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Digital Transformation in Real Estate: A Qualitative Study of PropTech Brokerage Models in Spain

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Abstract

The emergence of highly technological and scalable companies has initiated a significant transformation in the traditionally conservative and slow-to-innovate real estate sector. This study aims to analyze and characterize the business models of PropTech online brokerage firms in Spain, particularly in the residential sales market, while using the traditional agency model as a benchmark. The research involved nine semi-structured interviews with CEOs and managers from six PropTech online real estate brokerage agencies operating in Spain. The collected data were examined through a comparison of recurring themes and patterns across the interviews. Analysis revealed that, during the digitalization of brokerage processes, some firms reverted to more conventional methods typical of traditional agencies. This regression highlights a key divergence from more transparent markets and results in a hybrid model that merges aspects of both online and traditional brokerage. The study's sample size is limited due to the relatively small number of online brokerage agencies currently active in Spain. The findings enhance transparency in an opaque sector and provide actionable insights for both professionals and users regarding ongoing structural and technological changes. The research aligns with Sustainable Development Goal 9, supporting policies that encourage decent job creation, entrepreneurship, creativity, and innovation. This work contributes to the academic literature on online real estate brokerage in Spain, where little prior research exists, and offers insights into how emerging PropTech firms perceive and influence the sector.

Keywords: Traditional agency, Qualitative research, Digitalization, Online real estate brokerage, PropTech

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Introduction

Digital transformation is reshaping nearly every industry, and real estate is no exception. Previous studies have examined how online platforms facilitate transactions between buyers and sellers, reducing the role of traditional intermediaries in multiple sectors [1-4].

The past decade has seen substantial technological innovation and new business model emergence within real estate [3, 5-7]. Although adoption of digital technologies has historically been slow in this sector, marked by limited innovation capacity and a cautious approach [8, 9], the industry is now beginning to catch up [2, 10-12].

Despite prior delays in integrating these innovations into business models, recent changes have tangible impacts on the brokerage process, client interactions, home searches, and the development of online platforms [2, 8, 11, 13, 14]. These shifts have paved the way for tech-oriented real estate companies, known as PropTechs, which have transformed the sector in recent years [3, 10, 11, 15].

This evolution raises several critical questions:

- What are the characteristics and operational mechanisms of these PropTech companies?
- Are they truly transformative for the real estate sector?
- Is the traditional real estate agency model at risk of disappearing?

The primary objective of this research is to characterize the business models of PropTech online brokerage firms in Spain, using the traditional agency as a reference point. Secondary objectives include:

- Profiling the traditional real estate agency business model.
- Identifying and analyzing the business models of online PropTech brokerage firms.
- Describing the range of business models currently present in real estate brokerage.

This research provides valuable insights into the ongoing changes in a sector traditionally marked by opacity, aiding in understanding the evolving dynamics of real estate brokerage in Spain.

Theoretical Framework

Proptech: Understanding its essence and progression

Proptech, a blend of "property" and "technology," highlights firms that fuse cutting-edge tech advancements with property markets [3, 16-18]. Baum *et al.* [19] portray it as "the digital overhaul reshaping the property business." Saull *et al.* [15] see it as an initiative fostering perceptual shifts among stakeholders and end-users in the field. To Siniak *et al.* [7], proptech means the broad rollout of novel tech across property operations.

While proptech dominates as the go-to label, synonyms exist like cretech [20], realtech [10, 21], and platform real estate [3]. Fields and Rogers [22] reserve "platform real estate" for e-commerce sites enabling asset exchanges between vendors and purchasers. Here, proptech labels the cluster of fresh tech-centric property outfits, given its dominance in research writings.

Prominent proptech triumphs, often spotlighted in media, encompass digital property listings and trading hubs—think Zillow across the U.S., or Spain's Idealista and Fotocasa—plus emerging web-based mediation services like the UK's Purplebricks [23] and Spain's Housfy with Housell [16, 24].

Hernández *et al.* [17] peg the proptech notion's dawn to circa 2000, yet Baum [10] delineates three eras for its trajectory. Proptech 1.0's debut wave hit chiefly in the U.S. and UK by the late 1980s, propelled by PCs' rise. Electronic ledgers turned into core systems for sorting and scrutinizing info, reshaping property workflows [10, 19].

Proptech 2.0 kicked off during the early 2000s, embedding tech into age-old property routines to boost operations via mechanization, expansion, and consistency [10, 19]. Sophisticated info crunching plus nascent VR delivered refined, niche offerings [7], alongside refining client journeys and spurring novices alongside veterans to channel funds into upgrades [25]. This interval birthed outfits zeroed in on web-facilitated asset trades [7, 10, 19], e.g., Spain's Idealista and Fotocasa [24], the UK's Rightmove, or sharing-economy sites including Airbnb and Homeaway [17]. The interval ties to pivotal breakthroughs and a sharp funding uptick.

Proptech 3.0 advances novel tech frontiers—encompassing blockchain, vast datasets, and AI [10, 19]—coupled with probes into aerial devices, immersive VR setups, and connected objects [7].

Such advancement shows in funding patterns too [3, 9, 10]. Risk capital inflows to property-tech entities have ballooned lately, posting a 63% yearly compounded rise from 2012 through 2017, hitting €10,000 millions by 2017 [26]. Unissu's proptech network gauged just past €13.2 billion for 2018 [19].

Key features of traditional real estate agencies

In conventional real estate brokerage, the physical office environment is essential for establishing a unique value proposition, serving as a visible indicator of perceived quality [27]. Vargo and Lusch [28] highlight that physical spaces enhance the client experience, allowing them to feel involved in co-producing services. Gardès [29] emphasizes that a modern, welcoming, and transparent office generates hedonic value, making the agency a space that delivers aesthetic and experiential satisfaction.

The role of real estate agents has been widely examined [30-33]. Agents primarily function as intermediaries between buyers and sellers, offering solutions, market intelligence, and facilitating communication [31, 32, 34, 35]. However, Clotet and Gallardo [36] argue that agents cannot act entirely independently or impartially due to conflicting interests between sellers and buyers, limiting the effectiveness of their intermediary role.

Adams [37] emphasizes that the nature of the asset being transacted requires clients to maintain close personal interaction with real estate agents to obtain adequate guidance when making significant property decisions. Palm and Bolsen [38] and Zhang *et al.* [14] note that housing represents a high-value consumer investment, involving a complex purchase process that is rarely repeated in the short term. Such decisions carry substantial financial risk and can have long-lasting effects on buyers, necessitating additional procedures, reflection time, and effort.

Conversely, in highly developed countries, real estate agents often face reputation challenges, mainly due to the substantial commissions they charge [4]. The absence of standardized regulations regarding these commissions results in diverse

compensation methods, ranging from fixed fees to variable scales based on the property's sale price [39]. In Spain, Caballé [40] highlights that brokers have full discretion in setting their fees, whether as a percentage of the sale price or a fixed rate.

Concerns over agent qualifications have persisted for years. Filstad and Gottschalk [41] argue that professionalism encompasses more than formal academic credentials, including integrity and industry knowledge. Clotet and Gallardo [36] and Roulac [11] further contend that the sector will continue to face skepticism as long as it is dominated by underqualified personnel. The rise of digital and technologically advanced models in real estate encourages the recruitment of highly skilled professionals, often from other industries [11, 42].

Classification of proptech in spain

Determining the exact number of PropTech companies operating in Spain is challenging. According to the Unissu platform [43], Europe had 3,219 registered PropTechs, with eight countries hosting more than 100 companies each. The U.K. had the highest number (805), while Spain ranked fourth with 304 companies. Meanwhile, the consultancy Finnovating reported 253 PropTechs in Spain in 2018 and 359 by April 2021 [44].

Globally, over 90% of PropTech firms are small and medium-sized enterprises [9]. In Spain, the typical profile is a start-up established after 2010, employing 1–10 people, of whom 76% are male, usually based in Madrid or Barcelona. The most frequent activity involves services linked to property buying, selling, or renting [45].

Categorizing PropTech verticals **(Table 1)** is complex due to the lack of a standardized classification system. Most commonly, companies are grouped by technology utilization [17] and service offerings [24]. This approach aligns with European trends, as most PropTech maps adopt similar categories [17].

Table 1. Number of PropTech verticals in Spain (Mapaproptech.com & Finnovating)

No. of verticals	Mapaproptech.com	Finnovating
1	Marketplaces	Marketplaces
2	Big Data	Big Data
3	Investment	Investment
4	Software	Software
5	Financing	Financing
6	Property management	Property management
7	Image	Visual Startups
8	Peer-to-peer	Peer-to-peer
9	Internet of things	Smart home
10	Marketing	Marketing
11		Contech

Note: Companies are grouped based on the niche or market they serve.

In 2017, the first online PropTechs in Spain appeared under the peer-to-peer vertical, marking a turning point in real estate brokerage. Inspired by the U.K.'s Purplebricks, these platforms introduced a novel business model, disrupting traditional agencies and significantly influencing the market. Their primary aim was to streamline buyer-seller interactions, reduce costs, enhance the user experience, and offer added value through their platforms [17].

Methodology

This study adopts a qualitative exploratory approach, enabling in-depth examination of specific cases without aiming to generalize, thereby capturing the characteristics of the social phenomenon under investigation [46]. The research process is interpretive and interactive, connecting theory with practice [47]. An exploratory strategy was selected due to the study's aim of collecting insights on a previously understudied phenomenon, without formulating formal hypotheses [48].

Study population and sample

The total count of agencies classified as proptechs in Spain is continuously changing. Due to inconsistencies in available data, their estimated number ranges between 300 and 350, depending on the proptech map referenced [17, 49]. To establish the survey population, each proptech listed across the different verticals **(Table 1)** was examined and grouped based on whether their business focused on online home buying and selling. These verticals are defined by two of Spain's leading proptech mapping companies [17, 49].

After this review, six proptechs were selected for inclusion in the study. Eight are part of the peer-to-peer vertical, originally developed around an online model that continues to operate, and they focus on real estate brokerage in Spain. The remaining agencies perform activities outside the scope of this study, such as home rentals or parking services.

Prontopiso was included as an exception, despite being classified under the investment vertical. This decision was based on its online brokerage model for buying and selling homes, which fits the criteria of the sample. It is not part of the peer-to-peer vertical, as it does not facilitate direct interaction between individuals, instead involving an intermediary in its transactions.

Sample selection was conducted using a discretionary, or judgmental, sampling approach. Each unit was chosen based on conceptual considerations and structural representativeness. In other words, "the variables that define the composition of the sample structure are theoretically defined by the researcher" [50].

The final sample included nine professionals from the real estate sector representing six online proptech real estate brokerage agencies in Spain. All interviewees were male: six were CEOs, one was a communications manager, one an operations director, and one the primary investor and founder of a proptech **(Tables 2 and 3)**.

Table 2. Description of Participants

Participant	Position	Gender	Qualification
Participant 1	Chief Executive Officer	Male	Civil engineering MBA
Participant 2	Chief Executive Officer	Male	Business administration MBA
Participant 3	Chief Executive Officer	Male	Computer engineering
Participant 4	Chief Executive Officer	Male	Marketing and economics Master's degree in marketing
Participant 5	Chief Executive Officer	Male	Law Various courses and specialization master's degree
Participant 6	Communications Director	Male	Journalism Master's degree in digital marketing
Participant 7	Co-founder	Male	Various master's degrees in senior business management, multimedia, and telecommunications
Participant 8	Chief Executive Officer	Male	Industrial Engineering
Participant 9	Operations Director	Male	IT Master's degree in project management and administration

Table 3. Agencies Participating in the Research and Interview Type

Agency	Number of Interviews	Participant(s)	Mode
Deplace	1	Participant 1	Video call
Prontopiso	2	Participants 2 and 5	Video call
Housell	1	Participant 3	Video call
Propertista	1	Participant 4	Video call
Housfy	2	Participants 6 and 7	Video call
Holpper	2	Participants 8 and 9	Face-to-face

Participants were recommended by each agency following initial contact, which occurred in one of two ways. The first was via a search on LinkedIn or Facebook, followed by an email exchange. The second was by sending a message directly to the email provided on the proptech's website, explaining the purpose of the research.

Before conducting the interviews, participants were briefed on the research objectives and asked for consent to record the conversation. They were informed about how the data would be stored and processed and assured that it would be used solely for research purposes.

Data collection and analytical approach

For data collection, we selected interviews as the primary qualitative research strategy. As Corbetta [47] notes, interviews aim to obtain information by questioning individuals while allowing the researcher to explore the participant's unique perspective. Grele [51] emphasizes that an interview represents a "conversational narration," co-constructed by interviewer and interviewee, forming the structure for the study.

To elicit meaningful responses and provide flexibility to the participants [52], semi-structured questions were developed [53-55]. A pilot test was conducted prior to the main interviews to improve the instrument, which included refining yes/no questions into qualitative prompts and adding new questions to better capture the phenomenon under study [56].

The final interview script addressed the following areas: participant qualifications and training, self-description of the PropTech company, methods for collecting fees, the relevance of a physical office in customer service, and the role of the brokerage agent.

Although the original plan was for in-person interviews, due to COVID-19 precautions, all but the final interview were conducted via video call **(Table 3)**. The single face-to-face interview took place at the participant's workplace. Interviews were conducted between November 2020 and March 2022, lasting 60–90 minutes each. Audio recordings totaled 600 minutes, transcribed verbatim into a text document of approximately 55,000 words.

Data were analyzed by creating and synthesizing categories and comparing them to provide a comprehensive understanding of the research topic. Excel was used to construct data tables for each interview and for each concept under study, facilitating cross-comparison of patterns. Inductive reasoning guided the analysis [57], consistent with the aim of generating knowledge in the underexplored area of PropTech's influence on home brokerage.

Findings were structured according to thematic analysis and interpretative research principles, with supporting quotes drawn from participant narratives [58]. While it is impossible to include every comment, the main themes are presented with representative quotes to allow readers to evaluate the accuracy and richness of our interpretations. This approach aligns with established practices in narrative-based qualitative research [57].

Results and Discussion

This section examines the CEOs' educational backgrounds, the way they describe their business models, the relevance of a physical office, and the role of the real estate agent, providing a detailed characterization of the various brokerage approaches.

CEO qualifications

According to **Table 2**, all CEOs interviewed possess advanced academic credentials, with a majority holding master's degrees. This contrasts with prior research suggesting that traditional real estate businesses are often led by individuals lacking sufficient expertise [11, 36]. Conversely, it aligns with findings by Roulac [11], who argues that the rise of technologically advanced real estate models necessitates recruiting highly skilled professionals. Similarly, Pedreño [59] notes that PropTech companies actively focus on talent acquisition and recruitment.

Business model definition

When asked about their business model, most participants pointed to Purplebricks, a British PropTech company, as both an inspiration and a reference point. They viewed it as a model to adapt for the Spanish market:

"*Housfy emerged after observing Purplebricks in England, which was successful and had no equivalent in Spain at the time. We based our approach on observation, research, and adaptation.*" — Participant 6, Housfy

"*During a trip to London, I noticed a Purplebricks ad on TV… Digital real estate agency: sell your flat without agency commissions for £895. This model inspired our approach in Spain*." — Participant 4, Propertista

These examples support the claim that Purplebricks has influenced new online brokerage models in Spain [17, 23].

Agency types varied among participants. Housell and Prontopiso operate as hybrid models, combining online features with traditional agent support, where agents guide clients during property visits:

"*I believe the future model must be hybrid… partly digital, but not entirely. Transactions will remain, but 100% digital is unlikely.*" — Participant 2, Prontopiso

Other participants, including Deplace, Propertista, and Housfy, emphasize their digital-first approach, minimizing traditional brokerage involvement while not fully eliminating it:

"*We function as a digital tool replacing the agent. The platform is cloud-based, users input data, and a subscription fee applies."* — Participant 1, Deplace

"Housfy is currently about 90% digital… users are not fully ready for a completely online experience yet." — Participant 7, Housfy

"We adapted the British model directly to Spain." — Participant 4, Propertista

Fees

The rise of these companies, which are more scalable and capable of optimizing processes while reducing costs [10, 17], has also introduced a shift in the approach to fees, both regarding timing and method of collection **(Table 6)**, as well as the expenses passed on to clients. This aligns with observations by Rodríguez Ruiz de Villa [39] and Caballé [40], who note that in Spain, agents can freely choose whether to charge a percentage-based commission or a fixed fee, as well as determine the amount.

Housell and Propertista present a notable innovation in a sector traditionally accustomed to payment only after a sale, by requiring the seller to pay upfront. Other companies continue to follow the conventional model.

One CEO elaborates on the different fee structures in the real estate market:

"There are only 3 models: paying in advance, which only we use (Propertista follows this too); the flat-fee-upon-sale model, which several proptechs implement effectively but there are only a few, maybe 3, 4 or 5; and finally, the majority of agencies charge a percentage fee upon the successful completion of a sale, often with a minimum amount." Participant 3, Housell.

Table 4 summarizes the three models described by Participant 3 (Housell). Under this categorization, Deplace, Housfy, and Holpper follow the flat-fee-upon-sale model (model 1); Propertista and Housell use the advanced payment model with a fixed fee (model 2); and Prontopiso follows the traditional percentage-based model (model 3). Among these, the approach of Housell and Propertista is arguably the most transformative, challenging Spain's conventional method where service is rendered first and payment is only due upon completion of the sale.

Table 4. Online Proptech Fee Models for Home Brokerage

Company	Model	Timing of Fee Payment	Fee Structure
Deplace	1	Paid after the sale is finalized	Fixed fee
Housfy	1	Paid after the sale is finalized	Fixed fee
Holpper	1	Paid after the sale is finalized	Fixed fee
Housell	2	Paid upfront	Fixed fee
Propertista	2	Paid upfront	Fixed fee

Prontopiso	3	Paid after the sale is finalized	Percentage-based

Participant 1 (Deplace) defends the flat-fee-upon-sale model over the advance-payment method, which is still preferred by many consumers:

"*Some prefer to pay upfront because it grants access to the platform, but how they use it is up to them. In a market used to paying after completion, it makes sense to align payment with the sale, which is why we opted for this model."*

Similarly, Participant 6 (Holpper) comments that the advance-payment approach used by Propertista and Housell is not viable in a Latin market, which differs significantly from Anglo-Saxon markets:

"*Housell has a model that Latin consumers just don't accept. It's copied from England's Purplebricks, and Propertista does the same. Here, paying upfront before the sale—even €300—doesn't work. People think: 'I can take the photos myself, my spouse does better…' Just because it succeeds in England doesn't guarantee it will work here."*

The challenges of advance payment are further highlighted by other participants:

"*Requiring upfront payment has been our biggest obstacle in boosting sales. Many people in Spain are accustomed to paying only once the property is sold. Shifting this mindset is challenging."* Participant 4, Propertista.

"Digital sales favor us, but the advance-payment requirement is tricky if buyers' financial capacity is limited. Many would rather stick to the traditional model." Participant 3, Housell.

Regarding fee type—fixed or percentage—all agencies interviewed, except Prontopiso, charge a flat rate. They argue this is more transparent, cost-effective, and efficient, while distinguishing fees from commissions. This shift may also be intended to differentiate themselves from the traditional brokerage model, which has a reputation for high commissions [4].

"Charging a flat fee differs from a commission, which is percentage-based. Traditional agencies' 5% commission creates a conflict of interest: agents aim to maximize the sale price to earn more, often extending sales to nine months. The Housfy model avoids this, offering efficiency through predetermined fees." Participant 6, Housfy.

Physical office

The choice of maintaining a physical storefront for customer service and real estate transactions is arguably one of the clearest distinctions between online and traditional models. While Gardès [29] highlights an ongoing debate regarding this issue, all participants share a unified perspective: they consider physical offices largely unnecessary and costly. This contrasts with Mencarelli [27], who views a physical office as adding tangible value.

"I think opening an office makes no sense nowadays. I see myself more like an online travel agency in some ways… so I fully embrace the online approach." Participant 5, Prontopiso.

"Here (referring to the current office) no clients come by because there are no home photos on the walls. If someone walks in, we let them in, but that's the extent of it—there are no traditional offices." Participant 8, Holpper.

"No, because it would disrupt the cost structure. We operate nationally; unlike Gilmar, which has agencies only in Madrid or Madrid and Cádiz with 36 offices, we would need 500 franchises or offices to match that coverage." Participant 3, Housell.

The absence of physical offices represents a significant shift in the real estate model, requiring clients—accustomed to in-person service—to adapt to online communication platforms. Some participants highlighted challenges associated with this transition:

"The online model has no open office, so it takes longer to earn client trust, since they cannot meet the agent in person." Participant 1, Deplace.

Because clients are not used to fully online interactions, or to maintain a more tangible presence, some proptechs occasionally open physical spaces.

"At the beginning, we sometimes had to sign contracts in the office, even though it wasn't designed to serve customers directly." Participant 6, Housfy.

Companies are also rethinking the office concept, creating physical spaces inspired by technological retail environments such as the Apple Store. These spaces provide experiential service while promoting the online model in a traditional, tangible way, allowing closer engagement with potential clients.

"We'll announce it soon, but I can share now that we want to reinvent the storefront, taking inspiration from the Apple Store model." Participant 6, Housfy.

"Street agencies will disappear. Having one flagship store is different from maintaining multiple small points everywhere." Participant 5, Prontopiso.

This strategy aligns with Clayton *et al.* [6], who describe offices as environments adaptable to modern times where new social connections between clients and providers are fostered. Gardès [29] also endorses reimagining the office, giving it a new function beyond its traditional purpose.

The figure of the real estate agent

For all participants, the role of the real estate agent is highly significant; what differs across models is the interpretation of their responsibilities. Their physical presence—during home visits and meetings with buyers and sellers—remains a distinguishing feature. This role is thus perceived from two main perspectives.

On one side, hybrid agencies (Prontopiso, Housell, and Holpper) consider the agent crucial in transactions as significant as property buying or selling. Several authors support this view, emphasizing that the agent assists buyers and sellers throughout the entire process [14, 34, 35, 38]. However, with technological advancements, other researchers question the necessity of the agent [4, 10, 60].

"At certain points, a physical visit is necessary. (...) We aim for quality brokerage that makes sense in the transaction while integrating a strong technological layer. The agent is really the agent of the future—we want to digitally empower them." Participant 2, Prontopiso.

"We have 100 experts on the ground with industry experience who are also digitally adept. Even if a proptech is fully online, technology doesn't always eliminate the need for physical interaction, especially for a reflective sale like that of a home." Participant 3, Housell.

Conversely, more digitally oriented agencies (Deplace, Housfy, and Propertista) view on-site agents as "completely unnecessary" for most transactions, considering them a drain of time and money:

"The in-person agent seems entirely unnecessary; they consume time and money. Opening homes repeatedly without a sale wastes resources. By removing this step, we can return significant savings to the owner and focus only on what truly adds value: acquiring clients and completing contracts efficiently." Participant 1, Deplace.

"Traditional agents sell around 6, 10, or 12 homes per year on average, roughly one house per month. Many freelancers sell just 2 per year, so these figures may be slightly distorted. Our online agents sell around 150 per year." Participant 6, Housfy.

"The agent role is essentially redundant; what owners need are the services we provide, not a salesperson trying to impress or negotiate to inflate commissions." Participant 4, Propertista.

These digital agencies argue that direct buyer-seller interaction increases transparency and reduces conflicts of interest when an agent represents both parties. Clotet and Gallardo [36] support this perspective, stating impartial brokerage is challenging.

"Our goal was to connect sellers directly with buyers to enhance transparency and avoid conflicts of interest." Participant 3, Housell.

"We avoid negotiations ourselves; the platform handles this transparently. I don't want to relay different messages between parties." Participant 2, Propertista.

Despite originally rejecting physical agents in peer-to-peer models, some online agencies now offer agent services for a supplementary fee, justified in specific circumstances:

"...Necessary for high-value properties but unnecessary for inexpensive flats where technology suffices, for example, Housfy." Participant 7, Housfy.

"Currently, visits are offered as an extra service via a network of freelance agents in Madrid and Barcelona. Few clients request it—about 5%—and it mainly applies to these cities. It doesn't fully align with our vision, but it exists." Participant 6, Housfy.

"We may implement regional agents for clients with second residences or who cannot attend visits. This is a new model we are likely to adopt." Participant 2, Propertista.

Hybrid agencies like Housell, initially peer-to-peer, now incorporate the agent as a core part of their model:

"Even if a proptech is fully online, technology doesn't eliminate the need for physical presence in critical moments of the sales process. Our proposal balances technology with in-person engagement." Participant 3, Housell.

Most proptech agencies continue to provide agent support under specific conditions [14, 37, 38]. These studies note that factors such as the type and value of the property, low sales frequency, and process complexity make brokers difficult to replace. By contrast, some markets have seen complete disintermediation: rentals via Airbnb, book sales on Amazon [14], and fully online flight and hotel bookings [38].

Business models in residential real estate brokerage

Figure 2 classifies the examined proptech companies based on the presence or absence of specific features: an online platform for handling procedures and delivering services, direct interaction between buyers and sellers, the involvement of a physically present real estate agent acting as an intermediary between private individuals, and a traditional customer service office.

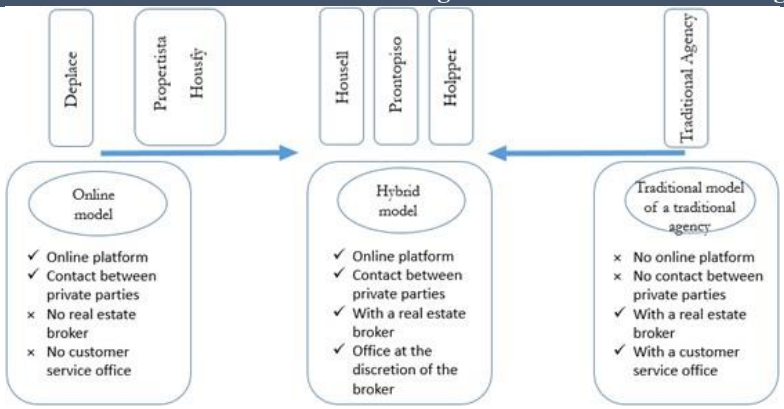

Figure 2. Real Estate Brokerage Models in Spain

Based on these criteria and insights from interviewees, a third category emerges—the hybrid model—encompassing companies such as Housell, Prontopiso, and Holpper. These firms operate primarily as digital real estate platforms without physical offices, yet they retain the traditional element of agent-assisted property viewings. Among them, only Housell additionally allows direct communication between buyers and sellers. Representatives of hybrid agencies claim their approach better meets contemporary consumer demands by combining personal interaction with the efficiency and openness enabled by digital tools:

"I truly believe the model that will succeed is a hybrid one; it has to be hybrid in every aspect (...) it will certainly rely on transactions, but I cannot envision a fully digital model becoming dominant or mainstream." [Participant 2, Prontopiso]

"Because the process is more straightforward, more transparent, and costs less, but the core issue is how technology can truly benefit the final customer—that, for me, is essential." [Participant 3, Housell]

The fully online brokerage category includes Deplace, Propertista, and Housfy. However, Housfy and Propertista no longer fit a strictly online definition under the established criteria, as they have begun offering optional paid services that include on-site agent support and personalized advisory. As a result, Deplace remains the sole company that continues to operate on a purely peer-to-peer basis.

Comments on this model include:

"We function like a major traditional agency—say, a large office in central Madrid or Barcelona—but ours is located, so to speak, at the heart of the internet, where we assist people in selling their properties." [Participant 1, Deplace]

"By adopting a highly scalable structure, we can focus on higher volume. Naturally, we have streamlined all our processes efficiently." [Participant 6, Housfy]

"One key distinction from most other proptechs is that, to achieve economies of scale and lower costs, property viewings are handled by the owners themselves—which can actually be advantageous, depending on the perspective." [Participant 4, Propertista]

Figure 3 illustrates the distinctive positioning of each proptech according to two dimensions: the degree of reliance on online platforms for brokerage activities and the extent of agent involvement in accompanying clients during property visits.

"That's why I believe the future lies in hybrid models (…) Traditional agencies will shift toward digital practices, while proptechs will retain certain value-chain elements that, as I've said, are hard to fully digitize." [Participant 2, Prontopiso]

"I foresee digital agencies moving toward a more traditional approach—toward our digitally enhanced model. Traditional firms will also edge closer to digital practices, and in roughly ten years, the market will look like that. Those real estate companies that fail to adapt in our direction will likely disappear." [Participant 4, Propertista]

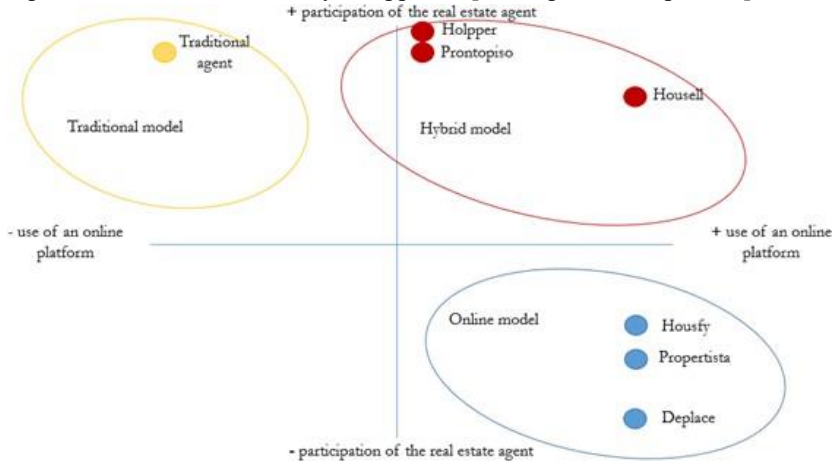

Figure 3. Classification of Brokerage Models

Conclusions

Using an exploratory research approach, this study identifies the primary online home brokerage firms in Spain and examines their main characteristics. Additionally, by referencing the traditional real estate agency model, it classifies the different brokerage types currently present in the sector. In doing so, it contributes new insights to the limited literature available, providing a foundation for future investigations.

The study's findings lead to the following conclusions:

Although the real estate sector is undergoing a broad digitalization process, a simultaneous differentiation trend is observed. In the housing market, full desintermediation has not clearly occurred, and the sector is influenced by particular circumstances.

Initially, two distinct brokerage models were identified: traditional and online. However, this research demonstrates the emergence of a third, hybrid model. This model arises from online agencies adopting elements traditionally associated with conventional agencies, such as having real estate agents assist clients during certain property visits. Moreover, some online firms have begun integrating physical offices, providing clients with a more personal experience. The inclusion of features previously avoided by certain online proptechs, like agents and office spaces, reflects the persistence of entrenched practices in the sector.

This suggests a certain reversal in digital adoption within home brokerage, returning partially to conventional procedures, distinguishing it from other transparent consumer markets where buyers can instantly access product information and complete transactions in real time.

The rise of online brokerage companies is accompanied by highly skilled entrepreneurs who bring expertise, training, and professional experience, creating a new entry barrier in a sector historically lacking such qualifications.

These new digital agencies have also transformed fee structures, introducing alternatives such as advance payment, contrasting with the traditional model of fees charged only upon a completed sale. The term "fees" has gained traction as a fixed amount rather than a percentage-based commission, reflecting not only a financial difference but also signaling a more professional and structured company image.

Due to their online nature, proptechs gather extensive data, which differentiates them from traditional agencies. Properly leveraged, these data provide a substantial competitive advantage, potentially enhanced further by technologies such as big data, AI, and blockchain.

Online agencies have the potential to improve market transparency, build user confidence, streamline operations, achieve economies of scale, lower transaction costs, and increase profitability. However, survival depends on adapting services to a market that still values face-to-face interaction, due to the nature of the property being exchanged. Conversely, traditional agencies that resist digital transformation risk losing relevance.

Finally, the current vertical classifications for proptechs—peer-to-peer for most studied agencies, and investment for Prontopiso [17, 49]—do not fully correspond with their actual activities. It is recommended to revise vertical categorizations and establish a new "brokerage platforms" vertical, aligning more closely with real estate brokerage practices, consistent with the platform real estate concept described by Shaw [3].

Limitations and Future Research Directions

The study faced limitations due to the small number of online agencies, restricting the sample size. Additionally, the COVID-19 pandemic prevented most interviews from being conducted in person, which could have enriched the findings with more nuanced insights.

This research opens several avenues for future work. It is suggested to further investigate the convergence of different brokerage models, the technology tools enabling data collection, analysis, and application, and whether these innovations improve operational efficiency. Moreover, exploring client experiences and satisfaction with online agencies could help identify challenges and needs, ultimately contributing to the development of more effective and user-centric platform models.

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