further explore points that may be important issues to be raised as the main value of this research.
- Data collection involves compiling data obtained through both direct observation and interviews. Secondary data is obtained through literature related to the research focus. Data and information are then selected to obtain results relevant to the research focus. Data and information that is less relevant or inappropriate can be discarded or slightly ignored.
- Data analysis is the stage in which researchers refocus their thoughts on the main issue behind the research. The theoretical approaches chosen to address the research problem serve as the basis for understanding, researching, and analyzing the research focus.
- Conclusion/data verification (description of findings) is the final stage of data analysis techniques, carried out from the process of identifying and classifying previously discovered or emerging data, and then drawing

conclusions/summaries from the overall analysis results. The final part is preparing a research report and publishing it in an international journal.

### 3. Results

#### 3.1 Spatial Structure and Architectural Character of Puri Agung Ubud

Puri Agung Ubud still maintains the traditional macro spatial structure based on the *catuspatha* pattern as the center of village orientation, with the sacred orientation of *Kaja-Kelod* and *Hulu-Teben* which places the prayer area in the *Kaja Kangin* zone. The *Tri Mandala* concept (Figure 2) is manifested in the division of the *Nista Mandala* zone (*Palebahan Ancak Saji, Semanggen, and Saren Kangin Delodan*), *Madya Mandala* (*Rangki, Saren Kangin Baleran, Saren Kauh*), and *Utama Mandala* (*Merajan Alit and Saren Agung*) which reflect the gradient of sacredness and privacy.

The second concept is *Sanga Mandala* which is a development of the *Tri Mandala* concept with each *mandala* reclassified into 3 areas. The division of areas based on the *Sanga Mandala* concept is: *Nista Ning Nista, Madya Ning Nista, Utama Ning Nista, Nista Ning Madya, Madya Ning Madya, Utama Ning Madya, Nista Ning Utama, Madya Ning Utama, Utama Ning Utama*. The *Sanga Mandala* concept at Puri Agung Ubud is still maintained and believed by members of the palace family and the local community. Each *Palebahan* is limited by a retaining wall and has access to enter and exit in the form of a *kori* (door).

The Puri Agung Ubud is oriented towards *Hulu-Teben* and *Kaja Kelod*, with the sacred area located in *Hulu/Kaja* (North). *Hulu/Kaja* is oriented towards the mountain, believed to be the abode of the Gods, and therefore the prayer area is located in *Kaja Kangin*. Each building is oriented in one *Palebahan* toward the center/*natah*. For example, in *Palebahan Saren Agung*, each building is oriented toward the center (*natah*). Later, *Ida Penglingsir* added a plaza with trees and a fish pond as points of interest.

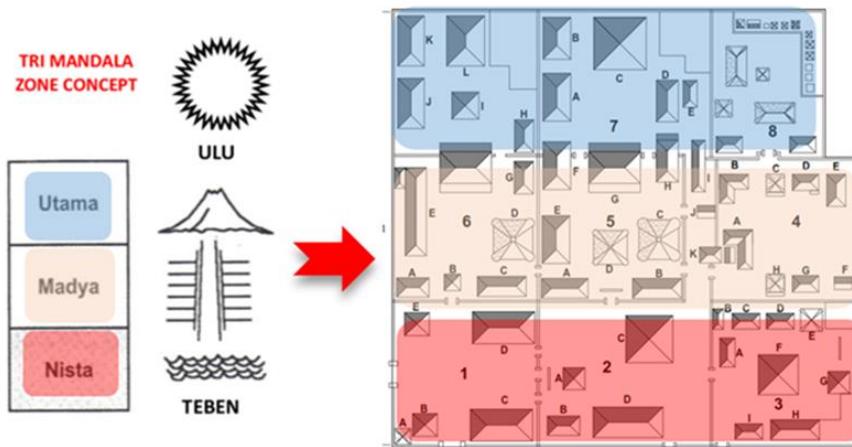


Figure 2: Implementation of the concept *Tri Mandala* at Puri Agung Ubud

The nine *Palebahans* at Puri Agung Ubud tend to rise toward the north, reflecting the surrounding topography. This difference also serves to highlight the distinct hierarchy of values within the *Palebahan*. Furthermore, the hierarchy within the palace can be seen in the differing bataran elevations of each *Bale* within the *Palebahan*. The higher the *bataran* (the bottom of the building/ floor) of a *Bale*, the greater its sacredness and power.

#### 3.2 Forms of Adaptation in the Four Main Palebahan

According to Robert Schmidt III and Simon Austin, adaptation in architecture needs to be done because of several considerations as follows: future preparation, sustainability, lifetime value, and user empowerment. The Future Preparation Factor intends to prepare the building to survive and respond to social, technological, and economic changes over time; the Sustainability Factor intends to extend the life of the built environment, reduce demolition,

construction waste, and embedded carbon; the Lifetime Value Factor intends to increase usability, market value, and resistance to obsolescence; and the User Empowerment Factor allows occupants to adapt and personalize the space as their needs evolve.

The adaptation strategies implemented will be based on the book *Adaptable Architecture: Theory and Practice* by Robert Schmidt III and Simon Austin. The adaptation strategies based on the book are: Adjustable, Versatile, Refitable, Convertible, Scalable, and Movable. The respective definitions are as follows:

- a) Adjustable or adaptable: task/user changes
- b) Versatile or multi-purpose: changing space
- c) Refitable or renewable: performance changes
- d) Convertible or convertible: change of use
- e) Scalable or scalable: changes in size
- f) Movable or able to be moved: changing position (e.g. structures that can be dismantled)

At Puri Agung Ubud, the adaptation process does not occur simultaneously but occurs naturally, one by one, to accommodate the changes that occur. Based on the results of observational studies, interviews, and literature studies, it can be concluded that the factors causing adaptation in the four *palebahan*, namely *Palebahan Ancak Saji*, *Palebahan Semanggen*, *Palebahan Rangki*, and *Palebahan Saren Agung* are: Political Factors, Socio-Cultural Factors, Economic Factors, and Tourism Factors.

The four main *palebahan*, *Ancak Saji*, *Semanggen*, *Rangki*, and *Saren Agung* became the primary locus of architectural adaptation in response to their new functions as tourist attractions, performance spaces, and accommodations. In *Palebahan Ancak Saji* and *Semanggen*, adaptation is evident in the area's functional transformation into a public open space for art performances, guest reception, and tourist circulation, while maintaining the palace's spatial framework and primary visual elements. In *Palebahan Rangki* and *Saren Agung*, adaptation was achieved through the conversion of several pavilions into tourist accommodation (their function has been discontinued since COVID-19) and ATB educational spaces, the addition of sanitation facilities, and modifications to interior elements for the comfort of the palace family staying overnight. However, the facade, main structural system, and traditional roof forms were retained. The addition of a plaza with trees and a fish pond in *Saren Agung*, for example, is a scalable and versatile strategy that increases the capacity and flexibility of the space without disrupting the orientation to the *natah* as the center of the composition.

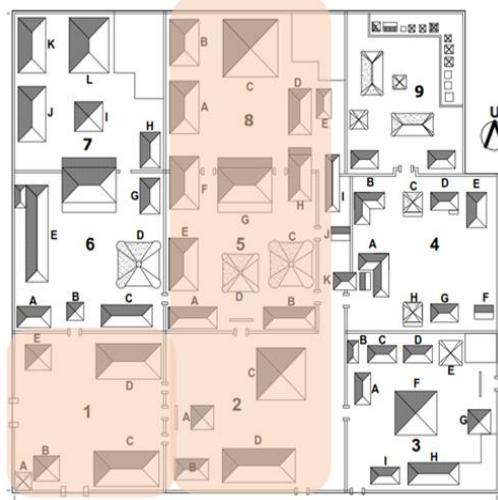


Figure 3: Four *palebahan* that will be analyzed are: *Palebahan Ancak Saji*, *Palebahan Semanggen*, *Palebahan Rangki*, and *Palebahan Saren Agung*

### 3.3 Adaptation of Materials and Construction Techniques

The adaptation of materials and construction techniques at Puri Agung Ubud primarily leads to the application of hybrid construction techniques that combine traditional methods and modern technology. In some *bale* (houses), traditional roof structural systems such as ribs and pyramidal roofs are retained, but supported by reinforced concrete foundations and elements to enhance the building's stability and security. Meanwhile, some natural

materials are replaced or reinforced with modern ones that are more resistant to weather and heavy use, while maintaining a visual consistency with the traditional Balinese architectural language.

The results of the weighting of material and construction technique adaptations show that *Palebahan Ancak Saji* has the highest percentage (around 83.43%), followed by *Saren Agung* (79.29%), *Semanggen* (75.71%), and *Rangki* (71.02%), which indicates that the transformation of materials and construction is relatively limited and tends to be refittable to improve performance without changing the basic identity. The higher the percentage, the smaller the level of change to the original condition, which illustrates the tendency of the palace managers to balance the need for structural strengthening and comfort with the preservation of traditional forms. The weighting results above are due to the respective functions of the palebahan. Palebahan used as housing has a higher adaptation value.

Table 1: Weighting of Material Adaptation and Construction Techniques at Puri Ubud

| No | Name of Palebahan            | Name of Bale                 | Weighting (1-5)     |       |       |                         |       |       | Total |  |
|----|------------------------------|------------------------------|---------------------|-------|-------|-------------------------|-------|-------|-------|--|
|    |                              |                              | Material Adaptation |       |       | Construction Techniques |       |       |       |  |
|    |                              |                              | Sub                 | Super | Upper | Sub                     | Super | Upper |       |  |
| 1  | <i>Palebahan Ancak Saji</i>  | <i>Bale Tegeh</i>            | 3                   | 4     | 5     | 3                       | 5     | 5     | 30    |  |
|    |                              | <i>Bale Penangkilan</i>      | 3                   | 4     | 4     | 4                       | 5     | 5     | 30    |  |
|    |                              | <i>Bale Pegongan</i>         | 3                   | 3     | 4     | 4                       | 4     | 5     | 28    |  |
|    |                              | <i>Bale Pegambuhan</i>       | 3                   | 3     | 4     | 4                       | 4     | 5     | 28    |  |
|    |                              | <i>Bale Gong</i>             | 3                   | 4     | 4     | 4                       | 5     | 5     | 30    |  |
| 2  | <i>Palebahan Semanggen</i>   | <i>Bale Mebaosan</i>         | 3                   | 5     | 4     | 3                       | 5     | 4     | 29    |  |
|    |                              | <i>Bale Semar Pegulungan</i> | 3                   | 3     | 4     | 3                       | 5     | 4     | 27    |  |
|    |                              | <i>Bale Semanggen</i>        | 3                   | 5     | 4     | 3                       | 5     | 4     | 29    |  |
|    |                              | <i>Bale Gong</i>             | 3                   | 3     | 4     | 2                       | 2     | 2     | 21    |  |
|    |                              | <i>Bale Delod</i>            | 3                   | 3     | 4     | 4                       | 4     | 4     | 27    |  |
| 3  | <i>Palebahan Rangki</i>      | <i>Bale Dangin</i>           | 3                   | 3     | 4     | 4                       | 4     | 4     | 27    |  |
|    |                              | <i>Bale Gede</i>             | 4                   | 5     | 5     | 4                       | 5     | 5     | 33    |  |
|    |                              | <i>Bale Femandesan</i>       | 4                   | 5     | 5     | 4                       | 5     | 5     | 33    |  |
|    |                              | <i>Bale Dauh/ Loji</i>       | 3                   | 3     | 4     | 4                       | 4     | 4     | 27    |  |
|    |                              | <i>Bale Pengapit</i>         | 3                   | 3     | 4     | 4                       | 4     | 4     | 27    |  |
|    |                              | <i>Bale Dauh</i>             | 3                   | 4     | 4     | 4                       | 4     | 4     | 28    |  |
| 4  | <i>Palebahan Saren Agung</i> | <i>Bale Gedong Dauh</i>      | 3                   | 4     | 4     | 4                       | 4     | 4     | 28    |  |
|    |                              | <i>Bale Bandung</i>          | 3                   | 4     | 4     | 4                       | 4     | 4     | 28    |  |
|    |                              | <i>Bale Dangin</i>           | 3                   | 4     | 4     | 3                       | 4     | 4     | 27    |  |

### 3.4 Impact of Adaptation on Cultural and Architectural Values

Architectural adaptations at Puri Agung Ubud have produced contradictory impacts between the dimensions of preservation and the risks of change. On the one hand, the use of *Palebahan Ancak Saji* and *Semanggen* as venues for arts performances and cultural activities has revitalized the palace's social function as a cultural center and strengthened its role as a medium for traditional education for tourists and local youth. Preserving the orientation system, spatial structure, and architectural elements is key to realizing the palace as a representation of traditional Balinese architecture with a central function.

On the other hand, the opening up of some of the palace's previously private spaces to become more profane, the addition of modern facilities, and the adjustment of the space's form for accommodation purposes pose the risk of shifting sacred meanings and cultural commodification. This shift could lead to a decline in the spiritual depth of activities taking place within the palace if the tourism market becomes more dominant than customary and conservation principles. However, research findings indicate that as long as the adaptation process is controlled by the *penglingsir* and local community, by maintaining the boundaries of sacred and private areas, these risks can be mitigated and adaptation can actually function as a cultural resilience strategy.

## 4. Discussion

### 4.1 Adaptation as a sustainability strategy for living monuments

The research findings confirm that architectural adaptations at Puri Agung Ubud are not merely a pragmatic response to tourism pressures, but can be understood as a sustainability strategy living monument. By leveraging tourism to support the palace's economy and keep its arts and cultural activities alive, the palace's management reduces the risk of stagnation and physical degradation that often occurs at heritage sites that are fully museum-like.

Within the framework of critical conservation, the intervention at Puri Agung Ubud demonstrates a progressive form of preservation, where the underlying structure and form are maintained while the functions and details of the building are renegotiated to address new needs. This approach reinforces the argument that cultural heritage conservation need not be synonymous with the freezing of form, but rather can be a continuous, adaptive process as long as the fundamental principles of identity and meaning are maintained.

#### *4.2 Integration of Schmidt & Austin's Adaptation Strategies in the Context of Puri*

The application of Schmidt & Austin's adaptation typology to the context of a traditional Balinese palace provides a new perspective for understanding the dynamics of spatial and building change adjustable seen in the rearrangement of furniture layout, usage patterns bitten, and the temporary configuration of the performance space at *Palebahan Ancak Saji* and *Semanggen*, which allows one space to respond to various types of activities without changing the basic structure. Strategy versatile reflected in the utilization *bale* for dual functions, such as receiving guests, practicing arts, and ritual activities at different times.

Refittable and convertible strategies are evident in the addition of sanitation facilities and structural reinforcements in several bales adapted for accommodation, while scalable strategies are evident in the expansion of communal space capacity through landscape restructuring and complementary elements such as plazas and gardens. While movable strategies are less apparent in the context of the palace's permanent structure, the flexibility of non-structural elements such as staging equipment, temporary partitions, and furniture is a crucial component in accommodating tourism activities without altering the permanent structure.

#### *4.3 Implications for Sustainable Cultural Tourism Models*

From a sustainable cultural tourism perspective, the adaptation of Puri Agung Ubud demonstrates that the active involvement of local communities in guiding the direction of change is a key factor in maintaining the balance between preservation and utilization. The decision to limit tourist access to specific palebahan, maintain closed sacred zones, and package arts activities rooted in local traditions are strategies to maintain the quality of cultural experiences without compromising the community's internal rights to its space and rituals.

The adaptation strategy model that is suitable for implementation at Puri Agung Ubud, with reference to Schmidt & Austin's adaptation and Laurajane Smith's critical conservation approach is: Adaptive zoning based on sacredness and access; Controlled hybrid construction; Space function as cultural education; and Community-based tourism management and critical conservation. Each strategy can be realized through strengthening the public-semi-private-private gradation with reference to *Tri Mandala* and *Sanga Mandala*; Combination of traditional structures with modern elements (concrete foundations, connection reinforcement) without eliminating the ATB (Bali Traditional Architecture) face; Development of studios, architectural educational tours, and explanation of the meaning of the palace space; Arrangement of access, visiting ethics, and use of space through deliberations of *penglingsir*, families, traditional villages, and tourism stakeholders. The description of the adaptation strategy model at Puri Agung Ubud will be presented in the form of a diagram relationship (Figure 4)

The measured and gradual adaptation model at Puri Agung Ubud can serve as a reference for other cultural heritage sites in Bali and similar areas, with the caveat that any implementation needs to be tailored to the local social, historical, and spatial context. Integrating a critical conservation framework, architectural adaptation strategies, and principles of sustainable cultural tourism opens the door to developing more comprehensive policy guidelines for the management of traditional palaces in the era of global tourism.

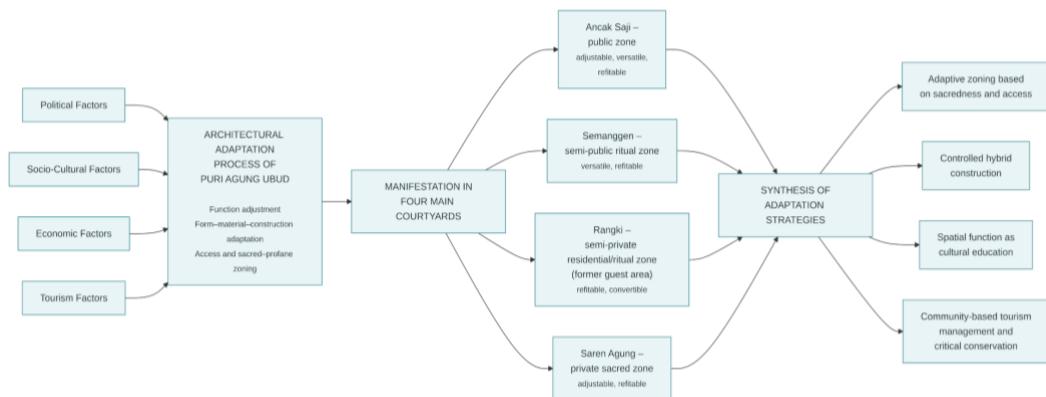


Figure 4: Diagram of the Architectural Adaptation Strategy of Puri Agung Ubud

**Author Contributions:** The contributions of each author to this research can be formulated as follows. The first author conceived the research, formulated the problem statement, developed the objectives, and developed the theoretical framework and concept for the architectural adaptation of Puri Agung Ubud. The methodology, including the development of the qualitative research design, data collection techniques, and analysis strategies, was jointly carried out by the first and second authors. Field data collection through observation, measurement, visual documentation, and in-depth interviews with the palace officials, families, palace servants, and expert sources was carried out by all authors, with the first author primarily responsible. Data analysis and interpretation of the findings, particularly the mapping of adaptation strategies across the four palebahan and the synthesis within the framework of adaptable architecture and critical conservation, were coordinated by the first author with the support of the second author. The first author wrote the initial draft of the manuscript (preparation, methods, results, and discussion), while critical review, scientific editing, and revision were carried out jointly by all authors. Project administration, correspondence with institutions, and assurance of the scientific validity of the research were managed by the first author as the primary responsible person. All authors have read and approved the final version of the manuscript for submission to the journal.

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**Conflicts of Interest:** The authors declare that they have no conflicts of interest that could influence the conduct of the research or the interpretation and reporting of the results in this article. The research was not sponsored by any industry entity with a direct commercial interest in the results of the study of the architectural adaptation strategies of Puri Agung Ubud. All decisions regarding research design, data collection and analysis, manuscript writing, and the decision to submit the article to a journal rest entirely with the research team, without intervention from the funding agency.

**Informed Consent Statement/Ethics approval:** This research focuses on observations of historic buildings and architectural adaptation practices within the Puri Agung Ubud, as well as non-interventional qualitative interviews with the palace officials, family members, servants, and other relevant sources. All interview participants were provided with an explanation of the research objectives, the required form of involvement, and how the data would be used, and they provided informed consent prior to the interviews. The personal identities of the interviewees were kept confidential and used only in aggregate for scientific analysis. This research adheres to the prevailing socio-cultural research ethics principles at Udayana University and respects local customary norms, including the procedure for requesting permission from the officials and customary institutions before conducting fieldwork. Given the non-interventional nature of the research and the absence of medical procedures or human

experimentation, this research is categorized as minimal risk; if required by the journal, the institutional ethics approval number may be included in accordance with the university's ethics committee.

**Data Availability Statement:** The data underlying the findings in this article consist of: (1) field observation notes and architectural sketches, (2) visual documentation (photographs and diagrams) of the condition of the *palebahan* and buildings at Puri Agung Ubud, (3) transcripts and summaries of interviews with informants, and (4) an analysis matrix and weighting of the level of material-construction adaptation in each palebahan. All data are stored in the research team's archives and in the internal repository of the Architecture Study Program at Udayana University. Data may be made available to other researchers upon reasonable request to the corresponding author, provided that access must be approved by the management of Puri Agung Ubud and comply with agreements regarding confidentiality and protection of local cultural values. Data containing sensitive information regarding the internal structure of the palace family or spatial details considered confidential will not be published publicly to maintain the security and dignity of the cultural heritage site.

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**Declaration of Generative AI and AI-assisted Technologies:** This study has not used any generative AI tools or technologies in the preparation of this manuscript.

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