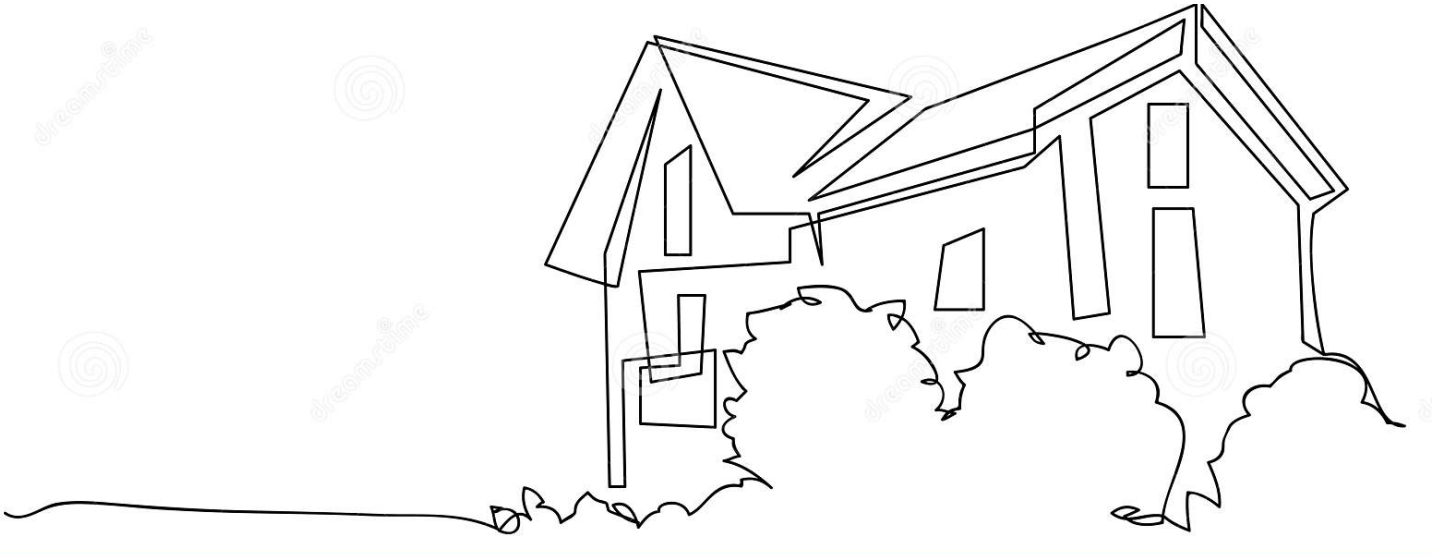
homesy®

Functional specification for NFT-powered Social Real Estate

May 2023



Craig Bromberg
Founder & CEO
craig@homesy.us
646-408-0201

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1.0 Executive Summary

Real estate plays a vital role in our society, serving as a means of wealth transfer, investment, and shelter. However, real estate has also long been rife with challenges hindering accessibility, transparency, and inclusivity. This functional specification introduces Homesy, an innovative network for residential real estate harnessing the power of non-fungible tokens (NFTs) to empower consumers and reshape the way we buy, sell, and interact with properties.

For most consumers, buying a home is the biggest investment they will ever make and the most proven means of transferring wealth between generations. Rising prices, limited inventory, rapidly increasing mortgage rates, and costs of brokerage commissions affect everyone, but for younger people and Black and Brown Americans, rent burden (spending over 30% of income on housing), has become a significant obstacle to saving for a home downpayment. Home ownership has become the dividing line between Haves and Have-Nots.

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Homesy was founded with a bold vision: to create a more inclusive and efficient marketplace that empowers consumers directly without intermediaries. By challenging prevailing business models that restrict access to valuable home data with opportunities to create, manage, and own the unique data that represent one's home, Homesy provides a more expansive and transparent platform for consumer real estate discovery.

Historically, the real estate industry has relied on legacy systems such as Multiple Listing Services (MLSs) to facilitate transactions. However,

these systems have become increasingly outdated and fail to meet the evolving needs of buyers and sellers. The National Association of Realtors, acting as the operational rules-keeper for MLS organizations, enforces a system that limits the ownership, use, and diversity of home data. Established over a century ago, this monopoly no longer serves the best interests of consumers and faces significant antitrust challenges including at least one case that will see a US Supreme Court ruling this year (see Appendix below).

For Homesy, the key to transforming the real estate market does not lie in reinforcing the singular role of agents in a real estate deal, but unlocking and unleashing the value of home data to consumers through the power of social networks, blockchain technology, and composable digital assets.

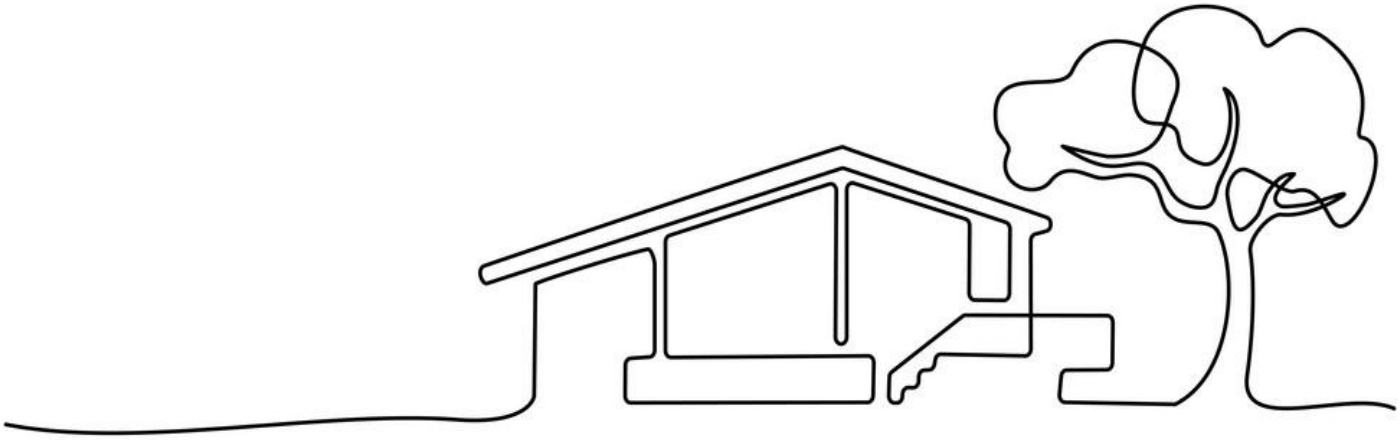
- **Social networks** enable multiplicity in communications such that a company's product or service becomes more valuable as users increase.

- **Blockchains** enable the creation of secure, decentralized, and scalable digital primitives to represent homes and their unique attributes in a meaningful and provable format.

- **NFTs** allow us to introduce a novel approach toward representing and valuing homes in the digital realm and rewarding users for their contributions. Rather than tokenizing houses themselves, Homesy's users capture the intricate details and stories associated with each property, room by room, as non-fungible digital assets, recognizing that every home is unique, shaped by its occupants and their experiences. Distinct NFTs, each with different rights, serve as fitting economic forms for these non-fungible assets, encapsulating the essence of each property and enabling secure ownership and control.

By leveraging the power of these technologies, Homesy empowers and incents users to create detailed profiles of their homes, including quantitative and qualitative data about various rooms and amenities.

These user-generated data, combined with publicly available information and social interactions on the platform, contribute to the creation of a robust dataset that drives smarter pricing, more personalized targeting of homes for sale, and more informed decision-making for buyers, sellers, and others in the real estate ecosystem.



1.1 How Homesy Addresses Problems in Legacy Real Estate

Homesy addresses the limitations of traditional real estate models by empowering users to take control over their data, fostering a vibrant community with strong incentives in return for their active participation. As users collaborate, generating unique digital representations of their homes, capturing comprehensive room-by-room data that enable personalized targeting of properties, new benefits of speed, scale, and cost become increasingly evident:

- **Increased Accessibility**: By empowering buyers and sellers with comprehensive home data and facilitating direct transactions, Homesy removes barriers to entry and expands access to homeownership – especially important for marginalized communities who have historically faced limited opportunities in the housing market.

- **Enhanced Transparency:** Homesy's decentralized approach to user-generated data promotes a new level of transparency for buyers and sellers. Buyers can make more informed decisions based on accurate and detailed property information, sellers can showcase the unique features and value of their homes. Real time, direct engagement between buyers and sellers reduces information asymmetry, speeds discovery, and fosters a fairer marketplace.

- **Lower Transaction Costs:** Traditional real estate transactions often involve high commissions and fees, creating financial burdens for buyers and sellers. Homesy gives users new optionality to entirely eliminate intermediaries and streamline processes to reduce transaction costs, making homeownership more affordable and financially viable for all participants.

- **Improved Market Efficiency:** The MLS system suffers from data inconsistencies, limited standardization, and a lack of innovation. Homesy's comprehensive data collection, incentivized participation, and blockchain technology lay a new foundation for a more efficient market. Users create accurate and relevant data, leading to better pricing, faster transactions, and improved overall market dynamics.

- **Empowered User Community:** Homesy fosters a vibrant user community where participants connect, share knowledge, and collaborate. By leveraging the power of peer-produced content, Homesy harnesses the collective intelligence of its users, enabling them to make more informed decisions, better optimized pricing, and greater access across the real estate ecosystem.

1.2 How Homesy Uses Blockchain and NFT technologies

The emergence of Web 2.0 real estate businesses such as Zillow – created to disrupt the market within the limits imposed by the brokerage model – showed the immense power of platforms to recruit users and third-party complements including brokers. However, as these social platforms approach the limits of their ability to grow, as Chris Dixon of A16Z writes, their business models "require extracting data from users and competing with (former) partners," a cycle we have seen repeated multiple times as Zillow attempted to transform its business model from media revenues to property sales.

Homesy inverts these extractive Web 2.0 dynamics with blockchain technologies that create ownership and security within the construct of non-fungible tokens – a suitable economic form for a home, itself a non-fungible asset. As noted, even when houses or apartments are exactly alike, their occupants make them into unique properties. And just like houses, NFTs cannot be replicated, divided, or exchanged for objects of equal value.

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However, not all NFTs are alike. Homesy's aim is not to tokenize houses *per se*, to make "digital twins," either tokens or metaverses representing a house and tradable as digital real estate, but rather to create legibility for digital assets that accurately reflect the singular value of every home.

Following are some of the unique benefits Homesy will achieve with the integration of blockchain technology and NFTs into its social schema:

- **Decentralized Real Estate Network**: Homesy establishes a decentralized network that connects buyers, sellers, brokers, lenders, and service professionals, eliminating the need for traditional intermediaries. By leveraging blockchain technology, Homesy ensures secure and transparent transactions while empowering users to have direct control over their property data and transactions.

- **Non-Fungible Tokens (NFTs) for Property Representation**: Homesy advances the use of NFTs to represent real property. Property ownership is directly associated to data ownership which is pegged to new financial dividends and opportunities. The **HOME** NFT serves as a parent token that captures all on- and off-chain data related to a specific property, including the Automated Valuation Methodology (AVM or estimated value of a home) which is directly tied to token value. Additionally, nested **ROOM** NFTs allow users to tokenize individual rooms within a property, facilitating more granular transactions and investment opportunities.

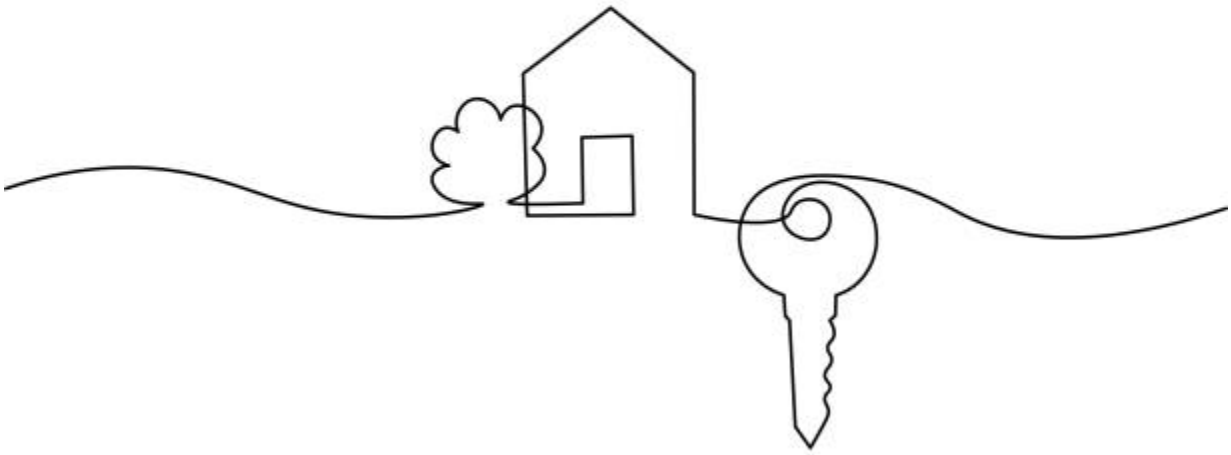
- **User-Generated Content and Data**: Homesy incentivizes users to contribute detailed property data, including quantitative and qualitative information about homes, rooms, and amenities. Every on-chain user action is incentivized through the distribution of points (**KEYS)** with different user behaviors generating KEYS of different proportions, which accumulate in a keyless, permissionless wallet. Through liking, commenting, and sharing opinions and data, users engage with other home profiles and users, building valuable connections within the Homesy ecosystem and enhancing their real estate journey.

- **Hybrid Valuation Model**: Homesy combines socially validated home data contributed by users with automated valuation methodologies (AVMs) from trusted oracles to create a hybrid valuation

model. This model leverages the wisdom of the crowd and algorithmic algorithms to provide more accurate and timely property valuations and enable users to make informed decisions and ensure fair pricing in the marketplace. As users participate more on-chain, their homes become more valuable and rise in visibility to all platform users, in effect generating new reach for profiled homes and a new source of value for consumers.

- **Transparent and Efficient Transactions:** Homesy streamlines the transaction process by providing a user-friendly interface for buying, selling, and exchanging properties. Smart contracts will facilitate secure and automated transactions, reducing the need for complex paperwork and ensuring a seamless experience for all participants.

In the following sections, we will show how the Homesy use case enables technologies embedded in Unique's NFT design.



2.0 SYSTEM ACTORS

Note: Users are not assumed to have knowledge of cryptography or blockchain; crypto exchange trading experience or accounts; understanding of gas fees.

2.1 Unverified users provide email and/or mobile phone number correlated to claimed home
2.2 Registered users provide a third piece of identification proving residency/address (current driver's license, bank statement, etc.) to receive on-chain economic benefits & minting privileges
2.3 Business users* providing services and/or advertising, register business pages separately from user pages
2.4 Admin including community mods and customer success

3.0 NFT COLLECTIONS

"A set of items united by a common purpose, as well as collection name and description, token prefix, and superior ownership." – Unique techpaper

3.1 HOME NFT: The parent token, a non-tradable NFT capturing all on-chain data and associated off-chain data, with smart contracts covering unique use cases such as re-fungibility, resale, tithing, and dividends into consumer-friendly incentives for downpayment assistance or retail promotions
3.2 ROOM NFT: A nested or encapsulated token inside the HOME NFT, minted by users for a fee, capturing all room data in HOME NFT, and tradable on OpenSea or other exchanges.
3.3 KEYS: fractional units of user behavior interpolated into HOME and NFT tokens and pegged to AVMs (Automated Validated Methodology) and other metrics. All users are rewarded with KEYS; only registered (KYCd) customers can view, access, and use KEYS in their wallet (Active Wallets).

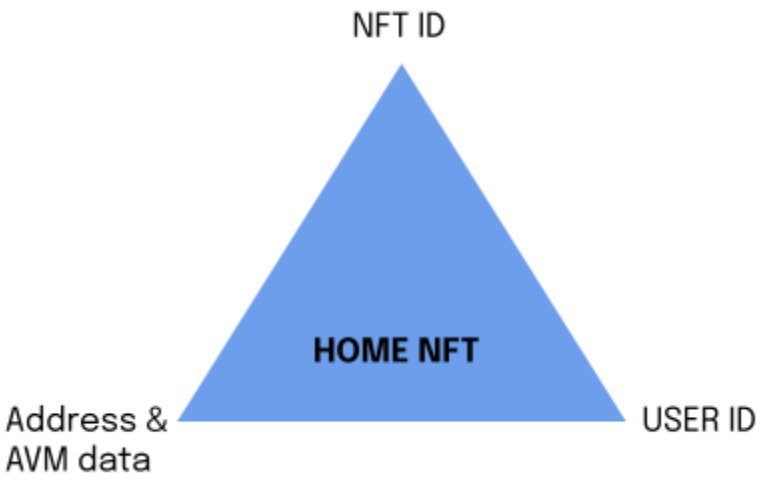
4.0 DATA

4.1 Home data: user-defined and editable data capturing quantitative and qualitative details of occupied units claimed by users including public data (from attom.com and others) including public tax assessment, lot description, room count, valuation, neighborhood data, public photos, and more
4.2 Rooms: user-defined and editable quantitative/qualitative data capturing rooms in homes, including interior (kitchen, basement, bedroom, etc.) and exterior spaces (garage, pool, garden, etc.)
4.3 User profile data: metadata associated with home address(es), valuation, privacy/anonymity
4.4 Social data: non-editable user-generated data via liking, commenting, sharing
4.5 Valuation data*: widget-based user-voting on valuations and estimates from oracles, community, and service providers
4.6 Tokenomic data: data correlating user behavior and home value in tokens

5.0 FUNCTIONALITY

5.1 Onboarding

Every registered user (see above, 2.2) who corroborates their address with a third piece of identity verification via KYC is awarded a HOME NFT worth ~0.00001 Eth (exact price/token tbd). This process should take place without complex key-based wallet operations (e.g., Metamask or Coinbase wallets) and instead use a keyless custodial wallet API such as dfns which can be seamlessly deployed during the email confirmation process. Token ownership is atomically assigned at the moment of contract deployment via KYC, so the contract is immediately owned by the address that deployed it and integrated with off-chain metadata such as address and home AVM (Automated Valuation Methodology), both of which are now captured in the HOME token.



The HOME NFT

5.2 Contributions & KEYS

All user contributions – post and profile creation including quantifiable home data, visual content (photos, videos, drone shots, etc), likes and shares, public valuation and estimate creation – are rewarded with on-chain KEYS of varied value depending on content type and user profile data including tenure, frequency of posting, number of connections to participating/non-participating users, amount of on-chain data made public, etc. All users' gross KEYS number will be publicly displayed in their profile signaling on-chain status. Only registered users will see points related to AVMs in-wallet and receive dividends for their contributions as Active Wallets and/or KEYS.

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5.3 HOME TOKEN ECONOMICS

The Homesy Token Demand Equation quantifies the demand for Homesy Tokens based on various user contributions to the platform's ecosystem. These contributions play a crucial role in the token economy's dynamics, which incentivize active user engagement and data sharing.

Our objective is to capture the intricate interplay between user contributions and the token economy, aligning incentives for active engagement, data sharing, and fostering a robust and trusted community of real estate enthusiasts on the Homesy platform.

User contributions: HOME NFT token economics include the basic accounting of KEYS user contributions (see above 5.1 and 5.2) capturing all aggregated user contributions, including quantifiable home data, open-text box home stories, and visual content like photos and videos. Users who actively share valuable and insightful information are rewarded in the token economy.

Supply Ratio: The ratio of KEYS (a metric representing user engagement and participation) to the Hybrid Social AVM (an innovative blend of user-generated data and algorithmic valuation) contributes to the overall demand for Homesy Tokens. The Hybrid Social AVM is designed to provide more accurate and timely valuations of homes compared to traditional purely algorithmic Automated Valuation Models (AVMs).

Public Valuation and Estimate: Publicly available valuation and estimates add to the token's demand. This data is incorporated into the token economy to foster transparency and encourage user collaboration.

Frequency of Posting: Active user engagement, indicated by the frequency of posting, influences the demand for Homesy Tokens. Regular contributors are incentivized through the token economy.

On-chain User Tenure and Connections: The tenure of users on the platform, as well as their connections to participating and

non-participating users, affect token demand. Longer tenure and more connections could imply higher engagement and credibility, contributing to the overall demand.

Percent of public on-chain data: The proportion of user-generated data made public on the blockchain impacts token demand, and therefore not all user data will be public. (Examples: keeping a second home private; anonymizing a user name; hiding street address.) Publicly accessible data enhances the ecosystem's value and attracts more users to the platform and is thus valued more highly than private data.

Planned inflation: Starting with 10% annual inflation rate, Homesy's inflation will decrease each year until it reaches a floor of 4% per year in year 10.

$$homesy\ NFT\ demand \sum = \frac{User\ Contribution}{Total\ Home\ Supply} \times \frac{KEYS}{Hybrid\ AVM} \times \frac{Public\ valuations/estimates}{Frequency\ of\ posting} \times \frac{On-chain\ user\ tenure}{\%\ of\ \ Participating/Non-Participating\ Users} \times \iota$$

$$Where\ \iota = rate\ of\ inflation$$

5.4 HOME NFT functionality

HOME NFTS are definitionally restricted to on-chain use, and are non-transferable and non-tradable. Homesy will offer registered users specific on-chain promotional opportunities – for example, token transferability to retail outlets – automatic tithing to homeless support systems (via planned token inflation) and, upon the sale of a home or validated change in residency, automatic re-assignment of the NFT to a new owner address, simultaneously transferring public on-chain data to the next owner or proven occupant and destroying the previous owner's metadata.

5.5 ROOM NFT functionality

As noted in Collections (3.2 above) rooms are a critical ingredient of home architecture both in real life and as composable portions of a digital asset. Rooms are central to the Homesy user experience not only because they are the most basic ingredients of home architecture, but also because they are the logical starting point for investment in a home. The first thing most of us do at an Open House is to look critically at each room: Will it work for us? What will it take to bring it to our standards? This is one reason why the apples-to-apples data gathering of Homesy is so important. Few of us do teardowns, even when a house is in dire need of renovation; we think instead of renovation or remodeling costs and add those into the cost of a home.

To accommodate the different use cases for home and room data, Homesy will offer registered users secondary, nested ROOM NFTs with different rights and responsibilities than HOME NFTs. Unlike HOME NFTs which are used non-tradable, and used for the collation of home data throughout a home including rooms, ROOM NFTs only capture room data and are tradable off-platform. Registered users who want ROOM NFTs can pay a fee to Homesy to mint the NFT and in return are given access to decentralized exchanges such as OpenSea where they can generate alternative financing opportunities for remodeling and renovation.

6.0 Emergent Outcomes: Defining the value of home data

For as long as real estate has existed, home data has been the preserve of service providers who have protected their data from illegitimate and unbrokered uses by consumers. In economic terms, they have made home data “club goods” – rivalrous (one person's consumption reduces the amount available for others) and excludable (the extent to which producers can prevent some people from consuming the good or service based on their ability or willingness to pay.) As part of their agreement to allow a house to be sold, sellers give agents rights to expose whatever data they feel will lead to a sale. However, as noted throughout this document, if the purpose of a listing is to attract buyers to contact an agent after seeing a listing, the current system gives

economic *disincentives* to agents to include too much information in a listing.

Indeed, to most agents – particularly agents at the start of their careers – the meager sums created from the commission earned on the sale of one home justify the need to sell as many homes as possible as quickly as possible. Generating home data is a marketing exercise costing both time and dollars. This is the crux of Stephen Levitt and Chad Syerson's famous 2005 paper[1] based on a sample of nearly 100,000 home sales between 1992 and 2002, which found that the financial motives of agents and sellers are poorly aligned. When it comes to selling their own properties, they write, "Homes owned by realtors sell for approximately 3.7% more and stay on the market about 10% longer than homes owned by non-realtors."

Another much cited study, B. Douglas Bernheim and Jonathan Meer's "How Much Value Do Real Estate Brokers Add? A Case Study[2]" sought to determine the value of six essential benefits agents deliver (also noted in section 1.1 above):

- Promotional services
- Assistance with negotiations
- Screening prospective buyers/ matching buyers and sellers
- Access to the Multiple Listing Service (MLS)
- Market information and recommendations pertaining pricing
- Assistance with paperwork and legal documentation

The authors base their analysis on the sale of some 1,112 homes at Stanford University over a 25 year period. Their perspective is illuminating to an extrapolation of consumer value in listings:

[1] Levitt, Steven and Syverson, Chad. "Market Distortions When Agents Are Better Informed: The Value of Information in Real Estate. " NBER Working Paper No. 11053. January 2005. https://www.nber.org/papers/w11053
[2] Bernheim, B. and Meer, (2008). "How Much Value Do Real Estate Brokers Add? A Case Study" NBER Working Paper No. 13796. February 2008. https://www.nber.org/papers/w13796

How much is this bundle of services worth? Because the component services are sometimes unbundled, we can judge their value by examining market prices. Discount brokers provide access to the MLS for as little as $300. Market information and forecasts of selling prices are available through professional appraisals, which cost a few hundred dollars. In Illinois, where sellers are required to retain real estate attorneys to prepare and review sales contracts, legal fees average roughly $700.

Thus, the total market value of the fourth, fifth, and sixth benefits listed in the previous paragraph is roughly $1400 – enough to justify a 6% commission on only the first $23,000 of proceeds from the sale of a home. To justify brokers' commissions, the value of the first three benefits must be substantial.

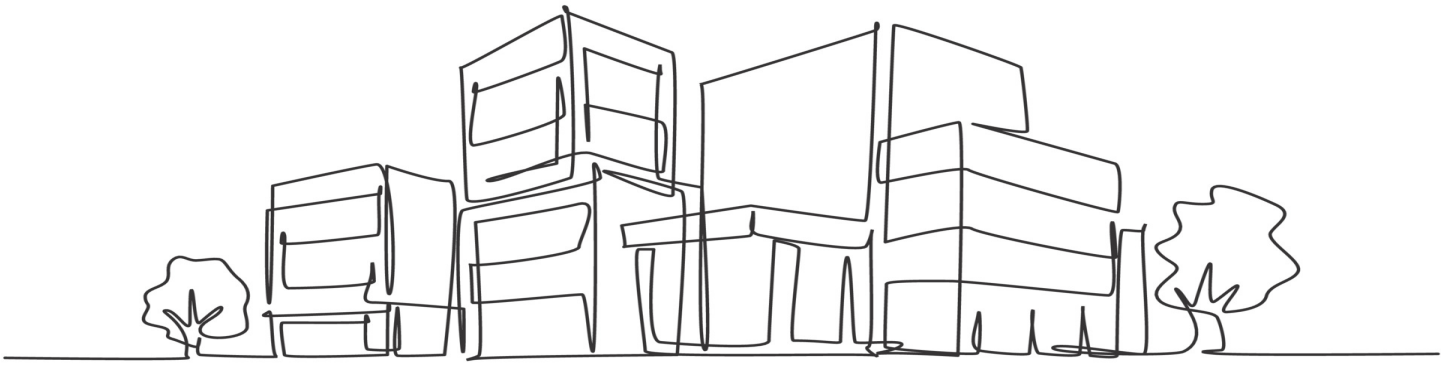
In essence, the data show that the services offered by agents do not lead to significantly better outcomes for buyers and sellers, confirming our hypothesis that listing the value of current home data to consumers is *de minimis* today.

By showing the value of consumer home data in selling a home – providing a new system of home data valuation that ties user data to home value and the network effects that give homes reach, – Homesy creates greater transparency and value for *all* consumers and new forms of social proof for agents and brokers.

Conclusion

Homesy represents a paradigm shift in the real estate industry, offering the potential to reshape the way we perceive, transact, value and engage with properties and the underlying data that provide value to homeowners. With its user-centric approach, decentralized data ownership, and incentivized participation, Homesy has the power to democratize the real estate market, foster financial inclusivity, and

empower people to make better decisions about their most significant investments.



APPENDIX

Pending lawsuits against NAR/MLS, 05/23

Short name	disposition	Govt filing	target	Rule
Moehrl v NAR	Appellate – Headed to trial	https://www.justice.gov/atr/case/christopher-moehrl-michael-cole-steve-darnell-valerie-nager-jack-ramey-sawbill-strategic	Participation Rule (Buyer Broker commission rule)	https://www.nar.realtor/handbook-on-multiple-listing-policy/commission/cooperative-compensation-offers-section-1-information-specifying-the-compensation-on-each
REX (Real Estate Exchange) v NAR & Zillow	Appellate	https://www.justice.gov/atr/case/real-estate-exchange-inc-v-zillow-inc-et-al	Co-mingling policy	https://www.nar.realtor/handbook-on-multiple-listing-policy/c-model-rules-and-regulations-for-an-mls-operated-as-a-committee-of-an-association-of-realtors
PLS.com v NAR	Appellate – Headed to trial	https://www.justice.gov/atr/case/plscom-llc-v-national-association-realtors-et-al	Clear Cooperation Policy	https://www.nar.realtor/handbook-on-multiple-listing-policy/c-model-rules-and-regulations-for-an-mls-operated-as-a-committee-of-an-association-of-realtors