

# “How do I matter as a heritage building?”

## Exploring Heritage Building Agency in the Technology Era through a More-than-Human Lens

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### ABSTRACT

Heritage buildings are increasingly adapted to contemporary needs through technological interventions, yet these approaches remain human-centred, leaving limited recognition of the buildings' own capacity to shape architectural change. Drawing on critical heritage and more-than-human perspectives, we investigate how heritage buildings can be approached as agentic actors in negotiations of spatial and technological adaptation. Through thing-interviews with ten architects, speaking from the perspective of the heritage buildings they designed, we examine how buildings express self-value, engage with social infrastructures, and “sense” reshaping through material and functional transformations. We extended these insights through a design fiction session with four experts, exploring future scenarios for human-nonhuman connection, fragmented reconfiguration over time. From this, we propose three implications for designing more-than-human futures in intelligent built environments with heritage values: (1) negotiating consent and power asymmetries, (2) framing stewardship through care and companionship, and (3) rethinking authenticity beyond originality.

### Authors Keywords

Heritage buildings; Human–Building Interaction (HBI); more-than-human design; critical heritage; non-human agency; thing interviews; design fiction; speculative design

### CCS Concepts

• Human-centered computing~Interaction design~Empirical studies in interaction design



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### INTRODUCTION

Heritage buildings are culturally significant structures whose value is maintained through ongoing practices of conservation, regulation, and everyday use [24]. They are increasingly reconfigured through the advancement of interactive and networked technologies, such as IoT infrastructures, XR technologies, and AI-driven building systems, to support their lifecycle and respond to contemporary needs and challenges [53]. Yet, technological adaptation is still often framed as primarily human-centric [31]. A more-than-human design perspective, challenges this trajectory by decentering humans as the sole locus of agency and increasingly incorporating the perspectives and capacities of non-human actors in shaping design processes and outcomes [20, 37]. Non-human perspectives are valuable as they can enhance, complicate, and sometimes contest human viewpoints, especially when what “should” be designed is not only a question of usability or efficiency but also ethics, long-term care, and contested meanings [22].

These concerns become even more pronounced in heritage buildings, where significance is continuously produced through values-based practices that determine which values to preserve or change [21]. Heritage buildings are especially important here because they concentrate intertwined material and cultural values while carrying implications for environmental, social, and economic sustainability in everyday life [28]. Therefore, technological adaptation for heritage buildings is not only technical integration but also a negotiation shaped by competing priorities, regulations, and the values of human and non-human actors in the process. Centering

this posthumanist understanding, recent research discusses the recognition of heritage buildings as legal entities with rights in the design process [41]. Relatedly, another work explores buildings as non-human narrators to show how narration can decenter the human gaze while remaining explicit about their perspectives and representation [48].

In addition to this progress, what remains underexplored is an empirical investigation that is practice-informed and design-oriented to reveal heritage buildings' perspectives on the future design process. While heritage studies and more-than-human design perspectives open conceptual space for non-human agency, design practice still lacks methods for staging heritage buildings' perspectives as negotiable stakeholders in technological adaptation, and for translating these perspectives into actionable implications for future intelligent built environments.

Therefore, this pictorial examines the reciprocal relation of architects and heritage buildings in the process of (re) designing these architectural spaces with technologies through the research question:

“How do heritage buildings, conceptualised as agentic actors, negotiate and shape spatial and technological change within the design process, and what do these insights imply for future intelligent built environment?”

To address this gap, we implemented a two-phase, design-oriented study. In the first study, we conducted speculative thing-interviews with ten architects, each representing one heritage building they had previously designed with and responding from the building's perspective [12, 38, 45]. We approach this as an expertise-based representational

practice, leveraging architects' deep engagement with the buildings to provide informed, situated perspectives. Each interview concluded with a design fiction memo written in the building's voice, articulating desired futures and speculating on long-term changes [58]. In the second study, a design-futuring session, four experts used these building-voiced memos as prompts to create speculative artefacts across diverse media formats (e.g., archival documents, social media posts, robot instructions) supporting exploration of heritage buildings' potential roles in future intelligent environments [25, 33]. Our findings generate three implications for designing technological adaptation in heritage-rich contexts: (1) building consent and power balance, foregrounding questions of legitimacy, authority, and who gets to decide on behalf of the building; (2) building stewardship, care, and companionship, reframing adaptation as an ongoing relationship rather than a one-off technological upgrade; and (3) building authenticity and originality, treating authenticity as an evolving negotiation shaped through use, time, and technological mediation.

Accordingly, this pictorial contributes to HBI and more-than-human design in two ways. First, it offers an empirical, design-oriented approach for designing with heritage buildings by recognizing their agency through thing-interviews, memos, and speculative artefacts. Second, it demonstrates the values and limits of expertise-based representation as a practical roadmap for involving non-human actors in design processes, offering methodological reflections to inform future research and practice.

## RELATED WORKS

### Technological Adaptation of Heritage Buildings

Heritage buildings are physical artefacts that carry memories of the past [24] through their tangible and intangible values [1]. They are integrated into our everyday lives [25] and dynamically adapt to meet contemporary performance demands, especially as spatial, functional, and technological expectations evolve [13]. To avoid the risk of obsolescence before the end of their physical life [43], these buildings often undergo architectural and material transformations (retrofits, service upgrades, spatial reconfigurations) largely to meet these human-centered demands [8]. Yet, decentering humans opens another

reading; technologies can also be framed as resources for the building's own resilience against obsolescence [18].

### More-than-Human Perspective in Heritage Discourse

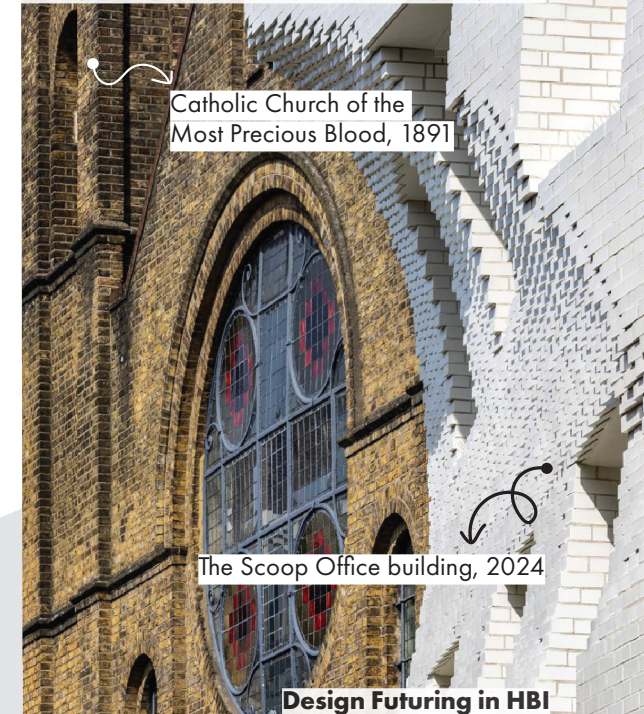
A recent discourse has shifted from treating heritage buildings as human-defined objects of preservation to understanding them as a more distributed and relational phenomenon among humans, materials, and other-than-human entities [51]. This more-than-human turn of heritage studies highlights these relations as collaborative and dialogical processes among these actors [23]. Therefore, designing technologies in heritage contexts requires careful consideration of non-humans [19]. This shift is not only conceptual; it also raises methodological questions about how to decenter from heritage narratives that have long privileged human appreciation and materiality [9, 51].

### Understanding Agency of the Built Environment

Meanwhile, the built environment has increasingly been discussed for its agentic capacities [42]. A recent example from architectural design practice shows how the agentic capacities of a heritage building shape the façade of the Scoop, London [56]. An Actor–Network Theory lens also stresses that buildings serve as mediators that can translate and transform intentions, decentering human authorship in the production of architectural outcomes [15]. Likewise, this aligns with "spatial agency" work that expands architectural practice beyond buildings toward the distributed, social production of space [4, 30]. Consequently, technological adaptations foreground heritage buildings as actors that can enable or resist design decisions through their physical and social nature [59]. Recent debates even ask whether buildings should gain legal standing based on intrinsic, relational, and instrumental values within urban ecosystems [41].

### Thing interview

Speculative Thing Interviews allow to impersonate and interview things. Prior examples interview scooters [12], AI agents [38], and everyday things [45] as non-human entities, enabling displaced embodiment and "exposing human biases [45]. Recent research also uses first-person engagement with nonhuman entities, such as a creek, to surface human–nonhuman relations [60]. Heritage buildings were likewise explored as narrators to surface more-than-human agency through defamiliarization and empathy [48].



Catholic Church of the Most Precious Blood, 1891

The Scoop Office building, 2024

### Design Futuring in HBI

Human-Building Interaction (HBI) is an interdisciplinary field investigating how humans and buildings shape one another across built environments and their technological systems [2]. Prior studies use design-futuring to speculate Human-Building Interaction: postcards-from-the-future co-design [40], material-based fictions [17], and university-building scenarios [33]; combine expert interviews with futuring to expand heritage-building interaction imaginaries [25].

# STUDY 1 THING INTERVIEWS WITH ARCHITECTS AND HERITAGE BUILDINGS

Study 1 investigates heritage buildings' perspectives on technological reshaping through speculative thing interviews with architects who previously designed with these buildings. The study aims to surface how heritage buildings articulate value, relate to other actors, and perceive change when approached as non-human actors.

## Participants, Positionality, and Representation

We focused on architects, as they have established long-term critical and professional engagement with heritage buildings through analysis, intervention, and design decision-making, making them well-suited to expertise-based representation of building perspectives. We recruited ten architects with experience in designing heritage buildings featured on established architectural platforms such as ArchDaily, Dezeen, and Arkitera. Recruitment invitations were sent via email and a digital poster to 17 architects, and ten architects subsequently participated. All participants had at least five years of professional architectural experience. Seven served as lead architects, while three were senior architects involved in all stages of the design process [10]. These criteria were critical for supporting informed, nuanced, expertise-based representation in more-than-human design research [12, 14]. Our study focused on 10 heritage buildings associated with the recruited architects. The building year ranged from the 15th century to the late 1980s. We deliberately selected a range of building typologies, which include four residential (B1, B2, B7, B10), three cultural (B3, B4, B6), and three commercial (B5, B8, B9) buildings, to uncover a broad spectrum of insights reflecting diverse architectural contexts and heritage conditions.

## Expertise-Based Representation

Each architect's sustained engagement with a specific heritage building shaped their positionality as a representative. Having spent extended periods designing, analyzing, and intervening in these buildings, participants brought detailed knowledge of materials, spaces, and history to the role-

play. This expertise-based representation aligns with prior thing-interview approaches in more-than-human design, where expert familiarity supports nuanced and accountable representation of non-human perspectives [12, 14].

## Procedure

Each interview was conducted in a single 60-minute session structured into three parts to maintain participant immersion. Across the interview sessions, the enactment is enabled in two ways: First, architects examined photos, drawings and documentations, gaining depth into the details of heritage buildings; Second, through verbal prompts that guided participants to speak on behalf of the buildings.

**Part 1 - Contextual grounding:** Architects introduced their selected project, described their professional roles, and shared supporting materials, including images, drawings, and documentation. They reflected on their experiences designing with heritage buildings and integrating contemporary technologies. This established the architectural, historical, and experiential grounding needed for the role-play.

**Part 2 - Thing-interview role-play:** The second part started with a verbal prompt inviting participants to speak from the building's perspective: "From now on, you are the heritage building, please respond to all the questions from the building's point of view. You may not have adequate knowledge for all the questions; however, please respond according to the building persona you adopt, your expert knowledge, and fill in the gaps depending on these." Participants then spoke in the first person as the heritage building, responding to prompts that progressed from biography to situated relations and future speculation. They first narrated the building's life story from its "birth" to the present, then reflected on architectural significance, appearance, and transformations over time. Follow-up prompts explored the building's spatial and socio-material context, including its relationships with nearby non-living entities and infrastructures, as well as encounters with other

living beings. The session concluded with reflections on the building's present condition in relation to contemporary and emerging technologies.

**Part 3 - Design fiction memo:** Each session concluded with a design fiction memo written in the building's voice. We draw on design fiction memoing here as a reflective and analytic writing practice that helps extend interview insights into speculative future-oriented accounts, rather than as a final design outcome [58]. This activity invited participants to articulate speculative futures by identifying what should change or be preserved, and by imagining a day in a long-term horizon (e.g., the 2100s). Although far-future speculation presents known challenges in design-futuring [3], we aimed to overcome the static notion and temporalities of architectural buildings. For instance, according to Brand's model of shearing layers, building structures are expected to change every 30 to 300 years [6, 47]. Therefore, these responses provided more depth in speculative reflections and informed the design fiction memos voiced by each heritage building.

## Analysis

We analyzed interview transcripts, images, and architectural drawings using an inductive approach and applied reflexive thematic analysis (RTA) following Byrne's six-step process [7, 11]. After initial coding and theme development, an analysis meeting was held with two external researchers experienced in RTA. During this meeting, coding procedures, emerging themes, and ambiguities in participants' statements were reviewed and reconciled collaboratively.

## Perspectives of Heritage Buildings

The analysis of Study 1 surfaces three themes that illuminate how heritage buildings, conceptualized as non-human actors, experience and negotiate technological reshaping.



**BUILDING NO & NAME**

<b>B1</b> Kapadokya House	<b>B2</b> Tamirevi	<b>B3</b> Bursa City Museum	<b>B4</b> Yıldız Cinema	<b>B5</b> Bıçakçı Han	<b>B6</b> Baruthane Museum	<b>B7</b> Tire House	<b>B8</b> Tuzhan	<b>B9</b> IzQ Center	<b>B10</b> Ankara House
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# THEME 1

## UNDERSTANDING THINGS' SELF-VALUE AS HERITAGE BUILDINGS

The first theme deepens the understanding of how heritage buildings express their self-value as non-human actors of architectural change.

Heritage buildings paid close attention to their appearance and noted how they appreciate being noticeable from the outside (B1, B2, B3, B4, B5, B7, B10). These were mainly described through their **facades' aesthetic and material qualities**.

Aligned with this, they also expressed strong appreciation for their **architectural tectonics** and the techniques they were built with. For instance, several referred to their Baghdadi walls, traditionally assembled of wood and plaster. (B1, B2) The interviews also revealed that heritage buildings place a high value on their **ornaments and their overall aesthetic appearance** during technological reshaping. (B2)

Additionally, the buildings emphasized their **spatial authenticity** in terms of their unique architectural characteristics. For instance, B10 highlighted the sofa, a distinctive space found in the traditional Turkish houses that is dedicated to social interaction among household members.



"the stonework here, shows how valuable I am."

**B2** Tamirevi, 19th C.

**B1** Kapadokya House, 19th C.

"I imagine myself becoming more like a museum that exhibits anything with my authentic spaces and wide walls while adapting to climate needs while hosting and displaying new layers."

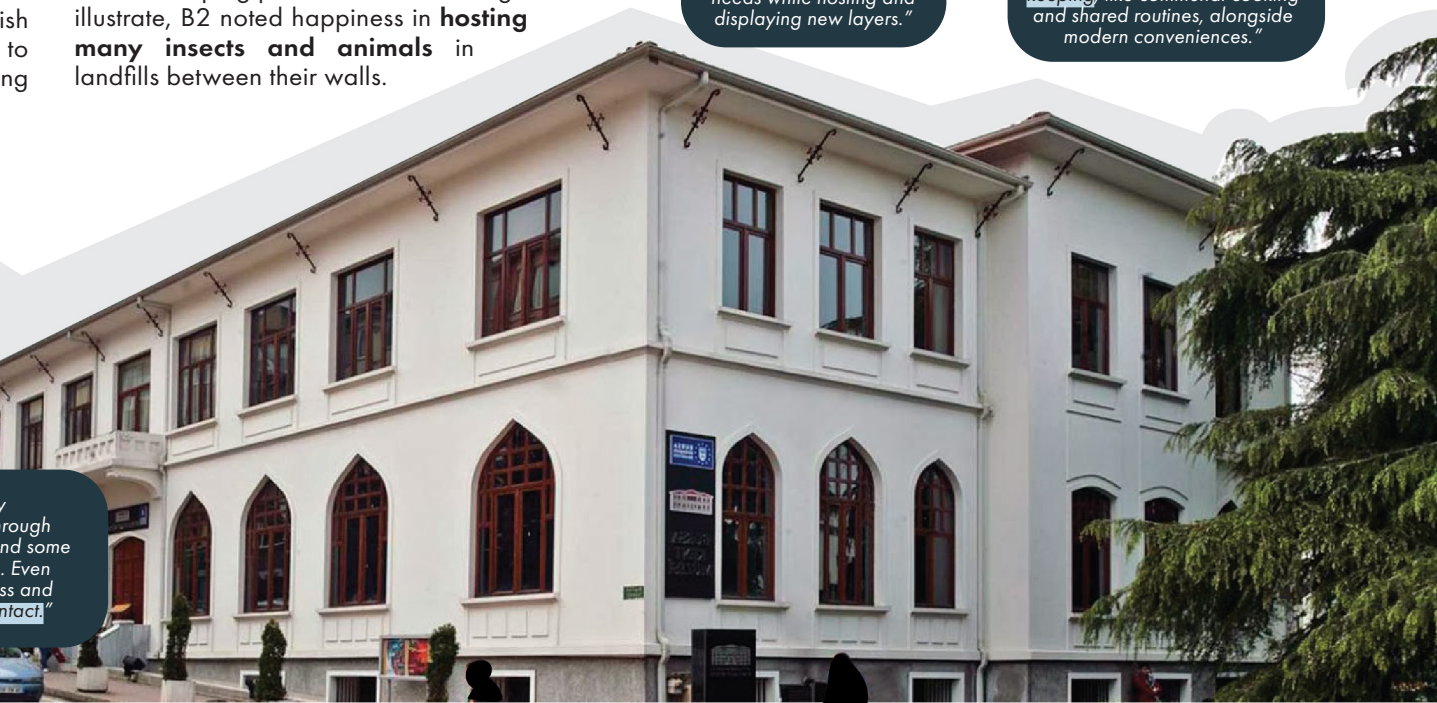
**B10** Ankara House, 19th C.

"In heritage spaces like me, there are older purposes worth keeping, like communal cooking and shared routines, alongside modern conveniences."



**B3** Bursa City Museum, 1926

"People no longer enter only through my doors: they arrive from above, entering through new openings across my roof and body, and some of my windows even become doorways. Even as I adapt to these new patterns of access and movement, my façade silhouette is kept intact."



## THEME 2

### SOCIAL INFRASTRUCTURE FOR HERITAGE BUILDINGS

The second theme positions heritage buildings as part of a wider social infrastructure, in relationship with other non-human and human actors.

Heritage buildings emphasized **contextual and physical ties** as foundational to their identity. They described **neighborly connections** formed through shared architectural qualities and common historic backgrounds. (B2, B3, B7, B10)

Notably, heritage buildings expressed feeling deeply rooted in their settings when their façades, materials, or structural techniques related closely to those of neighboring structures. Examples included shared vernacular timber frameworks or physically shared spaces, such as courtyards or common load-bearing walls (B5, B6, B9). These connections were described as fostering a sense of belonging and continuity within the urban fabric.

On the other hand, some heritage buildings expressed **feelings of isolation** when their surroundings became

obsolete lost the heritage qualities that once connected them contextually (B5, B7). This loss was described as a breakdown in dialogue with their environment and surfaced as an important aspect in the reshaping process with technologies. (B7)

At the same time, heritage buildings valued their capacity to foster **collective memory** through their reshaping (B2, B10). They expressed technological adaptation as an opportunity to positively influence surrounding built environments through and to re-establish social and contextual connections.

In parallel, heritage buildings were valued for their **capacity to positively influence neighbouring buildings**, potentially leading to architectural changes. (B2, B10). They viewed technological adaptation as an opportunity to build resilience for adapting to climate change and a means to cope with contemporary challenges, thereby re-establishing better social and contextual connections.

"in a sense it feels a bit lonely here."

**B7** Tire House, 1920 est.

"I was the first cinema in the city!"

**B4** Yıldız Cinema, 1953

"If I'm abandoned, I could turn into a playful hideout where people sneak in and run around for entertainment. But what I want is to stay alive by constantly changing."

CINEMA  
YILDIZ SPOR TESİSLERİ VİDİO  
HIDEOUT

**B8** Tuzhan, 1882

"On rare days, someone might come down only to rummage through my dusty shelves and touch a few books, otherwise I'm barely visited, sometimes not at all. Losing contact with people feels sad to me."

**B5** Bıçakçı Han, 19th C.

"In future, after years of digital life and its psychological costs, I imagine people will crave real togetherness again. If I can stay in sync with my famous neighbouring heritage buildings, I could thrive as part of a shared social hub."



## THEME 3

### HERITAGE BUILDINGS' PERCEPTION TO RESHAPING

The third theme focuses on how heritage buildings perceive their reshaping process and architectural interventions through technologies.

They indicated a **selective prioritization** of their certain architectural elements during the reshaping process, such as their roofs, which were frequently emphasized for their functional roles in maintaining structural stability (B7).

In the reshaping process, heritage buildings also conveyed a strong appreciation for **exposing traces of their past** through preserved architectural elements. Over time, they described a **growing coherence with technological interventions**, as adaptations gradually became integrated into their material and spatial identity. (B8)

Heritage buildings reflected a strong sense of agency for preservation that complements their **heritage identity**. In

some cases, they emphasized the importance of retaining original functions or spatial layouts, even if partially, as a means of sustaining **an architectural link to their past** (B4, B5, B10). In addition to these physical qualities, social values were frequently highlighted, with heritage buildings positioning themselves as **custodians of collective memory within society** (B2, B9).

Finally, heritage buildings characterized their **relationship with caregivers** as deeply impactful on their lifecycle. Restorers were perceived as saviours whose interventions extended their existence, mostly through repairs (B2, B5, B6). As opposed to that, faulty repairs or insensitive design interventions were accounted as unpleasant experiences (B2, B10). Overall, heritage buildings expressed gratitude for **ongoing human partnership** through active use (B2, B7, B8), and described reshaping as a mutualistic process that balances preservation with technological change.

**B9** İzQ Innovation Center, 1986

"I don't think I'll function as a traditional office anymore, maybe even three of my floors will become underused and start to sit idle."

"Technologies can change; but my spatial atmosphere will remain."

**B10** Ankara House, 19th C.

**B2** Tamirevi, 19th C.

"The pressure for me and my neighbours to function as "homes" disappear."

**B7** Tire House, 1920 est.

"I've probably adapted to this shift, but I don't think I look the same: my façade proportions may be kept, yet my materials and joinery have likely been replaced, and my openings may have changed size."

**B6** Baruthane Museum, 1700

"AI reshapes what spaces are needed, so I adapt for new functions."

# STUDY 2 DESIGN FICTION SESSION WITH EXPERTS

Study 2 builds on Study 1 by exploring how heritage buildings' perspectives can inform speculative futures through expert-driven design-futuring sessions. Using the design fiction memos generated in Study 1 as prompts, participants collaboratively created fictional scenarios to envision technological adaptations and social-material interactions for the buildings. This approach draws on established methods in architectural and urban design-futuring workshops [36]. As Wong [58] notes, design fiction memos bridge ethnographic investigations, such as thing-interviews [44], with design-futuring methods [26], enabling speculative exploration grounded in prior findings.

## Participants

We recruited four participants through purposeful sampling [52] to represent interdisciplinary expertise in the design fiction sessions: one practicing architect, one HBI researcher, one heritage studies researcher, and one more-than-human design researcher. Each participant had prior experience with design futuring methodologies and brought domain-specific knowledge to the speculations, supporting the groundings and interpreting the heritage buildings' perspectives.

## Materials

The primary inputs were the design fiction memos produced in Study 1. To scaffold the design-futuring process, we provided a set of pre-generated media formats created by the research team as creative prompts. These included: a design competition flyer, a real estate advertisement, an architectural magazine article, an XR experience, a travel vlog/blog, an archival document, a postcard, social media posts, visual or written spatial instructions for a robot, and an event organization plan. Each medium was selected for its ability to visually and/or textually express architectural futures, and to support speculative scenario-building grounded in the heritage buildings' perspectives. Participants were not limited to the pre-generated media, but associated each design fiction memo with a medium during the session, experimenting with all ten media options. This approach enriched the variety and depth of the design fiction outcomes, with fictional, critical, thought-provoking,

grounded, and participative qualities, consistent with established principles of design-futuring [46].

## Procedure

The design-futuring session was conducted in person and lasted approximately three hours. Participants worked collaboratively on a Miro board, supplemented by sketches, handwritten notes, and ideation using pen and paper. Following prior approaches [54], AI tools (LLMs) were also available to support speculative exploration through scenario generation, visualization, and idea development, helping participants articulate and visualize possible futures.

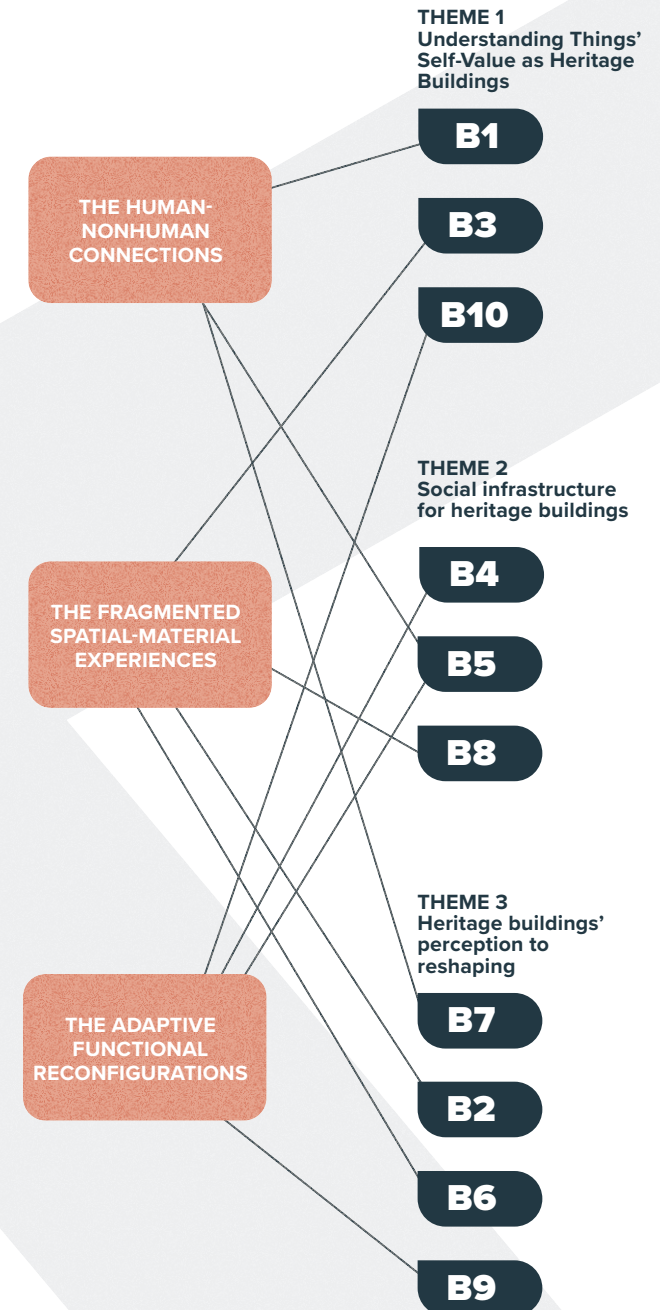
The session began with a brief presentation of the three themes identified in Study 1, followed by an introduction to the design fiction memos for each heritage building. Participants then associated each memo with a media format and collaboratively developed speculative scenarios. Discussions, sketches, and artifacts were iteratively refined to generate a set of design fiction outcomes. All activities were audio-recorded and photographed with participant consent for subsequent analysis. Session outcomes included handwritten notes, sketches, collaborative Miro boards, photographs, and audio recording transcripts.

## Analysis

We analyzed the session outcomes using RTA [7, 11], deductively coding materials in relation to the perspectives of the heritage buildings identified in Study 1. The analysis focused on how the experts' speculative scenarios extended, interpreted, and transformed the buildings' agentic capacities and relationships with human and non-human actors.

## Outcomes from the Design Futuring Session

Overall, the design-futuring session produced 10 ideas, one for each heritage building from Study 1. The analysis organized the outcomes into three distinct clusters: (1) Human and non-human connections, (2) Fragmented spatial and material experiences, (3) Adaptive functional reconfigurations.



# THE HUMAN-NONHUMAN CONNECTIONS

This theme captures design fictions that foreground relational connections between heritage buildings and other human and non-human actors. It includes outcomes developed for B1, B2, B5, and B7, each of which explores a distinct configuration of connection mediated through technology. Each idea is annotated next to the sketches/visuals/media coming from the futuring session.

**I am a self-sustaining building in 2100. I collaborate with other species around me to become more resilient in case of emergency, especially in the face of climate change. I write an emergency organization plan for different cases such as flood, drought, extreme hot and cold weather.**

**Flood Response**  
"I am designed to breathe through the floodwaters. My foundation is rooted in resilience, and I can adapt as the waters rise. My protective layers—woven with microbial and plant life—filter and manage water flow, ensuring no harm comes to those within me or around me. In case of an evacuation, my elevated pathways guide you to safety, illuminated by algae-powered lights, unaffected by the flood."

**Extreme Heat Response**  
"I collaborate with my green allies—plants that shade my surface and cool my interiors naturally. My skin reflects the harsh sun, and my core remains a sanctuary of comfort. If temperatures push you to leave, my corridors will lead you through shaded, ventilated exits, cooled by an intricate network of microbes working tirelessly to regulate temperature."

**Extreme Cold Response**  
"My walls store and release warmth as needed, ensuring a steady haven during freezing spells. I gather heat from the earth below and share it generously. Should you need to step outside, my glowing paths, powered by geothermal energy, will guide you, while layers of microbial protection ensure icy surfaces are safe to walk on."

**Earthquake Response**  
"I am built to flex and absorb the earth's movements, minimizing harm to all shelter within me. My structure communicates with its layers to stabilize vibrations and plant roots that reinforce my foundation. If necessary, my seismic-resistant pathways will guide you to safety."

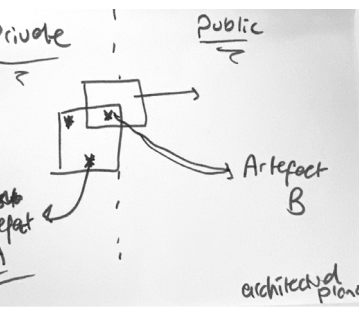
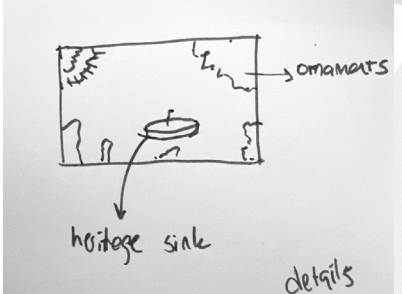
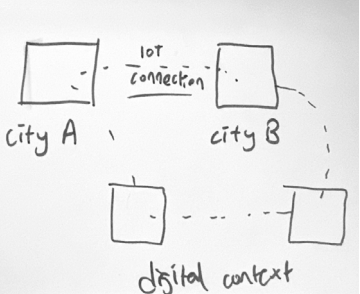
**Emergency Organization Plan**  
This is an emergency organization plan tailored for a self-sustaining building in 2100. It outlines the building's role in emergency response and its collaboration with other species around it. The plan is organized into several sections:  
1. **General Emergency Approach:** Focuses on maintaining internal stability and ensuring the safety of occupants. It includes protocols for fire, flood, and extreme weather.  
2. **Collaborative Emergency Approach:** Details how the building interacts with other species (microbes, plants, etc.) to enhance its resilience and response capabilities.  
3. **Emergency Organization Plan:** Lists the building's internal systems and resources, such as water management, energy storage, and communication networks.  
4. **Emergency Response Protocols:** Provides specific instructions for various emergency scenarios, including evacuation routes and shelter-in-place procedures.  
5. **Building Adaptation:** Describes how the building's structure and systems adapt to changing environmental conditions to maintain its self-sustaining nature.  
6. **Emergency Communication:** Outlines how the building communicates with its occupants and other species during an emergency.  
7. **Emergency Recovery:** Details the building's protocols for returning to normal operations after an emergency event.  
8. **Emergency Maintenance:** Lists the building's regular maintenance tasks to ensure its systems are always ready for an emergency.  
9. **Emergency Training:** Describes how the building's systems are trained to respond to various emergency scenarios.  
10. **Emergency Evaluation:** Outlines how the building's performance is evaluated after an emergency event to improve its future response capabilities.



## evacuation plan

**B7**

An emergency plan in which the building collaborates with non-human actors and technological systems to support occupants, while remaining isolated mainly from surrounding humans and the broader built environment.



- + ① heritage sink
  - \* ② the staircase
  - \* ③ door knobs
- elements list

**B1**

## archive document

A future archival document imagines a building-to-building connection, where heritage buildings that share common historical values form a digital friendship to maintain collective memory.

**B5**

## postcards

Physical social interaction is increasingly mediated by technology, and the heritage building acts as a social mediator that brings people together for collective gatherings spanning social events such as wedding ceremonies to recreational uses like drone races, highlighting its adaptive and multifunctional capacities.





## XR experience

B2

A spatial experience where each room of the heritage building connects current occupants to the previous occupants, with immersive stories of previous uses, and configures corridors of the building as spaces that link these stories via an XR experiment.

## THE FRAGMENTED SPATIAL-MATERIAL EXPERIENCES

The fragmented spatial-material experiences include the design fiction ideas generated for B2, B3, B6, and B8. The speculations used the mediums of an XR experience, an influencer blog and a design competition flyer in the future describing the heritage buildings' fragmented nature in spatial material experiences.



## design competition flyer

B3

Centering a future scenario of the building's façade with a living system that is responsive to its surroundings and repairs itself. In both scenarios, the heritage buildings have agency over granting or denying access to the building itself, or to certain rooms and areas.

Re-thinking the responsive museum?



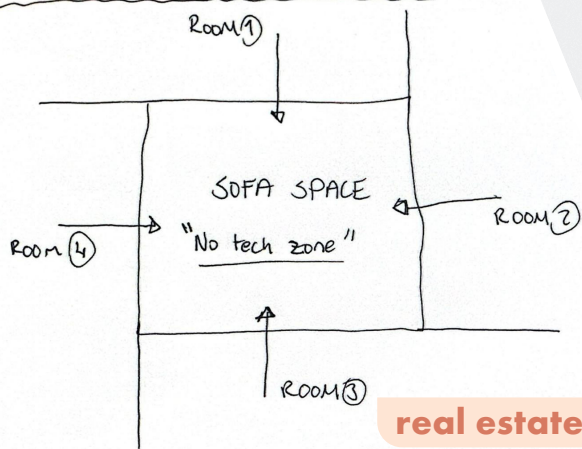
"It was an experience that started at the very top, like a spiral tube, and we completed the entire experience all the way down to the lowest level before leaving the building."

## influencer blog

B8

A more dystopian future of the heritage building with a travel vlog from the future, where individuals are unable to have any physical contact with the building but can visit for exhibition purposes.

## A GEM IN THE HEART OF ANKARA



## THE ADAPTIVE FUNCTIONAL RECONFIGURATIONS

The adaptive functional reconfigurations contain the design fiction ideas that are generated for B4, B5, B9, and B10. The speculations used the media of architectural magazine articles, postcards, and social media posts to describe, in the future, the heritage buildings' multi-purpose functional capabilities to accommodate individuals' technology use.

### real estate ad

### B10

A real estate ad for the future of this heritage building setting boundaries for technology use. It explores the concept of a traditional sofa space, typically used for socializing, and revitalizes it by limiting occupants' technology use within it.

To celebrate the rebirth of Yıldız Theatre, we are here to introduce new functions of the space:

As a visitor you can feel the ambient that feels welcoming but also dystopian. The lighting choices of this space is unique mixed of 2700 kelvin and cold colors to change whenever the function requires.

There are many curtains to separate areas instead of using walls, they use curtains. It is open space and flexible and visitors can feel the resilience inside.

### B4

A co-working concept for the cinema building of the future, framed as a daytime activity and augmented with XR technologies.

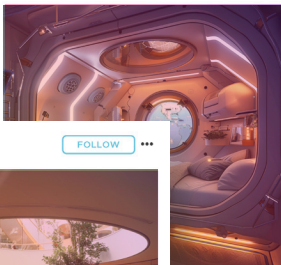
### architectural mag article

### social media posts

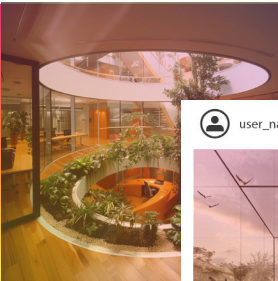
### B9

A reconfigured co-working space with integrated sleeping areas, preserving the building's historical role as an innovation hub.

user\_name FOLLOW



user\_name FOLLOW



362 likes  
your title here #hashtag #lorem

user\_name FOLLOW



362 likes  
your title here #hashtag #loremipsum



# DISCUSSION

## IMPLICATIONS FOR FUTURE DESIGN OF HERITAGE BUILDINGS

We propose three implications for designing heritage buildings with technologies. Drawing on Wakkary's notion of designing-with, each implication articulates directions for involving heritage buildings as participating nonhuman actors in design, alongside the practical considerations that shape decisions made with them [56].

### DI 1 Building(s') Authenticity and Originality

*Seek and interpret traces for authenticity and originality within heritage buildings, while preserving legibility of heritage values through reversible, interpretable, and meaningful technological interventions.*

Our findings question authenticity as a static value [21] and position it as something performed and negotiated over time with technological innovations. In Study 1, buildings described authenticity as selective and lived. As part of their originality, they valued visible traces and remembered being innovative at the time of construction. They emphasized authenticity as spatial-cultural features (e.g., the Turkish sofa as a social space), highlighting what must be preserved even when their functions evolve. They also expressed coherence with technological interventions when it is integrated without replacing self-associated authentic values. Design-futuring sessions further explored temporal layering through immersive stories of previous occupants and uses, or exaggerated originality with dystopian no-use and memorial-like futures. Some fictions pushed functional limits through rapid reconfiguration or introduced boundaries for technology use, re-centering embodied socialization. In parallel, authenticity is understood as a dynamic value in critical heritage studies [49], that is constructed over time and through use. Similarly, HBI studies emphasized the unique value of heritage buildings, should technological futures be integrated into everyday life [25], and how our lived experiences could guide the design of novel interactions with the future built environment [16].

Therefore, this implication points towards (1) policies prioritizing buildings' pre-defined consent checkpoints in the design workflows for what must remain intact, what can change, and what must be reversible, and (2) a designerly approach to constraint-aware interactions that foregrounds heritage buildings' perspectives

### DI 2 Building(s') Stewardship, Care, and Companionship

*Consider technological implementations in heritage buildings through constructing long-term responsibilities and reciprocal care relations with human and non-human entities.*

A second implication concerns the temporal and relational nature of care [39]. In Study 1, heritage buildings repeatedly positioned humans as companions whose care sustains their lifecycle. For example, restorers were described as saviours, and the active use of human and non-human entities was described as a mutualistic partnership. Buildings also valued social routines and collective practices (e.g., B10's emphasis on communal cooking and shared routines), and framed identity through neighborly ties and belonging. Additionally, design-futuring sessions extended the understanding of care and continuity in several cases. For instance, buildings communicated repair needs through immersive connection, mediated social gatherings, and faced abandonment and repurposing when everyday practices shifted away from physical sites.

Our findings intersect with prior work on maintenance and care in HCI by emphasizing companionship [55] as an ongoing socio-technical relation rather than maintenance done only when needed [27, 29]. Designing for stewardship and companionship, therefore, means maintaining heritage buildings socially and culturally alive [50].

Practically, these suggest (1) sensing and communicating care signals, repair histories, and design decisions from heritage buildings to their companions, and (2) institutionalizing care via generating new roles such as heritage caretakers or building companions, extending the notion of being only a user in these contexts.

### DI 3 Building(s') Consent and Power Balance

*Treat technological adaptation of heritage buildings as a negotiation, where buildings' constraints (materials, structures, spatial layout) and values (ornaments, stories, functional traces) can allow, condition, or resist interventions.*

Our findings foreground heritage buildings as non-human stakeholders that embody both vulnerability and power. Study 1 showed that buildings anticipated major transformations yet expressed selective protection for what they considered as their essential values. For instance, B3 imagined extensive interior changes while keeping its façade silhouette, and B1 wanted to host new layers while carrying traces of "how it was back then". Therefore, considering the architectural changes of heritage buildings involved priorities (roofs, openings, proportions) and sensitivities toward insensitive interventions. Through future scenarios, Study 2 made these power dynamics more explicit. For example, heritage buildings could grant or deny access to rooms and circulation areas, while other fictions showed buildings mediating social connection or becoming infrastructurally isolated. These findings extend prior human-centred narratives of technological retrofit [31] by framing adaptation as a negotiation among multiple agencies, including human intentions, regulatory constraints, technological infrastructures, and the building's material limits and value priorities [34]. A targeted approach to this implication could make negotiation mechanisms more explicit in the design process [32].

These demonstrate that (1) careful consideration of interaction design with heritage buildings could support authenticity through legibility of authentic and original values, and (2) embracing the role of technological interventions in this context as a progressive strategy, rather than a limiting factor.



### Understanding 'Heritage Buildings' through HBI and a More-than-Human Lens

Our findings also highlight that heritage buildings relate to humans through multiple and uneven relations rather than a single user-building interaction. Through first-person representation of the heritage building's perspective, the study brings into view not only one-to-one engagements, such as architect-building and user-building relations, but also one-to-many relations involving neighboring communities, institutions, visitors, and wider publics. Attending to the building's perspective makes these layered relations more visible and points to the need for further investigation into how different human actors relate to a building's values, capacities, and future trajectories. This shift is also valuable for HBI, as it extends the field beyond a predominantly human-centered account of interactive environments by surfacing the building's self-values, social infrastructures, and perceptions of technological change.

Furthermore, findings should be read in light of these two limitations. First, the speculative thing interviews rely on expertise-based representation, where architects speak from the building's perspective. While this approach enables situated and accountable speculation grounded in design experience, it also inevitably reflects architects' own interpretations and professional values.

Second, our cases and participants are limited in number and scope (ten heritage buildings and architects, four experts). We aimed at prioritizing projects that span diverse typologies and contexts, which supports breadth but constrains claims about generalisability across regions, regulatory regimes, and heritage categories.

However, considering the depth of insights, **these implications together reposition heritage buildings as interactive partners in architectural change and propose an HBI agenda grounded in negotiation, stewardship, and temporal legibility** [2, 5]. Rather than treating technologies as tools that improve everyday life [35], our findings show that technological interventions with these buildings could reorganize power dynamics between human and non-human stakeholders, reshape

routines in everyday interactions with the built environments, and redefine what counts as authenticity and originality. A more-than-human lens made these factors more visible by **treating buildings' self-values, social infrastructures, and perceptions of change as part of their agentic capacities.**

Methodologically, combining thing interviews with a design-futuring approach provided both grounding and extension in terms of designing the future of these heritage buildings. The interviews revealed situated building perspectives through architects' expertise, and the futuring enabled embodied speculations and the emergence of concrete design knowledge rooted in these perspectives.

### CONCLUSION AND FUTURE WORK

This pictorial asked how heritage buildings, approached as agentic, more-than-human actors, can participate in negotiating spatial and technological adaptation, and what such a framing might offer to HBI and heritage-oriented design practice. We addressed this question through a two-phase, design-oriented inquiry. First, we conducted thing interviews with ten architects speaking from the perspective of the heritage buildings they designed, surfacing how buildings articulate self-value, relate to surrounding social infrastructures, and "sense" reshaping through material and functional transformations. We then extended these situated building perspectives through a design-futuring session with four experts, who worked with building-voiced design fiction memos to generate speculative artefacts and scenarios that probe future configurations of these heritage buildings.

Our contribution is both empirical and methodological. Empirically, we show that shifting the locus of perspective from "users" to heritage buildings makes visible the tensions and negotiations that are often backgrounded in human-centred HBI narratives of technological retrofit. Methodologically, we offer a practical pathway for making more-than-human participation actionable in HBI research by representing heritage buildings through speculative thing-interviews, grounding these perspectives through building-voiced memos, and materialising them

through design-futuring artefacts and scenarios. Across the two phases, we distil three implications for technological adaptation in heritage-rich contexts: negotiating consent and power asymmetries, framing stewardship through care and companionship, and rethinking authenticity beyond fixed notions of originality. Together, these implications point toward practical roadmaps and conceptual framings that can support designers, policymakers, and technologists in designing with more-than-human agencies in heritage settings beyond our case.

In this research, unlike the common approach in the speculative thing interview method [44], we treated studies 1 and 2 as consecutive and parallel rather than iterative. Architects provided the basis for Study 1 insights, and experts provided the outcomes of Study 2. While that enabled consideration of multiple perspectives in the empirical understanding, future studies could address this limitation by inviting the same participants in both studies to deepen non-human representation.

Future work can extend these implications by broadening participation to include residents, designers, policymakers, craftspeople, caretakers, and other more-than-human stakeholders, and by surfacing additional tensions and negotiation practices across everyday use, maintenance, and intervention. It can also examine the institutional and infrastructural conditions that enable or constrain more-than-human involvement, such as heritage regulation, governance arrangements, ownership status, and data and technology infrastructures, and how these shape what kinds of adaptations become permissible, reversible, or contested. By acknowledging heritage buildings as agentic actors, we invite architects, designers, and policymakers to imagine futures in which built environments are not only preserved but also participate in shaping their own trajectories of change.

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