

How to design (and assemble) a Pavilion

Mastercard's Tourism Innovation Hub experience

modularidad
repetición
mastercard
ensamblaje
efímero
modularity
repetition
mastercard
assemblage
ephemeral

El objetivo de este ensayo es ilustrar un enfoque muy personal y general del concepto de "temporalidad" en la arquitectura contemporánea. Con el ejemplo empírico del Tourism Innovation Hub (TIH) de Mastercard intentaremos guiar a nuestros lectores a través de los significados de modularidad, repetición, transporte, sistematización, economía, fácil montaje y desmontaje, calidad dentro de la idea central de la arquitectura efímera. Comenzando con una breve introducción sobre lo que significa "temporal" (como lo opuesto a "permanente") desde el tratado romano Vitruvio hasta algunas propuestas efímeras contemporáneas y una descripción más extensa de nuestro TIH como una forma moderna de reinterpretar el famoso "Ballon Frame" de Agustín Taylor, que se desvía hacia la creación de un oasis tridimensional de Hans Arp. Un stand/pabellón que aborda la temporalidad desde el inicio del proceso de diseño hasta la última fase de desmontaje y almacenamiento.

The goal of this essay is to illustrate a very personal yet general approach to the concept of "temporality" in contemporary architecture. Using the empirical example of Mastercard's Tourism Innovation Hub (TIH), we will attempt to guide our readers through the meanings of modularity, repetition, transportation, systematisation, economy, easy assembly and disassembly, and quality within the core idea of ephemeral architecture. We will start with a brief introduction to what "temporal" means (as the opposite of "permanent"), tracing the concept from the Roman treatise by Vitruvius to some contemporary ephemeral proposals. Following that, we will provide a more extensive description of our TIH as a modern reinterpretation of Augustine Taylor's famous "Balloon Frame," leading to the creation of a three-dimensional oasis inspired by Hans Arp. The stand/pavilion addresses temporality from the inception of the design process to the final phase of disassembly and storage.

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Citation: Luengo Angulo, M., Carrillo Andrada, J.A. (2023). "How to design (and assemble) a Pavilion" UOU scientific journal #06, 126-135.

ISSN: 2697-1518. <https://doi.org/10.14198/UOU.2023.6.13>
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Received: 09/10/2023
Received in revised form: 09/11/2023
Accepted: 17/11/2023



TEMPORALITY

Nothing lasts forever; that's a fact. Yet, architecture possesses a certain essence of eternity, dating back to Vitruvius and his famous triad in which *utilitas* (utility) and *venustas* (delight) were accompanied by *firmitas* (firmness). Our discipline pursues durability and firmness in a quest where the upper limit of durability is not usually the subject of discussion (few clients ask you to design a house that will last only 2 years), and the lower limit remains undefined. Most of the times.

However, there is a branch of architecture that explicitly embraces its ephemeral character, lasting only one day in its Greek etymology, or its temporal character, lasting a short period of time in Latin. This disciplinary oddity is precisely known as 'ephemeral' or 'temporary' architecture. To be classified as such, it must actively incorporate the temporary nature into its design and fabrication, rather than merely refraining from denying it. In short, it must emphasise and make its ephemeral condition obvious.

For example, the Nazi German pavilion at the 1937 Paris World Fair (designed by architect Albert Speer) cannot be conceptualised as ephemeral architecture because it exhibits a kind of materiality (it looks heavy), symbology (classically inspired), and conservatism (opposite to experimental) improper for the ephemeral. On the contrary, the pavilion for the Serpentine Gallery in 2015,

designed by Selgascano, is especially exemplary, starting with its functionality (very 'relaxed' as it is a pavilion), beauty (very unusual and even strange in appearance), and solidity (a stable piece, but so light conceptually and materially that it seems as if it could fly away). As for not only temporary but also commercial pavilions, it is worth mentioning Renzo Piano's IBM Travelling Pavilion in early 1983. The project states:

"The pavilion is a transparent tunnel, sitting on a raised platform that houses its supporting services. It is 48m long, 12m wide and 6m high. In order to facilitate easy assembly, disassembly and transportation, the enclosure is made of modular, repetitive elements of wood and polycarbonate. These elements are connected together by carefully crafted aluminium joints to form the weathering envelope as well as its structure".

This structure is not only important for its attention to modularity but also because it is designed and manufactured to be assembled, exhibited for a month, and then dismantled at each of its 20 European locations, including Milan, London, Rome, etc. The explicit message is that 'workstations could be virtually located anywhere' due to a raised platform that facilitates installations, highlighting the commercial aspect of this successful pavilion. It conveys the idea that technology can happen in any location, requiring only a general socket and a plot around 50 metres

long and 12 metres wide.

This light, transparent, and commercially oriented traveling installation was enjoyed by more than 1.5 million people in three years, updating the traditional idea of a vault or a greenhouse with the language and means of technology. It could be interpreted as a front runner of sustainable architecture (Fig.1).

The exploration of temporality in architecture extends far beyond Vitruvius, pavilions, and international expositions. In Renaissance Europe, festivals and celebrations often involved the construction of temporary architectural structures, reflecting the grandeur and opulence of the period (Hart 2002). These structures, often made from perishable materials like wood and canvas, were intended for short-lived events but were designed with the same level of detail and craftsmanship as permanent buildings.

Moreover, the digital age has introduced a new dimension to temporality. With rapid technological advancements, buildings are becoming obsolete faster than ever before. This challenges architects to design with adaptability and flexibility, prioritising systems and structures that can be easily modified or replaced over time (Kolarevic 2004), as seen in the Tourism Innovation Hub pavilion.

THEORETICAL IMPLICATIONS

The intersection of temporality and architecture,



Fig. 1 - IBM Travelling Pavilion. Photo credit: Renzo Piano Building Workshop.

a philosophical perspective that initiates a dialogue about the transient nature of human experience in built forms, is not limited to the physical lifespan of structures. It extends to how these structures capture and reflect fleeting moments, cultural shifts, and technological advancements, challenging traditional architectural paradigms by emphasising ephemeral and transient design aspects. Historically, ephemeral architecture has served as a medium for celebrating impermanence and change. From the elaborate temporary structures of Renaissance festivals to the dynamic installations of contemporary art exhibitions, it demonstrates an ability to capture the zeitgeist of an era

and act as a mirror to societal values and technological progress. This embodiment of temporal quality contrasts with the permanence of traditional architecture. A notable example of architectural temporality through prefabrication is the 19th-century "Balloon Frame" method from Chicago. This marked a departure from traditional building methods through its lightweight, mass-produced materials and rapid assembly, laying the groundwork for modern prefabrication and modular construction. In contemporary architecture, the concept of transience is increasingly prevalent, with projects like Mastercard's Tourism Innovation Hub showcasing modern structures designed

for specific, limited durations. This highlights the importance of flexibility, modularity, and adaptability in design. The advent of digital design technologies, such as CNC/DNC machining, has revolutionised the way architects approach temporality. It enables the creation of intricate designs that can be efficiently assembled, disassembled, and repurposed, marking a shift towards more dynamic, adaptive, and environmentally conscious practices. Ephemeral architecture also engages the senses in a way that transcends conventional experiences. The interplay of light, sound, and texture creates unique, time-bound sensory experiences, emphasising the importance of temporality in shaping human

interaction with the built environment.

Moreover, the impermanent nature of temporary structures aligns with sustainable architectural practices, emphasising reduced material usage and the potential for reuse, reflecting a commitment to environmental stewardship. The exploration of temporality in architecture has significant theoretical implications, necessitating a re-evaluation of traditional architectural principles and the integration of considerations of time, perception, and environmental impact.

In conclusion, the theoretical exploration of temporality in architecture is a crucial aspect of contemporary architectural discourse. Its temporal dimensions increasingly influence both form and function, marking a transformative period in architectural history.

THE TOURISM INNOVATION HUB

In 1833, Augustine Taylor developed the preferred North American assembly system in Chicago, called the "Balloon Frame," which incorporated high levels of prefabrication. The construction involved closely spaced pillars made of wooden slats, an additional layer of horizontal elements serving as beams, and the entire structure was enclosed with wooden boards.

This practical, flexible, and fast system enabled the construction of stable, removable, and transportable houses, ultimately becoming

the preferred construction method in the USA. Buster Keaton's film, "One Week," humorously encapsulates the radical North American approach in his classic comic style.

The Tourism Innovation Hub pavilion (Fig. 2) interprets Taylor's invention and pushes it to the 21st century incorporating Computer and Design Numerical Control CNC/DNC to update this easy and rigid system into a curvy, extroverted and singular project that nevertheless still talks about modularity, repetition, transportation, systematisation, economy, easy assembly and disassembly, quality... through the inclusion of 6 main ideas:

- The creation of spaces with formal and spatial independence.
- The design takes advantage of the open areas generated around these shapes.
- The establishment of routes associated with the main storytelling in each case.
- The fabrication of structural elements that can be used for various purposes and layouts.
- The design of selected pieces of furniture (tables and benches) takes advantage of its uniqueness.
- The development of an easy-to-assemble and disassemble system.

The ability to precisely cut, shape, and assemble components off-site reduces construction waste, ensures

a higher level of accuracy, and can significantly speed up the building process. Such methods align with the principles of the "maker movement," emphasizing DIY practices, local production, and open-source digital tools (Anderson 2012).

Moreover, the integration of digital tools in temporary architecture also holds implications for sustainability. Modular and prefabricated components, designed with digital precision, can be reused, repurposed, or recycled, thereby reducing the environmental footprint of temporary structures (Sheil, 2012).

THE REQUIREMENTS

The Tourism Innovation Hub pavilion for Mastercard, designed by Amarillostudio after winning a restricted competition in collaboration with the Marketing and Communication agency Idonika, is considered part of the group of ephemeral architectures because of its experimental nature.

For its design, we analysed the DNA of the typical fair stand and concluded that it typically involves:

- On-site construction within fair facilities, leading to disposal at the event's conclusion.
- The use of materials with straight geometry and opaque panels, forming 90-degree areas.
- An approach of "more is more," where stands feature a wide variety of materials (with plasterboard



Fig. 2 - The Tourism Innovation Hub pavilion for Mastercard. Curved geometries.

standing out for its ease of assembly and demolition), numerous colours, along with impressive banners and graphics.

Based on the previous analysis, we concluded that our stand would incorporate curved geometries with translucent panels, avoiding a clear full-empty division. It would predominantly feature a single sustainable material—FSC wood—and aim to abstract the symbolic factors as much as possible. It is worth noting that the stand had to meet specific sustainability, modularity, and reusability requirements as outlined by the Mastercard project.

In summary, our aim was to create an oasis—a dream place or refuge allowing visitors to disconnect from everyday life and reinterpret 21st-century tourism. The design emphasises wood as a fundamental element, with the positioning and proportion of FSC-certified pine wood slats, along with their full-empty ratio, creating a unique experience as visitors move through the ever-changing space of the Tourism Innovation Hub (Fig. 3).

From the free curve, we establish a dialectic between organic and semi-closed rooms, resembling amoebas or arpan shapes (referred to as “beans” from now on). These beans are linked together like beads on a necklace, with the spaces between them forming a circle—the fundamental corporate symbol of Mastercard. The margins in the four corners, positioned between the bean-circle

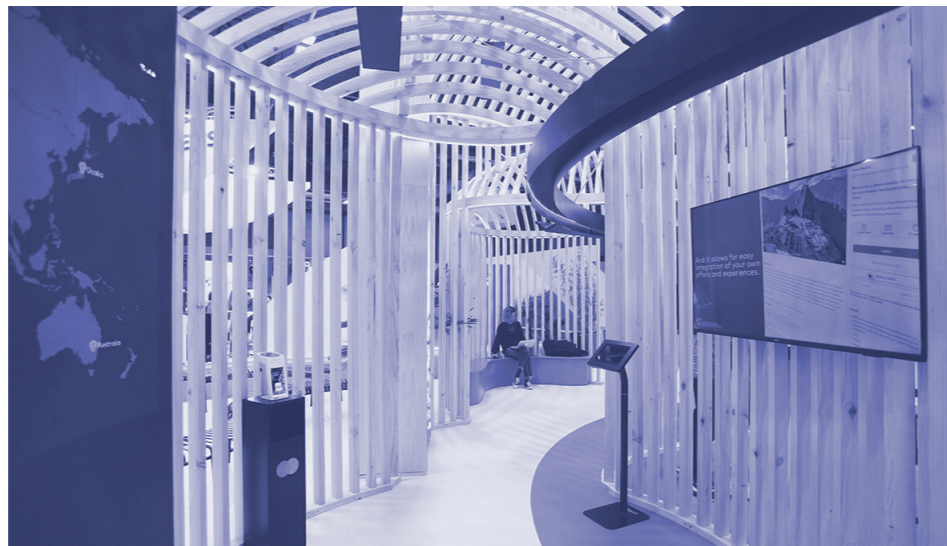


Fig. 3 - An ever-changing space.

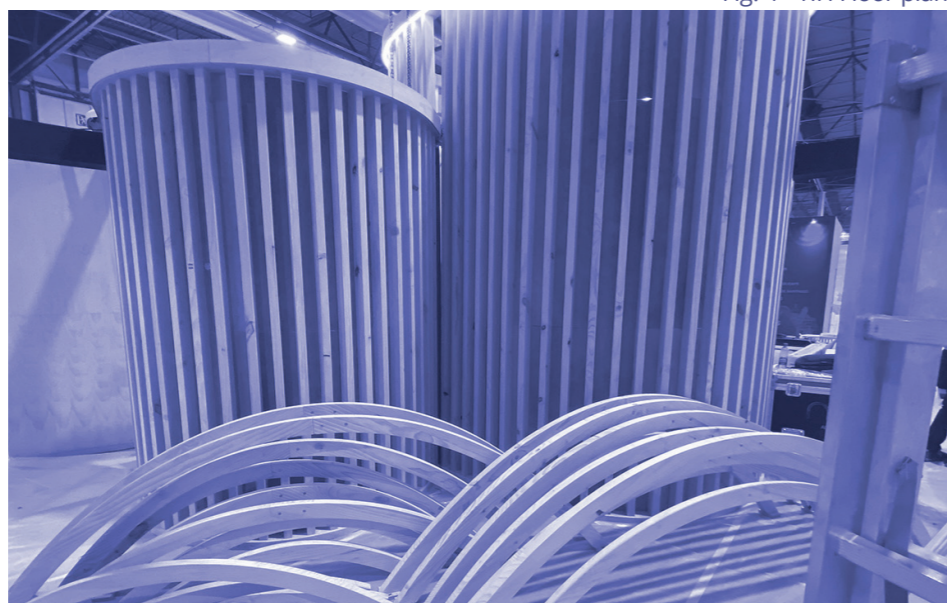
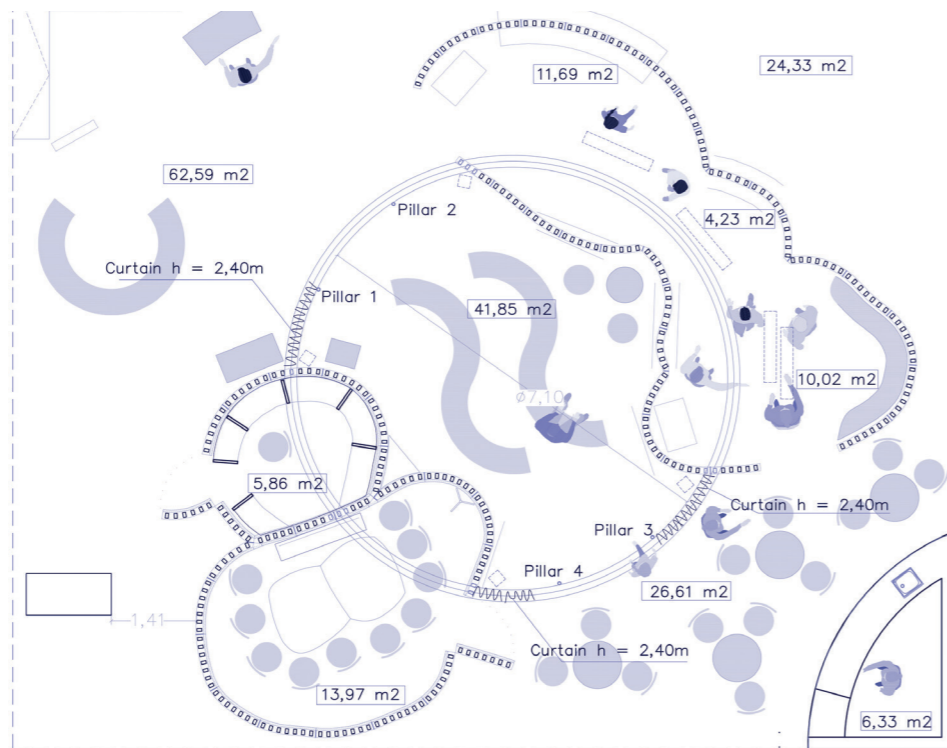


Fig. 5 - TIH First complete assembly in Jaén.

couple and the overall plot, are actively utilised based on the diverse functional needs of the stand (Fig. 4).

The spatial requirements for this initial activation included:

- An exhibition area featuring multiple screens and tactile totems, accompanied by an immersive experiential zone situated in the corridor formed by the interconnected trio of beans.
- A central space designed for presentations or use as an auditorium, located in the circular plaza and offering the flexibility to open or close with translucent curtains.
- The cafeteria area positioned in one of the corners of the plot.
- A private, acoustically isolated meeting room with a capacity for eight people.

Architecturally, we planned to delineate the central circle with a suspended metal ring above the red carpet, and surround the five beans with organic domes that enclose the space. It is a concept reminiscent of a primitive cabin in dialogue with the most advanced technology.

While the general design took relatively little time (1 month), the construction posed a different challenge, as the stand had to:

- Be modular and reusable. Therefore, it was essential to analyse and simplify the assembly and disassembly system, which we tested at the carpenter's facilities in Jaén, Spain (Fig. 5).
- Do not generate waste. We refined construction

and assembly protocols to the extent of reusing the shavings produced during wood cutting.

- Study and coordinate various elements, techniques, and facilities, including large flexible screens with extensive wiring (Fig. 6).
- Master 3D models for numerical control manufacturing (Fig. 7)
- Optimise the quantity and dimensions of modules for transport throughout Europe and the Mediterranean region, aiming for the least number of cubic meters to

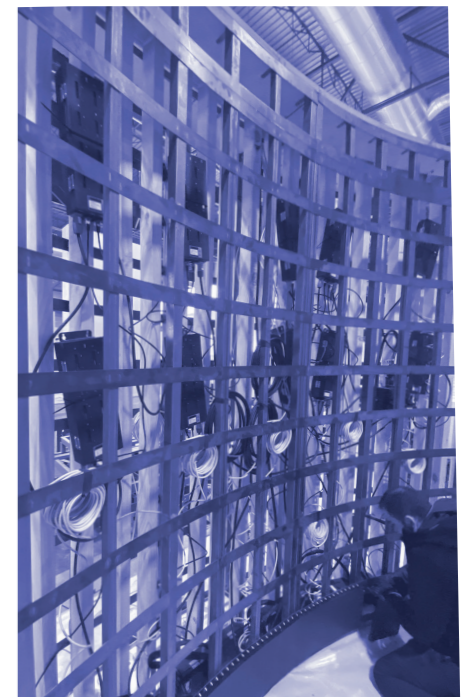
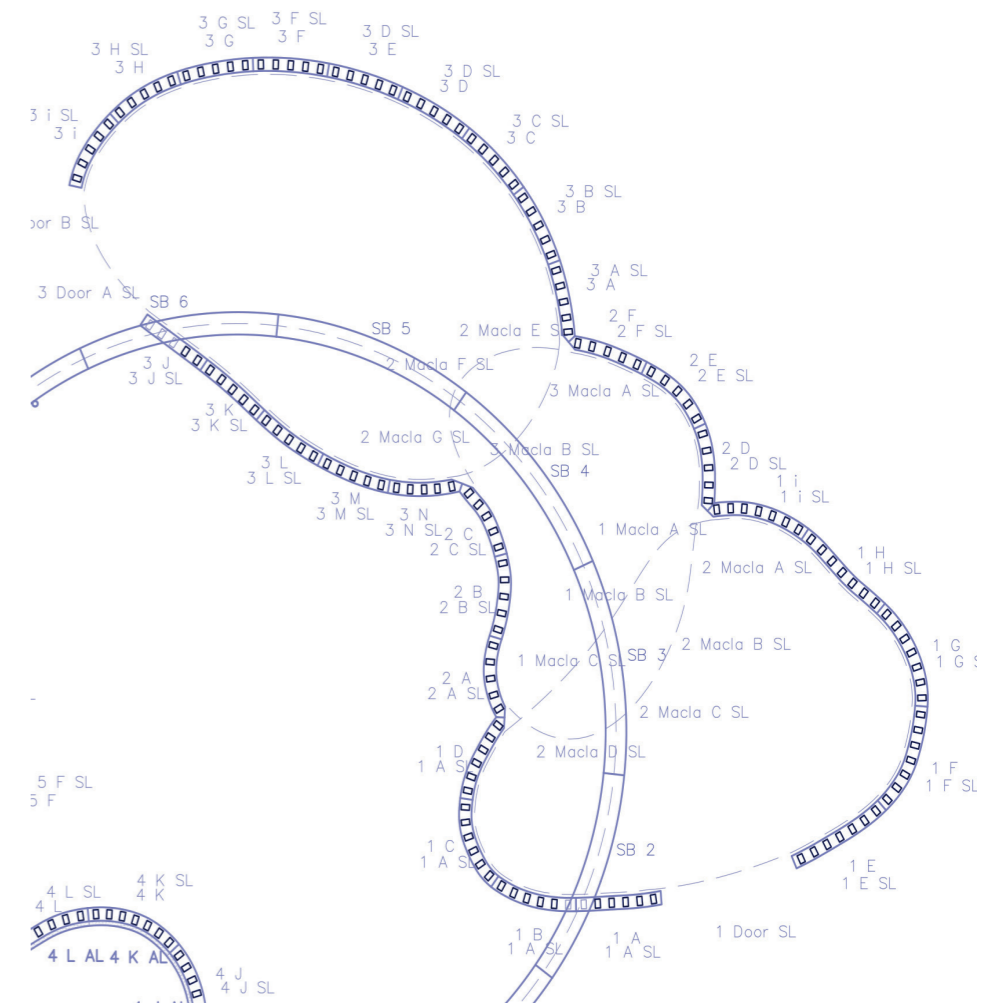


Fig. 6 - Camouflaging wires, plugs...etc.



move (Fig. 8).

- Be highly rigorous in the design and assembly of construction details to ensure everything fits together seamlessly and can be quickly assembled and disassembled.
- Design installations, particularly wiring, to be concealed and distributed throughout the stand. To achieve this, we utilised a central ring at a height of 250cm above the ground as a general distributor (Fig.9), and we manufactured installation runners in hollow slats to raise or lower the installations from that ring.

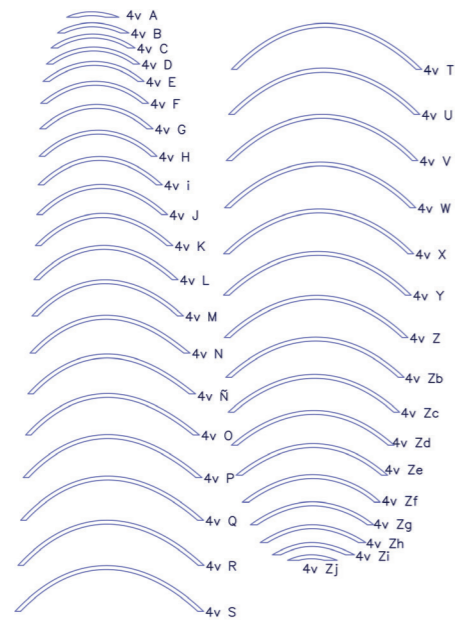


Fig. 8 - Inventory of one of the dome's beams.

In total, there were three months of intense communication with all the parties, particularly with Idonika and the carpenters responsible for constructing the stand.

The subsequent manufacturing and assembly in the warehouse, aimed at verifying geometric adequacy and assembly times, took an additional three months. This phase was crucial to ensuring the stand's transportation and complete assembly within seven days, meeting the deadline for the fair (Fig. 11).



Fig. 9 - The black central ring as wiring distributor.

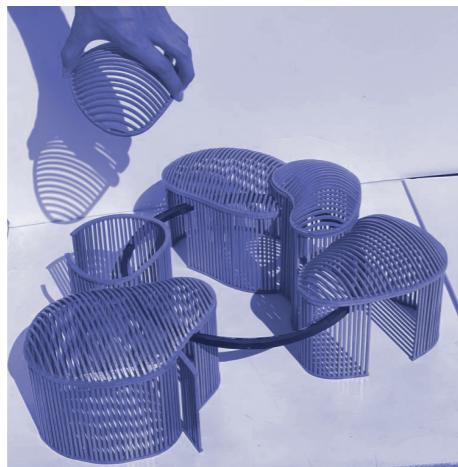


Fig. 10 - Testing the formal and spatial outcome.

The fair lasted for five days (January 18-22, 2023), and it proved to be a success as FITUR awarded us with two prizes: Best Stand and Most Sustainable Stand.

The day after the fair closed, the stand was dismantled, stacked, and transported to a town in Jaén in less than 24 hours, where it now rests until its next activation... very soon.



Fig. 11 - FITUR's 2023. First activation.

MODULAR CONSTRUCTION ELEMENTS

All elements of the stand, forming the modules and the interconnecting ring, are fabricated in pieces approximately one metre wide with variable lengths. They can be used partially, without forming a complete module.

This construction system allows for easy transport while ensuring absolute versatility. The stand can be created and modified for each use, yielding different outcomes. Additionally, the modular walls feature acoustic panels that can be placed entirely or partially on each element to achieve greater visual and sound intimacy. The fabric covering the soundproofing material can be customised in various colours, and there is the option of installing interior curtains for visual privacy in any of the modules (Fig. 10).

CONCLUSIONS

The concept of "time" often emerges as the most crucial element in our discipline when venturing into the realms of ephemeral or temporal (depending on its etymology) architecture. From Marco Vitruvio Pollio's classical treatise "Ten Books of Architecture," where he introduced the famous triad: *Utilitas*, *firmitas*, and *venustas*, to Augustine Taylor's "Balloon Frame" in 1833, and Albert Speer's temporal (literally) failure in the 1937 Paris World's Fair German Pavilion, the evolution of acknowledging temporality is evident in more recent examples. The essay navigates through Mastercard's Tourism Innovation Hub as a collective exploration in reinterpreting ephemeral architecture, aiming to act as a metonymy where one tree symbolizes the entire forest of temporality. From the initial intuitions about the unique qualities of a modular and reusable pavilion to a comprehensive exploration

of this particular type of construction, including a necessary process of trial and error, resulted in this small wooden jewel—somewhat Oriental, somewhat Nordic. The Tourism Innovation Hub challenges traditional notions of permanence and underscores the importance of designing for change.

In the age of rapid technological advancements and shifting socio-cultural landscapes, the true essence of temporality in architecture lies not in how long a structure lasts, but in how effectively it serves its purpose during its existence (Zellner, 1999). Temporality demands explicit consciousness and awareness to become meaningful in contemporary architecture—ephemeral artefacts that may be even more necessary today than ever.

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