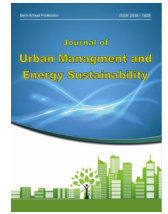


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Rethinking the Territory of the Home in the Internet Age: A Conceptual Framework for the Interaction Between the Physical Body and Cyberspace

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ABSTRACT

The expansion of virtual platforms and the pervasive penetration of internet infrastructures into everyday life have brought the physical boundaries of the home into a new phase of transformation, so that the territory of dwelling is no longer defined merely within the limits of walls and material demarcations, but is formed and extended in a continuous connection with cyberspace. The present research therefore aims to rethink the concept of the home's territory in the internet age and to explain the manner of interaction between the physical body and cyberspace. Methodologically, the study is designed as a qualitative conceptual investigation that combines an integrative literature review with a theory-synthesis approach to conceptual model building. Sources published between 1966 and 2024 were retrieved from Scopus, Web of Science, and Google Scholar. The findings show that the boundaries of the home in the internet age have shifted from a rigid, linear state to a permeable, multilayered, and networked structure, and that the territory of dwelling takes shape as a hybrid condition between physical and cyber space. On this basis, the article presents a conceptual model of the hybrid home territory comprising three levels: physical, digital, and interactive. The model is articulated through four theoretical propositions and introduces the notion of the digital threshold as the mediating mechanism that couples the physical and digital territorial layers. This model can provide a theoretical foundation for understanding the contemporary transformations of the home and for rethinking the spatial organization of the home in the internet age.

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INTRODUCTION

In architectural theory, the concept of the home's territory has always been defined in a fundamental connection with the "boundary" a boundary that is not merely a physical element such as walls, but a spatial mechanism for defining territory, regulating access, and stabilizing the distinction between inside and outside. Within the framework of classical theories, physical boundaries are regarded as the basis for organizing privacy, spatial ownership, and the control of social interactions (Altman, 1975; Hall, 1966). In this classical tradition, territoriality was theorized as a spatial strategy for controlling people, resources, and relationships by controlling area (Sack, 1986), and clear physical demarcation was even credited with a direct protective and social function, as in the notion of defensible space (Newman, 1972). From this perspective, the home is a physical structure that relies on the stability of the physical body and, accordingly, on the boundaries that, by clearly separating the private from the public domain, organize the spatial structure of dwelling (Brown, 2022). Within housing and home studies, similarly, the home has long been conceptualized as a socio-spatial system in which the physical dwelling and its social meanings are fused into a single unit (Saunders & Williams, 1988; Mallett, 2004; Blunt & Dowling, 2006) a fusion that presupposes a legible distinction between inside and outside. Nevertheless, in the present era, with the expansion of home internet, communication infrastructures, and digital platforms, the home's territory has entered a phase in which active and fluid virtual boundaries have replaced passive and rigid physical boundaries and have brought about a dynamism of territory. Studies related to the home in the digital age have shown that networked technologies have redefined not only the manner of using space, but also the structure of its boundaries (Abdelmonem, 2021). Cyberspace, by creating flexible access spaces, produces fluid and layered boundaries that differ from the rigid and linear logic of physical boundaries (Brighenti,

2010; Kärrholm, 2007). These digital boundaries can, without directly intervening in the physical body, make the home's territory permeable or extend it and expand it beyond its material limits.

On the other hand, internet connectivity has gradually become part of the residential value and function of the home, so that the digital infrastructure is regarded not merely as a technical facility but as an effective factor in redefining the spatial function of housing (Conley & Whitacre, 2020). Despite the studies conducted in this field, the major part of existing research either focuses on smart-home technology or examines the social consequences of online living (Cassidy, 2001), and has paid less attention to the relationship between the physical body and cyberspace at the architectural level, especially in the home. As a result, the architectural literature still lacks a conceptual framework capable of formulating the interaction of these two layers in the redefinition of the concept of boundary and the territory of dwelling. Despite the expansion of studies on virtual space and online lifestyles, as well as previous research in the field of territoriality in architecture and environmental psychology, a considerable gap still exists in contemporary architecture: the absence of an integrated conceptual framework capable of transforming the home's territory from a purely physical state into a hybrid territory (physical, perceptual, cyber). In this context, the theoretical gap becomes apparent at the level of re-reading the concept of the "boundary": a boundary that in traditional architecture was defined as a definite physical limit has now, in the networked context, become a multilayered, overlapping, and function-oriented structure. This transformation does not mean the elimination of the physical body, but rather indicates its semantic and functional re-configuration in relation to cyberspace. On this basis, the main question of the article is how the physical boundaries of the home are affected by virtual platforms, and what implication this has for the concept of the territory of dwelling. The aim of the research is to present a conceptual

framework for explaining the interaction and combination of the physical body and cyberspace in the contemporary home a framework that defines the home as a hybrid territory and provides a theoretical ground for rethinking the spatial organization of housing under networked and virtual living conditions. To operationalize this aim, the main question is decomposed into three sub-questions: (1) on which theoretical foundations has the territory of the home traditionally been constructed in architectural thought? (2) how do internet infrastructures and virtual platforms transform the mechanisms boundary, threshold, hierarchy, and control through which this territory is produced? and (3) through which conceptual structure can the interaction of the physical body and cyberspace be formulated as a coherent model of dwelling territory? The remainder of the article is organized as follows: the research background and the theoretical foundations of territory are reviewed first; the materials and methods of the study are then described; the findings are presented in three analytical steps that culminate in the conceptual model of the hybrid home territory; and the final section presents the conclusions, design implications, and limitations of the study.

RESEARCH BACKGROUND

A review of the theoretical background shows that the encounter of the home with digital infrastructures can be read as a set of paradigm shifts in the way the home's territory and boundaries are understood. In the transition from the classical conception to the internet age, rigid boundaries give way to permeable boundaries, the physical threshold is accompanied by a digital threshold, the bounded territory becomes a hybrid territory, and spatial control is extended into the control of data and access. Figure 1 summarizes these four shifts. (Fig. 1)

Beyond these paradigm shifts, a closer mapping of the literature shows that existing studies cluster around three relatively disconnected bodies of work. The first comprises early theo-

rizations of the dissolution of place under electronic networks, from the “city of bits” (Mitchell, 1995) to the space of flows of the network society (Castells, 2010) and the splintering of urban life along networked infrastructures (Graham & Marvin, 2001). The second consists of studies of hybrid and mobile spatiality that conceptualize the entanglement of physical and digital layers, mostly at the urban and public-space scale (de Souza e Silva, 2006; Farman, 2012; McQuire, 2016; Kitchin & Dodge, 2011). The third is a domestic-scale body of work that documents how networked technologies reorganize everyday life, gendered work, care, and housing value within the home (Cassidy, 2001; Conley & Whitacre, 2020; Abdelmonem, 2021), a stream that expanded rapidly after the COVID-19 pandemic and the mass relocation of work, education, and social interaction into the dwelling (Batty, 2020; Peters & Halleran, 2021; UN-Habitat, 2021). Table 1 summarizes the most relevant of these studies and the gap each of them leaves open. What remains missing at the intersection of the three clusters is an architectural formulation of territory itself: a framework that translates the entanglement of the material and the digital into the classical territorial vocabulary of boundary, threshold, hierarchy, and control at the scale of the home. It is precisely this gap that the present article addresses.

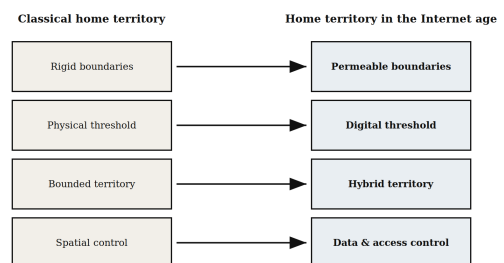


Figure 1: The paradigm shifts in the concept of the home's territory in the transition from the classical conception to the internet age (Source: Author)

Table 1: Summary of the most relevant prior studies and the gap addressed by the present research ([Source: Authors](#))

Author(s) / Year	Disciplinary focus	Key contribution	Gap addressed by the present study
Mitchell (1995)	Architecture / urbanism	Early account of the dissolution of place and program under electronic networks (“city of bits”)	Urban-scale speculation; no territorial model of the dwelling
Cassidy (2001)	Media studies	Shows how the home computer redraws gendered territories of work and family inside the home	Focus on media use; boundary/threshold concepts remain implicit
de Souza e Silva (2006); Farman (2012)	Communication / mobile media	Concept of hybrid space produced by mobile interfaces and embodied locative practices	Developed for mobile, public, and urban settings, not the home
Castells (2010); Graham & Marvin (2001)	Sociology / urban studies	Space of flows and splintered networked infrastructures as the new spatial logic	Macro-scale theory; the dwelling appears only as a network node
Kitchin & Dodge (2011); Dourish & Bell (2011)	Software studies / HCI	Code/space: spatial functioning becomes dependent on software and connectivity	No architectural reading of boundaries and territorial control
McQuire (2016); Marres (2017)	Media / digital sociology	Geomedia and digital devices as participants in the organization of everyday space	Territory and threshold are not thematized architecturally
Conley & Whitacre (2020)	Regional science / housing	Broadband access measurably enters residential value and function	Economic evidence without a spatial-conceptual framework
Abdelmonem (2021); Peters & Halleran (2021); Batty (2020); UN-Habitat (2021)	Architecture / housing / urban studies	Post-pandemic evidence of the multifunctional, networked home and its health and care implications	Empirical and descriptive; lacks an integrated territorial model
Brighenti (2010); Kärholm (2007)	Territorology / architectural theory	Territory as continuous production stabilized by material devices; territorial complexity	Not yet applied to the digitally networked dwelling

THEORETICAL FOUNDATIONS OF TERRITORY IN ARCHITECTURE

The concept of territory in architecture, before being extended into the behavioral and social domains, is rooted in the logic of space-making and physical demarcation. Territory in this sense expresses a system of boundaries, layerings, and spatial regulations that is defined and stabilized through architectural elements. By drawing a boundary, architecture not only encloses space but also creates a meaningful structure of inside and outside a structure in which distinction, hi-

erarchy, and access control are realized through physical elements such as the wall, the threshold, the courtyard, and the opening ([Rapoport, 1969](#); [Norberg-Schulz, 1980](#)). Within this framework, the boundary is not merely an abstract line but has a spatial and perceptual quality. The wall, as one of the most fundamental elements of architecture, simultaneously plays a structural and a semantic role: on the one hand, it defines the limit, and on the other, it regulates the intensity of connection or separation between spaces ([Habraken, 1998](#)). In environmental-behavioral research, this demarcating logic was theorized

through the concepts of proxemics and privacy regulation, in which territorial behavior operates as a boundary-control process that adjusts the openness and closedness of the self to others (Hall, 1966; Altman, 1975), while defensible-space theory attributed to clearly assigned residential territories a direct protective and social function (Newman, 1972). Sack (1986) generalized these insights by defining territoriality as a strategy for controlling actions, interactions, and resources through the control of area a definition that makes explicit the triad of classification by boundary, communication of the boundary, and enforcement of access on which the classical home territory rests. From this perspective, the home's territory is the result of the stabilization of boundaries and thresholds that make possible the internal organization of space. The concept of the threshold also holds a central place in architectural theories. The threshold can be regarded as the transitional space between two distinct territories a space that is neither fully inside nor fully outside, but rather an intermediate zone that regulates connection (Alexander et al., 1977). Such an understanding of the threshold transforms territory from a linear demarcation into a layered and gradual structure a structure in which the spatial hierarchy from public to private is defined through passage across different levels. In contemporary approaches to architectural theory as well, territory is regarded as a system of spatial relations through which space is organized and made legible. Recent rethinking in the

theory of space emphasizes that architectural boundaries are not merely physical elements but mechanisms that organize spatial relations (Spencer, 2021). Likewise, recent research in the field of architecture and technology has shown that the concept of boundary in contemporary architecture is transitioning from rigidity towards more complex and layered forms, yet still remains rooted in the physical logic of space (Kärholm, 2007; Graham, 2016).

Contemporary teratology pushes this line further by treating territory not as a given container but as a continuous production: territories are enacted, stabilized, and dissolved through the interplay of bodies, materials, rules, and technologies (Brighenti, 2010), and architectural research has shown that everyday environments are structured by a territorial complexity of overlapping productions appropriations, tactics, strategies, and associations that are stabilized above all by material design (Kärholm, 2007). In parallel, home studies emphasize that the home is simultaneously a material and an ideational entity, a socio-spatial system in which physical form and social meaning are co-produced (Saunders & Williams, 1988; Mallett, 2004; Blunt & Dowling, 2006). Table 2 synthesizes these theoretical strands and their implications for the territory of the home; together they supply the conceptual vocabulary boundary, threshold, hierarchy, control, and territorial production with which the digital transformation of the home is analyzed in the following sections. (Tab. 2)

Table 2: Theoretical foundations of territory in architecture and their implications for the home (Source: Authors)

Theoretical strand	Key authors	Core concept	Implication for the home's territory
Proxemics and privacy regulation	Hall (1966); Altman (1975)	Territorial behavior as a boundary-control process regulating access to the self	The home as the primary territory with the strongest expectation of control
Defensible space	Newman (1972)	Clearly assigned territories and natural surveillance	Legible physical demarcation as a protective residential mechanism
Cultural theory of house form	Rapoport (1969)	House form as a product of socio-cultural forces	Boundaries encode cultural rules of privacy and hospitality
Phenomenology of place	Norberg-Schulz (1980)	Dwelling as orientation and identification with place	Inside/outside distinction as the existential core of dwelling

Pattern language / threshold	Alexander et al. (1977)	Threshold as a transitional zone and intimacy gradient	Territory as a layered, gradual structure from public to private
Form and control	Habraken (1998)	Built environment as a hierarchy of territorial control by agents	The wall as a device that distributes control among actors
Human territoriality	Sack (1986)	Territoriality as a strategy of control through area	Classification, communication, and enforcement of the home boundary
Territorology / territorial production	Brighenti (2010); Kärholm (2007)	Territory as continuous, materially stabilized production	The home territory as an ongoing achievement, open to new (digital) stabilizers
Home studies	Saunders & Williams (1988); Mallett (2004); Blunt & Dowling (2006)	Home as a fused socio-spatial and ideational unit	Territorial change entails change in the meaning and practice of dwelling

As a result, in the theoretical tradition of architecture, three main foundations can be identified for the home's territory: the stabilization of physical boundaries, the hierarchical organization of space, and the control of access. These foundations turn the home into an introverted structure based on a clear distinction between inside and outside. A precise understanding of these theoretical foundations is a prerequisite for analyzing the transformation of physical boundaries in the internet age, because only in the light of this classical framework can the degree of transformation and displacement of the concept of territory be gauged in the context of new technologies.

MATERIALS AND METHODS

This study is a qualitative, conceptual (non-empirical) investigation whose purpose is theory building rather than theory testing. Among the recognized templates for conceptual research, the study follows the theory-synthesis design, in which concepts and findings dispersed across several literatures are integrated into a new conceptual framework with enhanced explanatory power (Jaakkola, 2020). This design is appropriate when a phenomenon is evolving rapidly and the relevant scholarship is fragmented across disciplines precisely the situation of the networked home, whose study is dispersed among architectural theory, environmental psychology, media and software studies, and housing research. The

evidentiary basis of the synthesis was assembled through an integrative literature review, a method that critically analyzes and re-conceptualizes the literature on a topic in order to generate a new framework or model (Torraco, 2005; Snyder, 2019).

The review proceeded in four stages (Fig. 2). In the first stage, the research problem and the conceptual gap were framed on the basis of the classical territorial vocabulary of architecture. In the second stage, sources were retrieved from Scopus, Web of Science, and Google Scholar using combinations of the keyword's "territoriality", "home territory", "boundary", "threshold", "domestic space", "cyberspace", "hybrid space", "code/space", "smart home", and "remote work AND housing", over the period 1966–2024; the starting year corresponds to the earliest systematic theorization of socio-spatial boundary behavior (Hall, 1966). Retrieved records were screened by title, abstract, and full text against the criteria reported in Table 3, and the list was completed through backward and forward citation chaining. The screening yielded a final analytical corpus of 32 substantive sources peer-reviewed articles, scholarly books, and institutional reports all of which are cited in this article, in addition to three methodological references. In the third stage, the corpus was analyzed through a three-step conceptual coding procedure. First, open conceptual extraction identified every territorial concept mobilized by each source (boundary, threshold,

hierarchy, access, control, permeability, hybridity, node, flow, platform, interface). Second, axial categorization organized these concepts along four analytical axes derived from the theoretical foundations: (a) the nature of the boundary, (b) the structure of the threshold, (c) the hierarchical organization of space, and (d) the mechanism of control. Third, a constant comparison between the classical and the networked readings of each axis produced the comparative matrix presented in Table 4 and, in the fourth stage of the design,

the conceptual model of the hybrid home territory (Fig. 3), which was iteratively refined against the corpus until no reviewed source contradicted its categories. The trustworthiness of this non-empirical procedure was supported by the triangulation of independent theoretical strands, by the maintenance of an explicit audit trail from concepts to sources (Tab. 1, 2, and 4), and by repeated debriefing sessions among the authors; the limitations inherent in a conceptual design are acknowledged in the concluding section.

Research design of the study

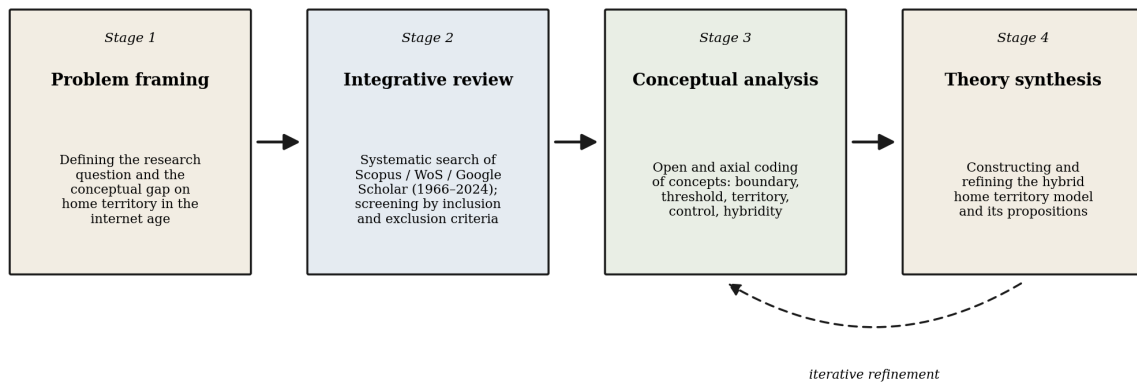


Figure 2: The four-stage research design of the study (Source: Authors)

Table 3: Search and screening protocol of the integrative review (Source: Authors)

Protocol element	Specification
Databases	Scopus; Web of Science; Google Scholar (supplementary)
Time span	1966–2024
Search keywords	territoriality; home territory; boundary; threshold; domestic space; cyberspace; hybrid space; code/space; smart home; remote work AND housing
Inclusion criteria	(1) peer-reviewed articles, scholarly books, or institutional reports; (2) explicit treatment of territory, boundary, threshold, or spatial control; (3) relevance to the home or to the physical–digital relation of space; (4) English language
Exclusion criteria	(1) purely technical smart-home engineering studies; (2) sources treating the internet only as a communication medium without spatial implications; (3) non-scholarly commentary
Selection procedure	Title/abstract screening → full-text screening → backward and forward citation chaining
Final corpus	32 substantive sources + 3 methodological references

FINDINGS AND DISCUSSION

TRANSFORMATION OF THE HOME'S PHYSICAL BOUNDARIES IN THE ENCOUNTER WITH THE INTERNET

As noted, the physical boundaries of the home in the architectural tradition were formed on the basis of rigidity, clarity, and perceptibility. The wall, the courtyard, the doorway, and the threshold were the instruments for stabilizing territory, and through them the distinction between inside and outside was realized spatially and physically (Rapoport, 1969). These demarcations not only defined the spatial organization of the home but also stabilized the system of access, sight, and hierarchy (Habracken, 1998). In such a structure, the home was regarded as an independent, introverted unit whose boundaries were mainly controlled through physical elements. With the arrival of new communication technologies, and especially the internet, the pattern of stabilizing territory underwent a fundamental transformation. As an infrastructure of permanent connection, the internet turned the home from a relatively closed spatial unit into a node in the global network (Castells, 2010; Graham & Marvin, 2001). This networked connection was not merely a technological addition to the existing physical body; it also affected the logic of demarcation, so that the wall is no longer the sole determinant of the limit of territory, and the flow of data and communication also plays a role in defining spatial limits.

In this context, the physical boundaries of the home have changed from a rigid and linear state to a permeable and layered condition. The presence of virtual platforms, online meetings, remote work, and virtual education has transferred external functions into the interior space of the home and has redefined the boundary between the internal space and the external environment through digital channels (Batty, 2020; Peters & Halleran, 2021). In this way, the home's boundary is no longer merely a physical surface, but becomes a mechanism combining the dimension of the physical body and the

communication infrastructure. In this sense, the contemporary dwelling increasingly behaves as what software studies call a code/space: a space whose intended functioning depends on software and connectivity, such that the withdrawal of the digital layer disables part of the spatial program itself (Kitchin & Dodge, 2011; Dourish & Bell, 2011). Contemporary research in the field of digital architecture shows that the contemporary home possesses two simultaneous dimensions: a physical dimension and a communicational dimension. These two dimensions operate in an overlapping manner and shape territory in a hybrid context (Graham, 2016). Under such conditions, the concept of the "threshold" is also transformed, because entry and exit no longer take place solely through the physical doorway but also occur through digital interfaces. This situation turns the boundary from a rigid physical element into a fluid and multilevel condition. Recent developments in theories concerning physical space and virtual space also show that architecture in the digital age is confronted with the phenomenon of the "entanglement of material and virtual spaces" a condition in which cyberspace acts as a functional extension of physical space (McQuire, 2016; Spencer, 2021). As a result, the home is no longer defined solely on the basis of geometric and material limitations, but is also organized in a networked and data-oriented context. In summary, it can be said that the home's encounter with the internet has brought about three fundamental transformations in its physical boundaries: first, the weakening of the rigidity of the boundary and the increase of its permeability; second, the transfer of part of the external functions into the internal space; and third, the formation of a communicational layer that, alongside the physical body, plays a role in defining territory. These transformations set the ground for redefining the home's territory as a hybrid structure a structure in which the boundary is neither eliminated nor fully retained, but is transformed into a combined and networked condition.

CYBERSPACE AND THE REDEFINITION OF THE HOME'S TERRITORY

Territory in architecture has always been defined by place, limit, and the capacity for spatial control; but with the emergence of cyberspace, the foundations of this definition have undergone a conceptual displacement. Cyberspace is not merely a communication tool, but a parallel spatial layer that overlaps the physical structure of the home and plays an active role in organizing functions (Mitchell, 1995). In such a context, territory is no longer stabilized solely through physical elements, but is also defined through digital access, levels of connection, and data control. Contemporary research shows that cyberspace has created a kind of “complementary space” that is entangled with material space (McQuire, 2016). This entanglement causes the home's boundaries to appear not as eliminated but as reconfigured. In other words, the wall still exists, but its territorial function is no longer independent of communication infrastructures. Permanent connection to the network has made possible simultaneous presence in several territories and has transformed the monocentric structure of the home into a multilayered one. In the theory of the network society, space is no longer defined merely on the basis of physical proximity, but is organized on the basis of the flow of information (Castells, 2010). This change of logic turns the home from an “enclosed unit” into a “network node” a node in which territory is formed in the interaction between the physical body and the network. In this way, the home's territory in the internet age is neither fully internal nor fully external, but lies in a hybrid condition between the two.

New research in the field of digital architecture also shows that the contemporary home possesses a kind of structural duality: a material layer and a cyber layer that simultaneously affect

the spatial experience (Spencer, 2021; Graham, 2016). Within this framework, concepts such as “threshold” and “entry” take on a new meaning, because entry into the home's territory can also be realized through connection to a digital platform. Therefore, territory changes from a linear limit into a dynamic and networked field. On the other hand, the developments after 2020 and the expansion of remote work and online living have extended the functional boundaries of the home more than ever. The home is no longer merely a place of dwelling, but has become a place of work, education, social interaction, and content production (UN-Habitat, 2021; Batty, 2020; Peters & Halleran, 2021). This multifunctionality has driven territory from a uniform state towards a flexible and re-adjustable structure. As a result, it can be said that cyberspace has created three fundamental changes in the home's territory: first, the transformation of territory from a physical limit into a layered structure; second, the formation of simultaneous and overlapping territories; and third, the dependence of the definition of the boundary on communicational and networked mechanisms. On this basis, the home's territory in the internet age has neither been eliminated nor merely weakened, but has been redefined in the form of a hybrid and multilevel structure a structure in which the physical body and the network simultaneously play a role in determining spatial limits.

The conceptual coding of the reviewed corpus makes it possible to condense these transformations into a systematic comparison. Table 4 contrasts the classical and the hybrid readings of the home's territory across seven analytical dimensions extracted from the literature; this matrix constitutes the analytical core of the findings and the direct input of the conceptual model developed in the next section.

Table 4: Comparative matrix of the classical and hybrid readings of the home's territory (Source: Authors)

Analytical dimension	Classical home territory	Hybrid home territory in the internet age
Nature of the boundary	Rigid, linear, material (wall, fence)	Permeable, multilayered, physical–digital

Threshold	Physical transitional space (doorway, vestibule, courtyard)	Physical threshold coupled with digital thresholds (log-in, permission, connection)
Mechanism of control	Spatial control of access, sight, and movement	Combined control of space, data, connectivity, and platform access
Spatial organization	Introverted hierarchy from public to private	Networked, reconfigurable zoning overlaid on the physical hierarchy
Inside/outside relation	Stable, binary separation	Gradual, negotiated, and function-dependent separation
Mode of presence	Single, physically located presence	Simultaneous physical and digital presence in several territories
Temporality of territory	Relatively fixed and slowly changing	Continuously redefined through connection and disconnection

THE CONCEPTUAL MODEL OF THE HYBRID HOME TERRITORY

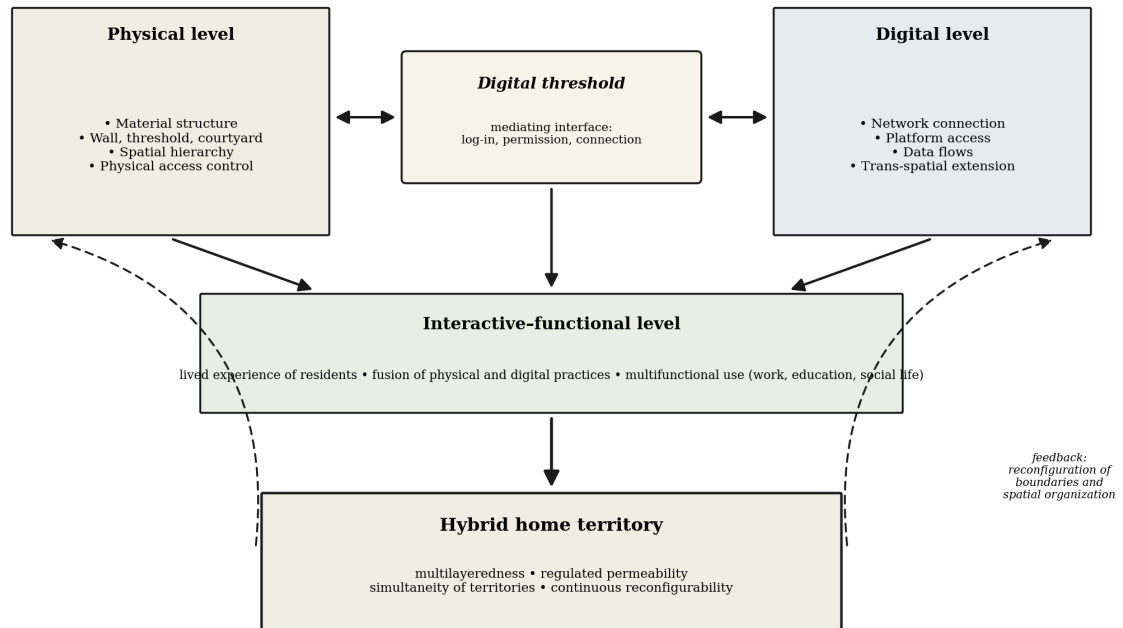
The expansion of the internet and the penetration of communication technologies into everyday life have challenged the classical foundations of understanding territory in architecture. In traditional approaches, the home's territory was defined on the basis of physical elements, spatial hierarchy, and the system of access control, and the boundary operated as a material mechanism for regulating the relationship between inside and outside. This understanding rested on a relatively stable separation between private and public space. But in the contemporary situation, in which everyday life has become intensely entangled with digital networks, territory can no longer be explained solely through physical structure. Theories of space in the digital age show that spatial experience is now formed in close connection with communication infrastructures, and that space has become an "augmented" and multilayered context (Graham, 2020). Within this framework, the home is not only a physical unit but also a node in a network of flows of data, communication, and interaction. Such a change causes the home's boundaries to transition from a linear and rigid state to a fluid and dynamic condition a condition in which virtual presence can, without physical displacement, extend or redefine territory (Kitchin & Dodge, 2011). At the same time, contemporary studies on the home in the context of smart technologies show that

the digital infrastructure has become part of the spatial organization and affects the way privacy, control, and access are experienced (Marres, 2017). Under these conditions, functions such as work, education, social interaction, and even cultural consumption have been integrated within the home, and the functional boundaries do not fully coincide with the physical boundaries. The experience of the COVID-19 pandemic also intensified this transformation and turned the home into a multifunctional and network-oriented context (Batty, 2020; Peters & Halleran, 2021). On this basis, the conceptual model of the "hybrid home territory" can be proposed as an explanatory framework. In this model, territory is the result of the interaction of three entangled levels: first, the physical level, which provides the material structure, spatial organization, and physical control; second, the digital level, which, through network connection, platform access, and the flow of information, extends the boundary into a trans-spatial domain; and third, the interactive-functional level, in which these two dimensions are combined in the lived experience of the residents. In this condition, territory is neither eliminated nor collapses, but is transformed into a multilayered and reconfigurable structure. Figure 3 presents the model; unlike a simple aggregation of components, it specifies the relations among the levels: the physical and digital levels are coupled through the mediating mechanism of the digital threshold, all three lev-

els converge in the interactive–functional level of lived practice, and the resulting hybrid territory feeds back into both primary levels by prompting

the reconfiguration of boundaries and spatial organization. (Fig. 3)

The Hybrid Home Territory Model



*feedback:
reconfiguration of
boundaries and
spatial organization*

Territory produced through the continuous, mediated interaction of built form and network

Figure 3: The conceptual model of the hybrid home territory as the interaction of the physical, digital, and interactive–functional levels, coupled through the digital threshold and closed by a feedback loop of spatial reconfiguration (Source: Authors).

The essential characteristics of this hybrid territory are multilayeredness, regulated permeability, the simultaneity of territories, and the capacity for continuous redefinition. Such an understanding of territory is aligned with contemporary theories of hybrid spaces and entangled realities, which define the boundary not as a fixed line but as a dynamic field dependent on communicative actions (de Souza e Silva, 2006; Farman, 2012). As a result, the model proposed by this research shows that the home in the internet age is an arena in which the physical body and the network, in a simultaneous and interactive relationship, produce the structure of territory a structure that can be understood only through a layered and interdisciplinary lens. The

internal structure of the model is unpacked in Table 5, which specifies, for each level, its constitutive components, the territorial mechanism through which it participates in the production of territory, and its principal spatial implication for the dwelling.

To make the framework researchable and to guide future empirical work, the model is articulated in four theoretical propositions. Proposition 1: the more domestic functions migrate to digital platforms, the more the effective boundary of the home is defined by access regimes log-ins, permissions, and connectivity rather than by physical enclosure alone. Proposition 2: the digital threshold operates as a functional equivalent of the physical threshold; it regulates

entry, gradualness, and exposure between territories, and its configuration shapes residents' perceived control and privacy. Proposition 3: territorial conflict in the hybrid home arises primarily at points where the physical and digital layers are misaligned for instance, the acoustic and visual exposure of private space during telework and is mitigated by architectural devices that re-synchronize the two layers. Proposition 4: the greater the reconfigurability of the interactive–functional level (flexible rooms, adaptable partitions, zoned connectivity), the higher the capacity of the hybrid territory to absorb functional multiplicity without territorial collapse.

Positioned against the existing literature, the model makes three distinct contributions. First, whereas theories of hybrid space were developed principally for mobile media and urban public space (de Souza e Silva, 2006; Farman, 2012), the model transfers and adapts the hy-

brid-space thesis to the scale of the dwelling and re-expresses it in the architectural vocabulary of boundary, threshold, and hierarchy. Second, whereas territorology conceptualizes territory as a continuous, materially stabilized production (Brighenti, 2010; Kärholm, 2007), the model specifies, for the domestic realm, which stabilizers now operate material devices and digital access regimes and how they are coupled. Third, in contrast to technology-centered accounts of the smart home (Marres, 2017), the model retains the primacy of the architectural question: it does not describe devices, but the territorial condition they produce. At the same time, the model guards against technological determinism: the digital level does not abolish the material one, and the reviewed evidence consistently indicates reconfiguration rather than replacement walls, thresholds, and hierarchies remain indispensable stabilizers of the territory even where its effective limits are negotiated online.

Table 5: Levels, components, mechanisms, and spatial implications of the hybrid home territory model (Source: Authors)

Level of the model	Constitutive components	Territorial mechanism	Principal spatial implication
Physical level	Material structure; wall, threshold, courtyard, opening; spatial hierarchy	Stabilization of boundaries; physical control of access, sight, and movement	The enduring material anchor of the territory; enclosure and hierarchy
Digital level	Network connection; platforms; data flows; interfaces and devices	Regulation of access through connection, permission, and data control (digital threshold)	Trans-spatial extension of the territory beyond the material envelope
Interactive–functional level	Lived practices of residents; telework, e-learning, online sociality; domestic routines	Situated negotiation and synchronization of the two layers in everyday use	Multifunctional, reconfigurable zoning of domestic space
Emergent outcome: hybrid home territory	The three levels in continuous interaction	Feedback of use onto boundaries and spatial organization	Multilayeredness; regulated permeability; simultaneity; reconfigurability

To make the framework researchable and to guide future empirical work, the model is articulated in four theoretical propositions. Proposition 1: the more domestic functions migrate to digital platforms, the more the effective boundary of the home is defined by access regimes log-ins, permissions, and connectivity rather than by physical enclosure alone. Proposition

2: the digital threshold operates as a functional equivalent of the physical threshold; it regulates entry, gradualness, and exposure between territories, and its configuration shapes residents' perceived control and privacy. Proposition 3: territorial conflict in the hybrid home arises primarily at points where the physical and digital layers are misaligned for instance, the acoustic

and visual exposure of private space during telework and is mitigated by architectural devices that re-synchronize the two layers. Proposition 4: the greater the reconfigurability of the interactive–functional level (flexible rooms, adaptable partitions, zoned connectivity), the higher the capacity of the hybrid territory to absorb functional multiplicity without territorial collapse.

Positioned against the existing literature, the model makes three distinct contributions. First, whereas theories of hybrid space were developed principally for mobile media and urban public space (de Souza e Silva, 2006; Farman, 2012), the model transfers and adapts the hybrid-space thesis to the scale of the dwelling and re-expresses it in the architectural vocabulary of boundary, threshold, and hierarchy. Second, whereas territorology conceptualizes territory as a continuous, materially stabilized production (Brighenti, 2010; Kärrholm, 2007), the model specifies, for the domestic realm, which stabilizers now operate material devices and digital access regimes and how they are coupled. Third, in contrast to technology-centered accounts of the smart home (Marres, 2017), the model retains the primacy of the architectural question: it does not describe devices, but the territorial condition they produce. At the same time, the model guards against technological determinism: the digital level does not abolish the material one, and the reviewed evidence consistently indicates reconfiguration rather than replacement walls, thresholds, and hierarchies remain indispensable stabilizers of the territory even where its effective limits are negotiated online.

RESULTS AND CONCLUSION

The transformations arising from the expansion of the internet and the gradual establishment of digital platforms at the heart of everyday life indicate the emergence of a new kind of residential spatiality, in which the traditional relations among the physical body, the boundary, and territory have been fundamentally rearranged. In

this situation, the home can no longer be defined merely as a physical body with definite limits, but has become a multilayered and multiscale arena in which flows of information, networked communications, and digital mechanisms simultaneously participate in the production and organization of space. From this perspective, the transformation of the home in the internet age cannot be reduced merely to the entry of technology into the residential space; rather, it must be regarded as a transformation in the very logic of architectural spatiality and demarcation. The analysis of the theoretical foundations of territory in architecture showed that territory has traditionally rested on three main foundations: the stabilization of physical boundaries, the organization of spatial hierarchy, and the control of access. Together, these three components made possible the separation of internal and external domains and the formation of the home's spatial system. However, the results of the present research show that the emergence of cyberspace has led not to the elimination of these foundations but to a redefinition of the way they function. In fact, what has occurred in the contemporary home is not the collapse of the boundary, but the transition from rigid, single-layer boundaries to hybrid, multilayered boundaries in which the physical, functional, and digital dimensions operate simultaneously. Within this framework, cyberspace can be regarded as a kind of territorial extension of the home a layer that, without fully replacing physical space, extends its functional scope and radius of influence. On this basis, territory is no longer merely the product of the spatial organization of the physical body, but is the result of the continuous interaction between the material structure and the communication infrastructures. Such a condition gives rise to a kind of perceptual–functional demarcation in which the limits of territory are defined not only through the wall and the threshold but also through digital access, levels of connection, and communication networks. As a result, the contemporary home becomes a spatial–networked system in which

physical presence and digital presence operate simultaneously and equivalently in the process of producing space.

The main theoretical achievement of this research is the presentation of the conceptual model of the hybrid home territory. This model shows that territory in the internet age is formed from the interaction of three levels physical, digital, and interactive–functional and therefore cannot be analyzed merely within the framework of traditional dualities such as inside/outside, private/public, or physical/virtual. The importance of this model lies in the fact that it makes possible the theoretical formulation of the relationship between the architectural body and cyberspace, and in this way covers part of the existing gap in the contemporary architectural literature, which has mostly focused on one of these two domains. Finally, it can be argued that the home in the internet age has changed from a residential unit based on fixed territories into a dynamic, networked, and reconfigurable system. On this basis, rethinking the concept of territory is not merely a theoretical necessity but a precondition for understanding and designing the residential spaces of the future spaces in which physical boundaries and digital flows will simultaneously participate in the production of meaning, the organization of space, and the experience of dwelling. In the internet age, the home is no longer merely a place of dwelling, but a hybrid territory in which matter and data, body and network, and physical and digital presence simultaneously participate in the production and redefinition of space.

The findings carry practical implications for housing design, urban management, and policy. At the scale of the dwelling, the model suggests that the digital threshold should be treated as an object of architectural design in its own right: telework and e-learning call for acoustically and visually protected zones whose exposure to the network can be graduated, for adaptable partitions and flexible layouts capable of absorbing functional multiplicity (Proposition 4), and for a zoning of connectivity spaces of intensified

connection alongside deliberately disconnected refuges that restores the intimacy gradient in digital terms. At the scale of housing policy and urban management, the results imply that digital infrastructure has become a component of habitability rather than an optional amenity, and should accordingly enter housing standards, residential valuation, and post-pandemic recovery strategies. Finally, the limitations of the study must be acknowledged. The research is conceptual and non-empirical: the model and its four propositions are grounded in an integrative reading of the literature, not in field data, and the review corpus was restricted to English-language sources, which may underrepresent culturally specific configurations of domestic territory. The model has likewise not yet been validated by external experts. Future research can therefore proceed along four lines: (1) validation and refinement of the model through expert panels or Delphi procedures; (2) qualitative case studies of dwellings intensively used for telework and online education, testing Propositions 1–3; (3) post-occupancy and comparative cross-cultural studies operationalizing the dimensions of Table 4 into measurable indicators; and (4) design-based research translating the digital threshold into concrete architectural devices and evaluating their effect on residents' perceived control, privacy, and territorial satisfaction.

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