Ancestral and vernacular architecture as contemporary heritage, tourist and cultural resource. The case of the “palafitos” and the route of the 16 UNESCO heritage churches of Chiloé, Chile

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Abstract. The present study aims to explore how spaces designed with ancestral and vernacular architecture can become a heritage, tourist and cultural resource. The analysis of the stilt houses and the route of the 16 UNESCO heritage churches of Chiloé, Chile has been selected as a case study, since: (1) it is an ancestral and vernacular architecture unique in the world, (2) they are part of the cultural and patrimonial tourist offer of the Chilean Patagonia, (3) has a balance of patrimonial and intangible material conservation that has managed to keep the gentrification and identity of the territory under control, (4) its 16 churches have been declared patrimonial by UNESCO. The methodology is developed through the analysis of a complete palafito from the constructive and architectural point of view, together with a church part of the patrimonial route. Followed by an analysis of press headlines and interviews, based on established parameters that allow understanding the link between architecture, transformation into a cultural and tourist resource together, and gentrification. It is concluded that the vernacular architecture of stilt houses and churches in Chiloé configures a valuable contemporary heritage resource that must be preserved and asserted in balance with the tourist dimension that it attracts thanks to its uniqueness.

Keywords: palafitos, vernacular architecture, sustainable heritage development, Chiloé Chile.

1. Introduction
In insular Chile, there is the Chiloé archipelago. Within this group of islands, the island of Chiloé is the largest, it is surrounded by the Pacific Ocean and stands out for being a tourist destination within the country due to the heritage value it has formed over the decades. Centennial churches and vernacular buildings are essential to generate heritage that is valued both nationally and internationally. The arrival of the Jesuits in the seventeenth century was a triggering factor to promote religious architecture and residential architecture. The evangelization process brought with it the construction of...
a series of churches that today, 16 of them are proclaimed world heritage by UNESCO. Within the island they account for the syncretism that occurred between the communities, mainly due to the union between Jesuit ideas together with the knowledge of the tenants regarding materials and the sustainable use of natural resources, the above is interesting because it catalogues Chiloé as a sustainable, safe, resilient and inclusive locality, this being a sustainable development goal SDG11 (UN, 2021) within the United Nations Department of Economic and Social Affairs.

The insular condition and the humid climate in which the island is inserted, promotes the growth of a native forest from which the Chiloe community takes advantage of resources, mainly wood, which plays an important role in generating a territorial and architectural identity. The residential constructions studied in this case are specifically located on the seashore, while the churches are located on the mainland, both built in cypress, larch, mañío, coigüe, ulmo, plum wood, and other species that are used according to the properties that they can contribute to each structure (Novarov, 2017).

The objective of this research is to value the singularities of the Chiloé culture related to its vernacular architecture, through the study of the ideas and successes that this school had within a challenging context in terms of climatic and constructive solutions in the cases of the stilt houses and the churches, the latter colored by an interesting syncretic religious history. This culture and uniqueness is capable of attracting tourism and contributing in the context where it is found as an important economic activity. It is here that the foundations of a symbiotic relationship between tourism and tradition are sought, exploring the conservation of identity and culture, by protecting it from the effects of mass tourism that can cause the loss of identity to make way for the commodification of heritage. [Sputnik, 2017]

2. Theoretical Framework

The architectural responses that are given in front of a given context and the relationships that exist between the environment and the built, are important parameters that define vernacular architecture, an architecture that, although it is typical of each specific locality, have in common that they maintain a relationship with the natural environment. In the case of Chiloé, this relationship is evident in the palatial structures and in the churches that are the object of study because the construction of these is carried out entirely by local woods. Among the most used woods, there is Ulmo (Pastor E, 2018) which is used mainly in the primary structure due to the mechanical properties it has and larch wood, its use as a coating is an identity element for the Chiloé island due to the high presence of this material in buildings within the island in general, it is also identity due to the intense characteristic colour that this wood has and is present in both churches and stilt houses. It is worked as a shingle by carpenters in the area, and it has been used in the same way over the years due to the good properties it has in response to humidity and also to its durability (Novarov, 2017).

The churches of Chiloé are considered of patrimonial value, especially 16 of them that are part of the UNESCO world heritage list (Cultural Heritage, 2019). The arrival of the Jesuits in the seventeenth century meant a process of evangelization that brought with it the construction of a significant number of churches throughout the island, these have attributes linked to construction techniques and the use of technologies that unite Jesuit ideas with those of the knowledge of the islanders, adapting to the requirements of the context and taking advantage of the available materials, wood in particular is the most used for both structure and cladding. In Chiloé there are the southernmost structures on driven sticks that are known, they are called stilt houses and decades ago the first examples were built in response to a need of a part of the population dedicated to fishing (Soto L, 2017). Thus, these structures rest on the edge of the sea and function as an articulator between the mainland and the sea. At present these constructions are of patrimonial and vernacular value not only because of their age, but also because they respond to a sustainable and resilient logic.

The sustainability and resilience framework also includes the inclusion and security of settlements, this corresponds to one of the sustainable development goals SDG11 (UN, 2021) of the United Nations
Department of Economic and Social Affairs. The stilt houses follow a sustainable logic both for the materiality with which they are built as well as for the uses that are given to the habitable volume, which are mainly residential or for tourist purposes, where self-support and maintenance of the structure is essential, especially to face disasters, whether seismic or incendiary, that is why these constructions are also characterised by being resilient. Both stilt houses and churches that are still standing have survived natural catastrophes and have been improved, rebuilt and adapted to new technologies to face these problems and make the constructions safer, this carried out by the islanders themselves to keep the heritage alive and not lose these constructions that make Chiloé a city of vernacular value and a tourist attraction.

The typology of stilt houses with an isolated foundation and with poles driven to the edge of the sea on which a wooden framework rests that makes room for a habitable enclosure, is present in other cases in the world. In the Low Alps there is a model of a palafittic village that develops as a result of reduced groups of family ties, these are declared UNESCO heritage in 2011 (Cultural Heritage, 2019) the first farming communities that settled in Bordeaux, today There are only traces of replicas built that try to simulate how these constructions were in ancient times. On the other hand, there is the capital of the Aztec empire, Tenochtitlán, another case of vernacular architecture, where an adverse soil scenario is managed: They perch on a swampy terrain and that without being stilt houses, a large number of piles were needed to make resistance to the ground and thus being able to build (Pastor E. 2018), or, the case of Little Venice, considered the stilt houses of America, about 44 interconnected cabins and settled on thick posts (Mancilla, 2014), with typologies recognizable from wooden frameworks, unlike the structures of Chiloé, the structure was fragile and of short duration due to the quality of the materials, the floods and the erosion, which is why they are constantly replaced, becoming this vernacular architecture also in a resilient architecture.

Churches such as Santa María de Loreto de Achaos, Jesús Nazareno de Aldachildo, Jesús Nazareno de Caguach and San Francisco de Castro, are part of the list of 16 Chiloe churches declared a UNESCO World Heritage Site for their vernacular architectural value They have, similar cases are found in Romania, the wooden churches of Maramures are also part of the UNESCO world heritage, located in an isolated, quiet area with deep-rooted traditions where interesting architectural solutions are appreciated, among them the church stands out, by Rogoz (Bogdan-Vasile, 2020), contains wooden towers and robust roofs that cover the entire nave, the construction of this church is with elm wood by local carpenters using the “Blockbau” construction technique. Similar is the case of churches in Russia, such as the Kizhi Pogost Ensemble, a UNESCO World Heritage Site (Popov NL, 2010), where the arrival of Christianity in the 10th century meant the construction of thousands of churches throughout the country, where the Wood was a leading material in architecture until the 18th century. The group of churches, as in the case of Rogoz or the Chiloe churches, was built by local carpenters and craftsmen, this being another case of vernacular architecture, demonstrated by the mimesis between the ideas of the Christian church and the knowledge of the tenants.

3. Methodology

For the methodology, we work from three perspectives, firstly, a descriptive analysis based on secondary sources related to the case study is carried out. Secondly, a constructive analysis of a palafitte and the churches selected in this study is made, with the aim of understanding from a material edge how the architecture adapts to the context where they are located. Finally, and understanding that the objective of this paper is to understand the link between architecture, culture and tourism (considering all the derivations that this triad may have today), an analysis of press headlines will be carried out based
on specific parameters, with the aim of understanding, from a more everyday perspective, the reflection that the media provides of the case we are studying.

For the preparation of the cloud of words, the words “architecture+ancestral+chilota+church+stilt houses+2021” will be searched within the Google search engine. Fonts containing the word “stilt house(s)” and/or “church(es)” and 6 headlines will be selected from the first 5 Google search pages. The result will be a cloud of words that shows the elements that are repeated the most in the web results found. It is expected that these concepts are related to the theme of this paper, related to heritage, tourism and culture as resources to be used as needed by each edge.

Reasearch table:

| Headline                                                                 | Source                                                                 |
|--------------------------------------------------------------------------|------------------------------------------------------------------------|
| Umberto Bonomo: “Chiloe architecture is traditional, intelligent and sustainable” | https://www.pauta.cl/ciudad/umberto-bonomo-arquitectura-chilota-es-tradicional-inteligente-y-sostenible |
| Edward Rojas: Architecture of Chiloé, a brief personal history of an epic | https://colegioarquitectos.com/noticias/?p=16479                     |
| Chiloé, the Chilean archipelago of Nueva Galicia                          | https://www.eldiario.es/viajes/grandes_viajes/chiloe-archipelago-chileno-nueva-galicia-chile_1_7876218.html |
| The strange wooden churches of Patagonia (CHILE)                         | https://histambar.com/es/blog/las-extranas-iglesias-de-madera-de-la-patagonia-chile/ |
| The wooden treasures of Chiloé Island                                    | https://www.lavanguardia.com/ocio/viajes/20181105/45266/8210106/tesoros-madera-isa-chiloe.html |
| Edward Rojas: a National Architecture Award for Chiloé                   | http://fau.uchile.cl/noticias/130846/edward-rojas-un-premio-nacional-de-arquitectura-para-chiloe |

4. Results

Today, Chiloé is characterised by such cultural wealth that it has transformed it into one of the most recognized tourist destinations in Chile. The recognition goes hand in hand with the image that was built of the place, both for the interior of the archipelago and for the exterior, as a postcard or cover letter, which combines architecture, geography and culture as tourist attractions to consume.

To understand this, given that it is a relatively new phenomenon (Soto, 2017), it is first necessary to account for how this imaginary was born and consolidated until what is known today. The roots of this are found in the process of cultural syncretism resulting from the interaction between indigenous peoples, mainly Huilliches and Chonos and the Jesuits, during the evangelising missions they carried out (Rojas, 2021; Gonzales, 2013). Although this relationship was not the first contact between these peoples, it did mark the beginning of the interactions that resulted in a mixture of key knowledge to understand the cultural richness of the archipelago. This syncretism laid the foundations for the conformation of a vernacular architecture characterised by a specific carpentry style currently known as the Chilota school of architecture (Sub-secretariat heritage, appointment), and also gave way to a rituality and religiosity that mixes beliefs typical of Catholicism with Aboriginal myths and legends. In this sense, the origin of the island is associated with the legend of Ten Ten Vilú and Cai Cai Vilú and how their dispute terraformed the archipelago, but on the other hand, mass is celebrated every Sunday inside the church of each town (Rojas, 2021; Gonzales, 2013). Thus, syncretism is transformed not only into a material base from the architectural perspective of a vernacular style, but also gives way to the formation of a specific culture that finally shapes a society that functions based on its beliefs and how it
builds a society, identity strongly rooted in the population. The relationship is such that the built body of the peoples of Chiloé is recognized as the materialisation of an ancestral culture, which finally becomes a living heritage, understanding the relationship between everyday life and culture as a dynamic process in constant change with respect to the step of time and what it demands.

Another factor to consider is the geography of the archipelago, which, beyond the obvious insularity, is characterised by three main macroelements: the sea, the land and the edge of the sea. The first is mainly characterised by its dual condition, of limit and means, understood as a container of the land, as a productive space and as a connection route between the various islands. Land, in turn, is presented as limited available space, both from the productive and urban perspective, therefore, it becomes a finite geographic resource. On the other hand, the edge of the sea appears as a fuzzy boundary between the two elements already mentioned, a relationship space that varies as the tide changes throughout the day (Rojas, 2021).

From here two key factors stand out to understand the development of a particular architectural style that is currently valuable: the limitation of the resources available to build from the finite perspective of the land as a productive space, and the creation of an architectural style that mixed knowledge of the land of the original peoples with the construction techniques and knowledge of the Europeans, which ultimately results in the transformation of wood as the flagship material to build in the archipelago. The material was presented as a response to construction needs first because of its availability and abundance within the islands, added to the impossibility of bringing materials from the mainland. Although this implies a kind of forced use due to the null options, the capacity of the material to respond to the climatic characteristics of Chiloé also influenced, where elements such as rain and humidity condition living. Thus, wood becomes the icon of the vernacular Chilote, not only from a material perspective, but also from a cultural perspective, thinking about the mastery that was had.

This architectural style, framed within the Chiloe school of architecture (Subsecretariat, appointment) was characterised by the construction of low-rise houses and gabled roofs, ideally separated from the ground by piles, where the full predominates over the void to be able to better preserve the temperature inside the home. For this same reason, the spatial configuration took the kitchen as its centre, which through a main stove heated the rest of the home (Rojas, 2021, Riveros and Tendero). This typological base derives from the two most recognizable elements of Chiloé architecture today, which are the main icons of its imagination: the stilt houses and the churches of Chiloé. The palafito finds its origin in the late 19th and early 20th centuries (Rojas, 2021; Pastor, 2018) under the framework of the country-city migration that was lived in the archipelago during this time. This was born as a response to the scarce availability of land to build a house, therefore, families generally associated with fishing as a productive activity decide to self-build their house on the edge of the sea. The house maintains the typological logics previously exposed, but taking the separation from the ground to the limit, being built on a platform supported by piles over the sea, establishing a constant relationship with it and its tide changes, transforming it into its backyard and building a new facade towards him. From the point of view of materiality, wood does not require a complementary treatment or material to function thanks to lace and tongue and groove techniques. In a rainy and cold context like that of Chiloé, the wooden cladding inside the houses helps to maintain the heat generated by the kitchen located in the centre of the house thanks to the low thermal conductivity of the material (Domingo de Miguel, 2012) avoiding that heat seeping through the walls. At the same time, thanks to species such as mañío; pellín; larch; raulí and coigüe, are autochthonous, have resistance to humidity, (Galdames, 2019 natural characteristic since it is a species that evolved in a humid climate, to which it responds well. These woods were used by the Chilotas to make wooden tiles, which, along with avoiding the infiltration of moisture in a rainy climate close to the sea, provided a value to their architecture due to the use of wood,
a unique material for their manufacture, as for the aesthetic language that it manifests in its facades. There is work on the texture, or "skin" covering the architecture, as well as the use of striking colours, which serve to differentiate the homes, and for location and orientation purposes (De la Sotta, 2009). Structurally, wood, being a light and ductile material, responds well to earthquakes that usually occur in Chile.

Thanks to the logic of the sea edge, in which the street is on one side of the palafito and the sea on the other, these houses enjoy cross ventilation. This natural ventilation occurs when the openings in a certain environment or construction are arranged in opposite or adjacent walls, allowing air to enter and exit. (...) renewing it and considerably reducing the internal temperature. (Pereira 2019) This measure, together with that of wood as a heat preservative thanks to its insulating qualities, forms means of passive qualification, avoiding the unnecessary waste of energy by taking advantage of the benefits that nature offers. For their part, the churches arise due to the importance of religiosity for the Chiloe communities.

This is how practically every town throughout the archipelago has its own church, the result of the efforts of each community to build, administer and maintain it. Such is the importance of this building, that it becomes the gravitating centre of each town and is even presented as a lighthouse, thinking about the constant relationship with the sea that insularity implies. Thus, life develops around them (Vidal, 2020).

![Figure 1. Stilt house analysis. Own Elaboration](image1)

![Figure 2. Stilt houses sketch. Own elaboration](image2)

Today it is possible to recognize approximately 152 churches throughout the archipelago (Araya, 2020), of which 16 were recognized as World Heritage by UNESCO, but regardless of this, all are part of the Chilota school and its vernacular. In this sense, understanding that the typological base of the Chilote vernacular is more associated with housing, the churches have their own logics that include certain aspects, mainly materiality, and constitute their own architectural style, where although it is possible to recognize each one from its individuality with its own identity, there is a typological base that corresponds to the Chilota school almost as a hallmark. Thus, the churches are based on simple geometries with a gabled roof. They make up its front by building a facade tower that functions as a
portico and main face. The interior space is built through three naves, a central barrel that ends in the altar, and two lateral ones that end in the sacristy and the counter-sacristy (Rojas, 2021). Beyond this, each adapts the model to some extent to achieve the aforementioned individuality (Figure 4). The carpentry expertise in this type of church is such that it works almost like a prefabricated structure, allowing its assembly and disassembly since the union between construction elements is carried out through joinery and joinery joints, such as box and tenon, reducing to a minimum the need for nails or other items. In this sense, each encounter is related to the previous one and the one that follows, almost like a puzzle (Goldsack, 2020), which finally allows an exceptional level of restoration, reaching the construction of the same church from scratch if required.

Figure 3. Facades of four World Heritage churches; from left to right, Santa María de Loreto de Achao, Jesús Nazareno de Aldachildo, Jesús Nazareno de Caguach and San Francisco de Castro. Own elaboration.

Both elements are recognized as icons of the archipelago, without going any further there are heritage and tourist routes to get to know the churches and stilt houses like Pedro Montt and Gamboa, both in Castro, which are highly demanded as objects of tourism to such an extent that today they live a process of programmatic reconversion focused on tourism, leaving aside the houses to intervene and transform this typology into boutique hotels or specific shops, among other programs, which finally work in sync with tourist and recreational activity (Soto, 2017). Regarding the value of churches, not only of the sixteen that are recognized by UNESCO, it is associated with the notion of living heritage, where the church is transformed into a place where a culture is constantly manifested. In this sense, beyond the image that goes outwards given the declaration, recognition goes hand in hand with a community that materialises their beliefs and their identity as chilotes in these objects, thus they become physical support of immaterial values associated with the cultural wealth of the archipelago. Along the same lines, the patrimonial valuation of the churches depends clearly on their context, therefore, their decontextualization means the transformation of the building into an element of purely architectural interest in terms of its construction techniques, but it would lose all a cultural support that justifies his existence. Something similar happens with the stilt houses, which despite the programmatic reconversion and the structural changes that this implies, forcing the typology to adapt to new types of habitability, continue to be valued by representing the materialisation of an ancestral culture, a style of life and an identity. The resistance of the typology to the changes that tourism implies also poses it as an example of urban development, transforming these neighbourhoods into centres of both commercial activity and social interactions, where, if an intervention is achieved that responds both to the new requirements as to the cultural load in the correct way, the way would be paved for a sustainable development in relation to tourism, assuming that the bad implementation of these new dynamics can bring with it problems such as gentrification or the like.

Omitting the latter since it would imply a study completely focused on the subject to characterise it correctly, it is important to understand that, assuming that the tourist dynamics are already implemented within the archipelago to stay, therefore, the current task is to integrate them within the patrimonial
dynamics without affecting its operation, transforming Chiloé into a kind of theme park full of objects without context, it is necessary to implement a sustainable development model that allows the development of tourism, also understanding its importance for the local economy (Soto, 2017) from a comprehensive perspective of the patrimonial dynamics of Chiloé, assuming that both the stilt houses and the churches are inserted within this cultural framework. In this sense, the material cannot be separated from the immaterial within tourist activity, assuming that the exploitation of Chiloé heritage as a cultural resource should not be based on scenographic logic, but rather showing a way of life through the material objects that it's made of. This is not only justified by respecting the local culture, but also by considering tourism as an opportunity to consolidate and promote a cultural wealth that, although it has a good foothold, is considered as an element worth preserving within its own dynamics and rhythms.

With this in mind, and thanks to the work carried out with the press headlines mentioned in the methodology of this work (Figure 4), it is clear that the discourse that is given regarding the archipelago, both inside and outside of it, considers the points mentioned, focusing mainly on its architecture, but without neglecting the cultural aspects. The ideal case for a balance between tourism and culture would be that the concepts related to the latter achieve an equally important role as what is built, not only due to issues of visibility to the outside, but also because the understanding of the material in terms of the cultural, their almost symbiotic relationship, is fundamental for the correct understanding and tourism development of Chiloé.

![Figure 4. Resulting word cloud. Own elaboration.](image)

### 5. Conclusion

- Because the Chilota culture has its own tradition and a unique history linked to the indigenous peoples of the Chilean southern zone, the archipelago has a great tourist attraction.
- Because tourism has become one of the main economic activities in Chiloé; It should be considered as a weight factor for the decisions made for the development of the island.
- Tourism is based on the existence of a clear, unique and identifiable cultural heritage, with numerous contributions in construction techniques and the ability to adapt to its context.
- For the sustainable development of both factors, the tourism - culture relationship must be developed with a comprehensive view of all the factors that transform heritage into an...
exploitable cultural asset, understanding that it has dynamics generally associated with its direct population or associated users that are fundamental for its heritage status.

- To avoid a parasitic relationship, a symbiotic and balanced relationship between cultural identity and tourism must be established. With main focus on culture as a complex and non-tradable identity. Tourism as a practice can be replicated in other parts of the world, but the culture and history of Chiloé is only one and cannot be put at risk for the sake of generating development based on tourism.

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